

The Racial Wage Gap: The Importance of Labor Force Attachment Differences  
Across Black, Mexican, and White Men

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Abstract

Labor market attachment differs significantly across young black, Mexican, and white men. While it has long been agreed that potential experience is a poor proxy for actual experience for women, many view it as an acceptable approximation for men. Using the NLSY, this paper documents the substantial difference between potential and actual experience for both black and Mexican men. We show that the fraction of the black/white and Mexican/ white wage gaps that are explained by differences in potential experience are quite different from the fraction of the racial wage gaps that are explained by actual (real) experience differences.

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## I. Introduction

It has long been established that black and Mexican men earn substantially lower wages on average than their white counterparts (see for example, Black, Haviland, Sanders, and Taylor 2001; Trejo 1997, 1998; Bratsberg and Terrell 1998; Grogger 1996; Neal and Johnson 1996; Card and Krueger 1992; Juhn, Murphy, and Pierce 1991; Smith and Welch 1986, 1989; Cotton 1985; Reimers 1983; McManus, Gould, and Welch 1983). There are of course many possible reasons for different average wages across race groups. For example, white men may be more educated than black and Mexican men, or geographic locations, age structures, immigration rates, and occupational concentrations may differ across the three groups. In this paper we explore an alternative factor contributing to racial wage gaps – differences in labor force attachment. All else being equal, black and Mexican men will earn lower wages if they move in and out of the labor force more than white men, as they will accumulate less experience and human capital and/or suffer more human capital depreciation.

While previous papers that decompose the male racial wage gap discuss the possible role of labor force attachment and experience, data limitations have generally prohibited the accurate measurement of actual experience. A proper accounting of lifetime experience requires a panel that follows individuals from the point of labor market entry. Since most studies use cross sectional data, they are forced to use potential experience, which may be a good approximation of true experience for men with high labor force attachment but is a poor proxy for less attached individuals. We contribute to the literature by examining the role of actual experience in explaining the difference between black, Mexican, and white wages for young men.

Using National Longitudinal Survey of Youth (NLSY) data from 1982-1998 we find that labor force attachment differs substantially across young black, Mexican, and white men. For

example, the average 30-year old black high school graduate has accumulated 9.6 years of actual labor force experience compared to 11.4 years for the average 30-year old white high school graduate. The average 30-year old Mexican high school graduate has accumulated 10.5 years of actual experience, making him more similar to his white counterpart than his black counterpart.

To the extent that potential experience is a poor proxy of actual experience, previous studies may have miscalculated the fraction of the minority/white wage gap attributable to experience versus other observable components such as education. This is a concern for two related reasons. First, potential experience is systematically less accurate for less attached individuals. Since minority groups tend to suffer more unemployment and out of the labor force spells, potential experience may systematically overstate 'experience' for minority workers. Secondly, using potential experience previous studies have found that mean differences in relative youth are an important component of the Mexican/white wage gap but play no role in explaining the black/white wage gap (Trejo 1997). At the same time, Trejo (1997) finds that education is the primary explanation for differences in average black, Mexican, and white wages. The question is, do these results hold when actual experience is used instead of potential experience? Although we cannot answer this question for the entire male population, this paper seeks to answer it for young men using the NLSY.

While the experience coefficients from wage regressions based on potential and actual experience are similar, differences in average actual experience across race groups lead to markedly different estimates of the fraction of the black/white and Mexican/white wage gaps that are explained by experience. Using potential experience, experience explains none of either the black/white or Mexican/white wage gap, while education explains 28 (63) percent of the black/white (Mexican/white) wage gap. In contrast, using actual experience, experience and time spent

out of the labor force account for 22-31 (6-11) percent of the black/white (Mexican/white) gap depending on whether actual experience includes or excludes work experience accumulated while the individual was in school. Once actual experience and time spent out of the labor force are controlled for, the fraction of the wage gap explained by education falls from 28 to 19-22 percent of the black/white gap and from 63 to 44-50 percent of the Mexican/white gap, again depending on the inclusion or exclusion of labor force attachment during schooling. Overall, educational differences continue to explain more of the Mexican/white gap than labor force attachment differences, but labor force attachment differences explain one and a half times more of the black/white gap than educational differences.

The remainder of the paper is as follows. Section two describes the data. Section three discusses the differences in potential and actual experience across race groups. Section four presents the fixed effects regression and decomposition results. Section five concludes.

## **II. Data**

We use the NLSY, which includes longitudinal data from 1979-98 for a sample of men and women aged 14-22 in 1979. Two features of the NLSY are important for our purposes. First, it contains information that allows us to construct actual (rather than potential) work experience as well as time spent out of the labor force. This may be particularly important when studying minority labor market outcomes, especially for black men. Secondly, the NLSY allows us to identify non-immigrants and separate individuals into racial/ethnic origin groups.

As the earliest retrospective experience report in the NLSY is for 1976 (referring to the previous year), we define actual experience as years of employment from the age of 16 forward.<sup>1</sup> This allows us to obtain a complete work history for men who are 20 years of age or less in 1979,

but forces us to exclude men over the age of 20 in 1979 from the sample. We further restrict sample entry until after the age of 22 to ensure that very young high school dropouts do not dominate the sample. Given these sample restrictions, the earliest that a man who is 20 years old in 1979 can enter the panel is 1982, rendering a panel that spans 1982-1998.

The panel is further restricted to non-immigrant black, Mexican, and white men who work for pay, are not self-employed,<sup>2</sup> report an hourly wage between \$1 and \$100 per hour, and for whom we have at least two person-year observations. Hourly wages are calculated as annual wages and salaries divided by annual hours of work and are inflated to 1998 dollars. Finally, a respondent is included in the panel one year after they have completely finished their education. For example, a 22 year old with 12 years of education in 1982 and 1983, who then reported 13 years of education in 1984, and from 1985 onward had 14 years of education would enter the panel in 1986. These sample restrictions translate into 8070 (1037), 2363 (275), and 14,106 (1909) person-year (person) observations for blacks, Mexicans, and whites, respectively.<sup>3</sup>

We use the following three measures of experience. The first measure, potential experience is simply age minus years of education minus six. The second measure, actual experience is measured as weeks worked since the last NLSY interview and is converted into annual experience by dividing total weekly experience by 52. One concern with actual experience (henceforth referred to as unrestricted actual experience) is that it may overstate experience accumulation for more educated men. Since unrestricted actual experience measures weeks of experience from age 16 onward it incorporates part-time experience accumulated during school years. As a result, it may progressively overstate experience the longer an individual remains in school. To check that this is not driving the results we also use a third measure of actual experience that excludes experience that is accumulated while in school. We

refer to this measure as restricted actual experience, since it is defined as the subset of experience accumulated after the start of an individual's career.

These two actual experience measures were selected because they are the extreme concepts of experience accumulation. Under the unrestricted definition all labor market attachment is considered experience. Intuitively, all employment has associated human capital accumulation. At the other end of the spectrum, the restricted measure assumes that employment during high school and/or college is irrelevant and that only experience gained once your chosen career has begun has value. By reporting all results under both specifications, we are in some sense bounding the effects.

Unrestricted time spent out of the labor force is similarly calculated as weeks since the last NLSY interview minus the number of weeks worked since the last NLSY interview. As with restricted actual experience, restricted time spent out of the labor market is identical to unrestricted time spent out of the labor force except that it is set to zero until the individual enters the labor market permanently, that is, completely finishes school.

Individuals are assigned to racial/ethnic origin groups by reports of first, or only, racial/ethnic origin. An individual is considered Mexican if he claims to be Mexican or Mexican American. Similarly, an individual is considered black if he claims to be black. A respondent is considered white if he claims to be English, French, German, Greek, Irish, Italian, Polish, Portuguese, Russian, Scottish, Welsh, or American, and is not black or Mexican.

Place of birth is used to define immigrant status. An individual is considered a non-immigrant if they are American born. Restricting our analysis to non-immigrants reduces the potential influence of English proficiency, for which we have no measure. To control for other

factors that may affect wages we also include several other demographic and geographic controls. These include marital status, number of children, residence in a SMSA, and region of residence.

Table 1 presents descriptive statistics. While white men earn higher wages than both black and Mexican men, the gap is substantially larger between white and black men. The black/white wage gap is 32 percent and the Mexican/white wage gap is 16 percent. Further, white men also have more years of schooling than black and Mexican men. The average white man has 12.9 years of education, while the average black (Mexican) man has 12.3 (12.0) years of education. Finally, black men are substantially less likely to be married than white and Mexican men, and the average Mexican man has more kids than the average black or white man.

Looking at labor market attachment, potential experience and unrestricted actual experience are nearly identical for white men. In contrast, the average black (Mexican) man has accumulated 10.5 (10.9) years of potential experience but only 8.6 (9.6) years of unrestricted actual experience. Not surprisingly, measured actual experience accumulations are lower using restricted actual experience. Average actual experience falls by about one year for black and Mexican men and 1.6 years for white men. The bigger average drop across experience measures for white men occurs because more white men go to college. Estimates of time spent out of the labor force similarly differ across unrestricted and restricted definitions. While average time spent out of the labor force is highest for blacks and lowest for whites under both definitions, the drop between unrestricted and restricted definitions is slightly higher for blacks.

### **III. Differences in Labor Force Attachment Across Race Groups**

There is substantial evidence that unemployment and out of the labor force spells constitute a significant fraction of time for many minority men. For example, D'Amico and

Maxwell (1994) find that black youth work substantially less than white youth during the transition period from school to the labor market. Moore (1992) finds that black workers who are displaced from a job take significantly longer to find new employment than do white workers. For example, 45.7 percent of displaced black male workers took more than a year to find a new job compared to only 24.7 percent of white men in 1986. DeFreitas (1986) similarly finds that minority unemployment rates are higher than white unemployment rates and that the disparity is magnified during recessions. In particular, the Hispanic male unemployment rate exceeds that of white men in booms (recessions) by 2.8 (4.5) percentage points while the black unemployment rate is 8.4 (10.9) percentage points higher in booms (recessions) compared to white men. In addition, Baldwin and Johnson (1996) find that wage discrimination against black men reduced black male employment by approximately 7 percentage points in 1984. Western and Pettit (2000) further point out that the black unemployment rate is understated because incarcerated individuals are excluded. They find that correcting for incarceration rates reduces the employment-population ratio for men aged 20-35 from 83.4 to 81.6 percent for white men and from 66.6 to 58.5 percent for black men in 1996.

The racial differences in labor force attachment are most easily seen graphically. Figure 1 plots the mean time spent out of the labor force for black, Mexican, and white men by age. Panel A depicts unrestricted time spent out of the labor force and Panel B depicts restricted time spent out of the labor force. Under both specifications, black men have accumulated more time out of the labor force at every age, with the divergence between white and black men growing with age. As we have seen with many variables, Mexican men fall between black and white men. For example, by age 30, the average black man has accumulated 4.9 (3.0) years of unrestricted (restricted) time out of the labor force compared to 3.9 (2.4) years for Mexican men and 3.4 (1.6)

years for white men. The importance of properly accounting for differences in labor force attachment when estimating the role of labor market behavior in accounting for racial wage gaps is the focus of the remainder of the paper.

#### **IV. Two-Stage Fixed Effects Analysis of the Racial Wage Gap**

With the exception of Oettinger (1996), all existing studies of the racial wage gap among men use cross-sectional analysis. Examples include, Black, Haviland, Sanders, and Taylor (2001); Heckman, Lyons, and Todd (2000); Trejo (1997, 1998); Rodgers (1997); Neal and Johnson (1996); Cotton (1985); McManus, Gould, and Welch (1983); Reimers (1983).<sup>4</sup> In such a framework it is possible that the estimates of the components of the racial wage gap are biased due to heterogeneity. In particular, time-invariant unobservable person-specific factors (such as ability, motivation, and effort) may be correlated with at least one regressor (such as labor market attachment).

As is common in the literature, we address the heterogeneity bias using panel data and an individual fixed effects (FE) model. This allows us to purge the estimates of time-invariant unobservable person-specific factors by following a given individual over time.<sup>5</sup> However, individual FE estimates may still exhibit endogeneity or omitted variable bias if time-varying unobservables are correlated with labor market intermittency. While this possibility exists, it is more likely that pre-job market characteristics, which are difficult/unlikely to change thereafter, are the important biases when estimating racial wage gaps.

More specifically, we specify a log hourly wage regression of the following form:

$$(1) w_{it}^r = X_{it}^r \beta^r + Z_i^r \gamma^r + \alpha_i^r + \varepsilon_{it}^r$$

where  $w$  is the log hourly wage,  $r$  denotes race ( $r = b, m, \text{ or } w$ ),  $i$  denotes individuals,  $t$  denotes time,  $X$  denotes time-varying characteristics (experience, marital status, number of children, region of residence, and SMSA),  $Z$  denotes time-invariant characteristics (education),  $\alpha$  are unobservable individual fixed effects, and  $\varepsilon$  represents the usual residual, that is, it is mean zero, uncorrelated with itself,  $X$ ,  $Z$ , and  $\alpha$ , and homoskedastic.

As previously stated, we estimate equation (1) using a FE model. The FE model transforms equation (1) into its mean deviation form, that is, we subtract each individual's mean variable values from each observation. Although this transformation eliminates the unobserved individual fixed effects, it also eliminates all time-invariant factors (such as education). To address this issue we use the two-stage FE model proposed by Polachek and Kim (1994) and Kim and Polachek (1994). This approach has the advantage of separating individual-specific characteristics that are constant over time from other factors that affect earnings.

We obtain consistent estimates of  $\beta$  using OLS from the following first stage regression,

$$(2) (w_{it}^r - \tilde{w}_i^r) = (X_{it}^r - \tilde{X}_i^r)\beta^r + (\varepsilon_{it}^r - \tilde{\varepsilon}_i^r)$$

where tildas denote averages over  $t$ . The race-specific average fixed effects (including

education) are given by  $\bar{\phi}^r = (1/n^r) \sum_{i=1}^{n^r} \hat{\phi}_i^r = \bar{w}^r - \bar{X}^r \hat{\beta}^r$ , where bars denote averages over  $i$  and  $t$ .

To identify  $\gamma$  we substitute  $\hat{\beta}^r$  from the first stage into the individual-specific averaged version of equation (1). In other words, equation (1) averaged for each individual over time to obtain

$$(3) \tilde{w}_i^r - \tilde{X}_i^r \hat{\beta}^r = Z_i^r \gamma^r + \tilde{X}_i^r (\beta^r - \hat{\beta}^r) + \alpha_i^r + \tilde{\varepsilon}_i^r = Z_i^r \gamma^r + \nu_i^r$$

where  $\nu_i^r = \tilde{X}_i^r (\beta^r - \hat{\beta}^r) + \alpha_i^r + \tilde{\varepsilon}_i^r$ . Making the usual assumption that  $\nu$  is uncorrelated with

$Z$ , equation (3) can be estimated by OLS.<sup>6</sup>

Two-stage estimation makes decomposing the wage-gap between races somewhat more complicated. The race specific mean wage is  $\bar{w}^r = \bar{\phi}^r + \bar{X}^r \hat{\beta}^r$ . Removing education from the race-specific average fixed-effects,  $\hat{\alpha}^r = \bar{\phi}^r - \bar{Z}^r \hat{\gamma}^r$ , allows us to write average wages as  $\bar{w}^r = \hat{\alpha}^r + \bar{X}^r \hat{\beta}^r + \bar{Z}^r \hat{\gamma}^r$ , where bars denote averages over  $i$  and  $t$  for time-varying variables and over  $i$  for time-invariant variables. The Oaxaca (1973) decomposition for the white/minority (w/m) earnings gap is then given by:

$$(4) \bar{w}^w - \bar{w}^m = (\bar{X}^w - \bar{X}^m) \hat{\beta}^w + \bar{X}^m (\hat{\beta}^w - \hat{\beta}^m) + (\bar{Z}^w - \bar{Z}^m) \hat{\gamma}^w + \bar{Z}^m (\hat{\gamma}^w - \hat{\gamma}^m) + (\hat{\alpha}^w - \hat{\alpha}^m).$$

Panel A of Table 2 reports the coefficient estimates for equations (2) and (3) and Panel B reports the decomposition results for equation (4). The first three columns report the coefficients for selected variables when potential experience is included. In this case, the coefficient estimates for potential experience (potential experience squared) are 0.060 (-0.002), 0.049 (-0.001), and 0.082 (-0.002) and the estimated return to a year of education is 11.5, 9.7, and 11.2 percent for black, Mexican, and white men, respectively.

The next three columns of Panel A report the results when potential experience is replaced by unrestricted actual experience. While white men continue to exhibit a higher return to experience, the magnitude of the premium is reduced. In particular, the coefficient estimates for unrestricted actual experience (unrestricted actual experience squared) for white men are 0.067 (-0.002) while for black and Mexican men they are 0.056 (-0.002) and 0.052 (-0.001). More interestingly, the return to education falls to 8.6, 7.2, and 7.6 percent when potential experience is replaced by unrestricted actual experience for black, Mexican, and white men.

The last three columns of Panel A replace unrestricted actual experience with restricted actual experience. The estimated return to experience is somewhat higher under this experience

accruing rule since time spent working is restricted to post-schooling employment which is more likely to be rewarded in the labor market. At the same time, the estimated return to education is also somewhat higher reflecting the stringent separation of time spent accruing education and work experience under this specification.

The decomposition results for all three specifications are reported in Panel B of Table 2.<sup>7</sup> The first row reports the total log wage differential. The second block reports the proportion of the wage differential attributable to differences in average socioeconomic characteristics. The last line reports the proportion of the wage differential attributable to differences in the returns to socioeconomic characteristics.

Using potential experience, differences in educational attainment explain 28 percent of the black/white gap and 63 percent of the Mexican/white gap, but differences in potential experience explain none of either wage gap. When unrestricted actual experience is used, experience (education) differences explain 16 (19) percent of the black/white wage gap and 3 (42) percent of the Mexican/white gap and when restricted actual experience is used experience (education) differences explain 7 (25) percent of the black/white wage gap and 0 (56) percent of the Mexican/white gap. However, the proportion of the Mexican/white wage gap explained by actual experience (unrestricted and restricted) is statistically insignificant. In the absence of an actual experience measure (regardless of the accruing rule) education absorbs some of the variation in actual experience, which is positively correlated with educational attainment. In fact, the fraction of the gap absorbed by education in the absence of an actual experience measure should fall somewhere within the reported range as we use the two extremes of experience accruing (all experience counts equally and only post-school labor market attachment counts).

Thus far we have focused on the fraction of the wage gap that is explained by differences in experience accumulation across race groups. However, by definition, the amount of non-working time also differs across race groups if time spent working differs. Table 3 therefore expands the list of regressors to include a quadratic in both actual experience and time spent out of the labor force. Adding time spent out of the labor market allows for the possibility that human capital appreciates and depreciates at different rates. Actual experience and its square (regardless of the accruing rule) are jointly significant for all race groups and time spent out of the labor force and its square (regardless of the accruing rule) are jointly significant for white men. In general, the penalty for time spent out of the labor force for whites is statistically significantly higher than for blacks and Mexicans. The one exception is that the difference in the penalty between blacks and whites under the unrestricted actual experience definition is statistically insignificant. The higher white penalty for time spent out of the labor force may reflect the fact that the average white man is more likely to work in a high skilled field where career advancement and/or skill depreciation is relatively fast. As a result, the average white man returning to work after an absence from the labor market may suffer greater skill loss and/or missed promotion opportunities compared to average black or Mexican man.

The estimated coefficients on education are also affected by the inclusion of time spent out of the labor market, at least when the restricted experience and time spent out of the labor force measures are used. In this case, the return to education declines from 10.0 percent per year for blacks and whites to 9.6 and 8.9 percent per year, respectively, and remains essentially unchanged for Mexicans. Relative to the base case using potential experience, the returns to education fall from 11.5, 9.7, and 11.2 percent to 8.5 (9.6), 7.2 (9.4), and 7.8 (8.9) percent using unrestricted (restricted) experience and time spent out of the labor force measures for blacks,

Mexicans, and whites. The general fall in the return to education as one moves from potential experience to actual experience and time spent out of the labor force is not surprising given the positive correlation between wages and education and the negative correlation between education and unrestricted actual minus potential experience. In other words, the coefficient on education is likely upwardly biased when only potential experience is included. The overall correlation between education and actual minus potential experience (wages) is  $-0.609$  ( $0.424$ ) with a p-value of  $0.000$  ( $0.000$ ). Similar correlations are found across race groups.

Adding time spent out of the labor market increases the percentage of the wage gap explained by labor market attachment (actual experience plus time spent out of the labor market) differences to 31 (22) percent of the black/white wage gap and 11 (6) percent of the Mexican/white gap using unrestricted (restricted) actual labor market attachment.<sup>8</sup> Under all specifications, the proportion of the wage gap explained by labor market attachment is statistically significant at better than the 10 percent level. Overall, the addition of time spent out of the labor force increases the proportion of the gap explained by observable characteristics from 38 (35) to 54 (47) percent for the black/white gap and from 30 (34) to 40 (43) percent for the Mexican/white gap using unrestricted (restricted) labor market attachment. It is also worth noting that the fraction of the wage gap attributable to differences in educational attainment is largely unchanged using unrestricted labor market attachment, but is 3 percent lower for blacks and 6 percent lower for Mexicans using restricted labor market attachment.

While the fixed effects absorb the time-invariant differences in ability, one might like to quantify the fraction of the wage gap that is explained by it. The Armed Forces Qualifying Test (AFQT) score is one of the most widely used measures of ability. This exam tests students on word knowledge, paragraph comprehension, arithmetic, and numeric operations. We de-mean by

age because the respondents ranged in age from 15-23 when they all took the test in 1980. The de-meaned AFQT score is calculated as the respondent's AFQT score minus the average AFQT score of individuals in the respondent's age group in the base year.

Table 4 replicates Table 3 adding the AFQT score. Before looking at the fraction of the black/white and Mexican/white wage gaps now explained by observable characteristics, it is important that we make a couple of comments about the coefficient estimates. First, the only reason that the coefficients on time-varying variables differ between Tables 3 and 4 is that the sample size is somewhat smaller in Table 4 due to AFTQ non-response. Secondly, as one would expect the estimated return to education is now smaller for all race groups.

More importantly for our purposes, adding the AFQT scores to the list of time-invariant regressors ( $Z$ ) in the two-stage fixed effects model increases the overall fraction of the wage gap explained by differences in observable characteristics and reduces the fraction explained by educational differences, and has no impact on the fraction of the gap explained by labor market attachment other than through the data imposed sample differences. Overall, the fraction of the black/white wage gap explained by observables rises to 86 (81) percent using the unrestricted (restricted) labor market attachment measures and similarly to 76 (82) percent for the Mexican/white wage gap. The substantial rise in the fraction of the wage gap that is explained by observables is of course entirely due to racial differences in average AFQT scores. Differences in AFQT scores explain 36 (38) and 47 (49) percent of the black/white and Mexican/white wage gaps using unrestricted (restricted) labor market attachment. At the same time, the fraction of the wage gap explained by educational differences falls from 19 to 14 (44 to 32) percent for the black/white (Mexican/white) wage gap using unrestricted labor market attachment and from 22 to 16 (50 to 37) percent using restricted labor market attachment.

## V. Conclusion

This paper contributes to the racial wage gap literature by obtaining more accurate estimates of the components of minority/white wage gaps for young men. In particular, we estimate the fraction of the black/white and Mexican/white wage gaps for young men that are explained by differences in labor force attachment and education. While the point estimates and decomposition results differ somewhat across specifications, the overall picture is consistent and clear. First, labor force participation and education jointly account for 44-50 percent of the black/white wage gap and 55-56 percent of the Mexican/white wage gap. Secondly, regardless of specification, labor force participation and education explain more of the Mexican/white gap than the black/white gap. Thirdly, education always explains more of the Mexican/white wage gap than the black/white wage gap and labor force participation always explains more of the black/white wage gap than the Mexican/white wage gap.

In addition, we document the reduced role of education in explaining the wage gap once actual labor market attachment differences are included. Moving from potential experience to a specification that includes both actual experience and time spent out of the labor force reduces the fraction of the wage gap explained by educational differences by 6-9 percentage points for the black/white gap and 13-19 percentage points for the Mexican/white gap depending on whether actual experience includes (excludes) work experience accumulated while in school.

Overall, these results suggest that wage assimilation for young black men requires greater labor force attachment and casts doubt on the notion that educational improvements alone, at least in terms of school quantity,<sup>9</sup> will level the playing field. At the same time, our results also suggest that higher levels of education for U.S. born Mexican men will reduce their wage gap, but by less than is suggested by models based on potential experience.

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**Endnotes**

- 1 . The results are not sensitive to the age at which experience accumulation begins. For example, similar results are obtained if experience is allowed to accumulate from ages 15 or 18.
2. Self-employment status and working for pay are defined by current or most recent job.
3. 2340 men are excluded from the sample because they were over the age of 20 in 1979, an immigrant, or not black, Mexican or white. We further sequentially exclude 549 men due to attrition, then 199 men due to incomplete employment information, and finally 94 men because they are always self-employed.
4. There are also related papers on wage growth across race groups by Bratsberg and Terrell (1998) and Wolpin (1992). However, these papers focus on the differential return to job tenure and experience across black and white men. There are also papers by Antecol and Bedard (2002) examining minority/majority wage gaps for women and Light and Ureta (1995) looking at female/male wage gaps in panel settings.
5. The model can also be estimated using a between effects (BE) or a random effects (RE) model. However, the FE model dominates these models for the following reasons. BE does not account for time-invariant individual effects and thus may lead to biased estimates of the components of the racial wage gap. While RE does incorporate time-invariant individual effects, the coefficient estimates are only consistent if the individual effects are independent of the error and if the time varying observable characteristics are independent of the individual effects and the error term for all individuals and time periods. Using a Hausman (1978) test we reject the null hypothesis of no correlation between individual effects and time varying observable characteristics for all race groups. The FE estimates are therefore consistent while RE estimates are not.

6. If  $\nu$  is correlated with  $Z$ , then instrumental variables should be used. This is unlikely since time invariant unobservable person-specific factors, such as unmeasured ability, motivation, and so on, are correlated with labor market attachment rather than race (see Polachek and Kim 1994).
7. The fraction of the total wage gap explained by experience and education are similar when weighted by the minority coefficients, although they are somewhat less precisely estimated. All results are available from the authors upon request. We should also note that Barsky, Bound, Charles, and Lupton (2002) show that parametric racial decompositions can be quite misleading when the ranges of support differ substantially. While this is a significant problem when estimating the fraction of the black/white wealth gap accounted for by wage differences, the support ranges for labor market attachment and education are more similar across race groups. The only variable (discussed in detail at the end of this section) for which there are few minorities at high levels is AFQT scores. But even in this case it is only at quite high levels where there are also relatively few white observations.
8. The fraction of the black/white wage gap explained by labor market attachment is somewhat lower when minority weights are used but all other patterns are similar, although less precise.
9. A number of recent studies examine the impact of school quality on the black/white wage differential. Card and Krueger (1992) find that improved black school quality explains 15-20 percent of black wage growth during the 1960s and 1970s. Maxwell (1994) finds that she can explain approximately 66 percent of the black-white wage gap in the 1980s, although her school quality measure could also be interpreted as family background or ability. Finally, Grogger (1996) finds little evidence that school inputs affect wages and hence finds little room for school quality to explain recent black-white wage trends.

Table 1  
Sample Means (1982-1998 Panel)

	Black	Mexican	White
Log Hourly Wage	2.208 (0.633)	2.332 (0.594)	2.483 (0.584)
Age	28.859 (3.931)	28.946 (3.970)	28.706 (3.964)
Potential Experience	10.548 (4.205)	10.935 (4.222)	9.792 (4.309)
Unrestricted Actual Experience	8.599 (4.080)	9.608 (4.150)	9.769 (4.202)
Restricted Actual Experience	7.586 (4.005)	8.413 (4.135)	8.138 (4.226)
Unrestricted Out of the Labor Force	4.580 (2.601)	3.646 (2.308)	3.253 (2.220)
Restricted Out of the Labor Force	2.794 (2.510)	2.226 (2.148)	1.608 (1.904)
Years of Education	12.311 (2.027)	12.011 (2.022)	12.914 (2.442)
Married	0.338 (0.473)	0.535 (0.499)	0.561 (0.496)
Number of Children	1.207 (1.272)	1.332 (1.358)	0.881 (1.066)
Person-Year Observations	8070	2363	14106
Person Observations	1037	275	1909

Note: Averaged over  $i$  and  $t$ . All experience and non-working time variables are reported in years. Standard deviations in parentheses.

Table 2  
Two-Stage Fixed Effects Regressions and Decompositions

	<u>Potential</u> <u>Experience</u>			<u>Unrestricted Actual</u> <u>Experience</u>			<u>Restricted Actual</u> <u>Experience</u>		
	Blacks	Mexicans	Whites	Blacks	Mexicans	Whites	Blacks	Mexicans	Whites
<u>Panel A. Two Stage Fixed-Effects Regression Results</u>									
Experience	<b>0.060</b>	<b>0.049</b>	<b>0.082</b>	<b>0.056</b>	<b>0.052</b>	<b>0.067</b>	<b>0.061</b>	<b>0.068</b>	<b>0.076</b>
	(0.007)	(0.011)	(0.004)	(0.007)	(0.010)	(0.004)	(0.006)	(0.010)	(0.003)
Experience <sup>2</sup>	<b>-0.002</b>	<b>-0.001</b>	<b>-0.002</b>	<b>-0.002</b>	<b>-0.001</b>	<b>-0.002</b>	<b>-0.002</b>	<b>-0.002</b>	<b>-0.002</b>
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Education	<b>0.115</b>	<b>0.097</b>	<b>0.112</b>	<b>0.086</b>	<b>0.072</b>	<b>0.076</b>	<b>0.100</b>	<b>0.093</b>	<b>0.100</b>
	(0.006)	(0.012)	(0.004)	(0.006)	(0.011)	(0.004)	(0.006)	(0.012)	(0.004)
P-Value for the Joint Significance of Experience	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<u>Panel B. Decomposition Results (relative to white—white weights)</u>									
<u>Total Log Wage Differential</u>									
	0.275	0.151		0.275	0.151		0.275	0.151	
<u>Attributable to Differences in Characteristics</u>									
Experience	<b>-0.028</b>	<b>-0.040</b>		<b>0.043</b>	0.005		<b>0.019</b>	-0.012	
	(0.009)	(0.015)		(0.009)	(0.015)		(0.009)	(0.015)	
Education	<b>0.077</b>	<b>0.095</b>		<b>0.052</b>	<b>0.064</b>		<b>0.069</b>	<b>0.084</b>	
	(0.003)	(0.003)		(0.002)	(0.003)		(0.002)	(0.003)	
Other	0.007	-0.022		0.010	-0.024		0.010	-0.020	
	(0.009)	(0.015)		(0.009)	(0.015)		(0.009)	(0.015)	
Total	0.056	0.032		0.105	0.045		0.097	0.052	
<u>Attributable to Differences in Coefficients</u>									
Total	0.219	0.119		0.170	0.106		0.179	0.100	

Note: Dependent variables: log hourly wage. Absolute value of heteroskedastic consistent standard errors in parentheses. All regressions also include marital status, number of children, region of residence, and SMSA. The number of person-year observations are 8070, 2363, and 14106 for the black, Mexican, and white samples, respectively. Bold coefficients are statistically significant at the 5% level or better.

Table 3

Two-Stage Fixed Effects Regressions and Decompositions including Controls for Out of the Labor Force

	<u>Potential</u>			<u>Unrestricted Actual</u>			<u>Restricted Actual</u>		
	<u>Experience</u>			<u>Experience</u>			<u>Experience</u>		
	Blacks	Mexicans	Whites	Blacks	Mexicans	Whites	Blacks	Mexicans	Whites
<b>Panel A. Two Stage Fixed-Effects Regression Results</b>									
Experience	<b>0.060</b>	<b>0.049</b>	<b>0.082</b>	<b>0.060</b>	<b>0.047</b>	<b>0.073</b>	<b>0.063</b>	<b>0.065</b>	<b>0.081</b>
	(0.007)	(0.011)	(0.004)	(0.007)	(0.011)	(0.004)	(0.006)	(0.010)	(0.004)
Experience <sup>2</sup>	<b>-0.002</b>	<b>-0.001</b>	<b>-0.002</b>	<b>-0.002</b>	<b>-0.001</b>	<b>-0.002</b>	<b>-0.002</b>	<b>-0.002</b>	<b>-0.002</b>
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Out of the Labor Force				-0.000	-0.030	-0.026	-0.002	-0.017	<b>-0.042</b>
				(0.020)	(0.035)	(0.017)	(0.016)	(0.029)	(0.014)
Out of the Labor Force <sup>2</sup>				-0.001	0.004	-0.000	-0.001	0.003	0.001
				(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)
Education	<b>0.115</b>	<b>0.097</b>	<b>0.112</b>	<b>0.085</b>	<b>0.072</b>	<b>0.078</b>	<b>0.096</b>	<b>0.094</b>	<b>0.089</b>
	(0.006)	(0.012)	(0.004)	(0.006)	(0.012)	(0.004)	(0.006)	(0.012)	(0.004)
P-Value for the Joint Significance of Experience	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
P-Value for the Joint Significance of Out of the Labor Force				0.257	0.071	0.000	0.261	0.208	0.000
<b>Panel B. Decomposition Results (relative to white—white weights)</b>									
<u>Total Log Wage Differential</u>									
	0.275	0.151		0.275	0.151		0.275	0.151	
<u>Attributable to Differences in Characteristics</u>									
Experience	<b>-0.028</b>	<b>-0.040</b>		<b>0.046</b>	0.005		0.020	-0.013	
	(0.009)	(0.015)		(0.015)	(0.015)		(0.013)	(0.016)	
Out of the Labor Force				<b>0.040</b>	<b>0.012</b>		<b>0.041</b>	<b>0.022</b>	
				(0.011)	(0.004)		(0.010)	(0.006)	
Education	<b>0.077</b>	<b>0.095</b>		<b>0.053</b>	<b>0.066</b>		<b>0.061</b>	<b>0.075</b>	
	(0.003)	(0.003)		(0.002)	(0.003)		(0.002)	(0.003)	
Other	0.007	-0.022		0.009	-0.023		0.008	-0.019	
	(0.009)	(0.015)		(0.009)	(0.015)		(0.009)	(0.015)	
Total	0.056	0.032		0.148	0.060		0.130	0.065	
<u>Attributable to Differences in Coefficients</u>									
Total	0.219	0.119		0.127	0.092		0.145	0.086	

Note: See Table 2 notes.

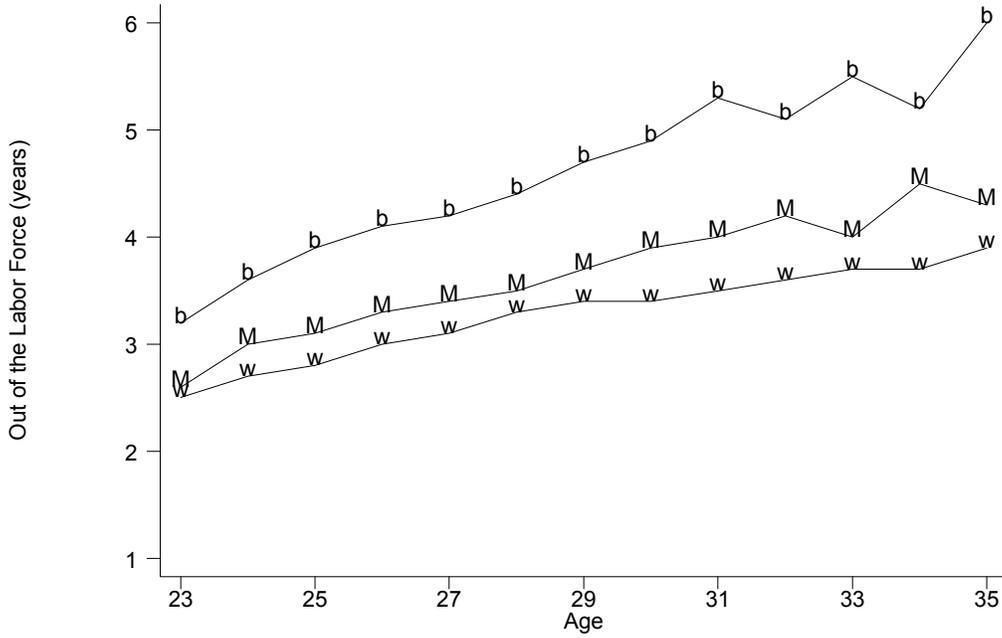
Table 4

Two-Stage Fixed Effects Regressions and Decompositions including Controls for Out of the Labor Force and AFQT

	<u>Potential Experience</u>			<u>Unrestricted Actual Experience</u>			<u>Restricted Actual Experience</u>		
	Blacks	Mexicans	Whites	Blacks	Mexicans	Whites	Blacks	Mexicans	Whites
<b>Panel A. Two Stage Fixed-Effects Regression Results</b>									
Experience	<b>0.057</b>	<b>0.051</b>	<b>0.083</b>	<b>0.057</b>	<b>0.052</b>	<b>0.073</b>	<b>0.062</b>	<b>0.069</b>	<b>0.082</b>
	(0.007)	(0.011)	(0.004)	(0.007)	(0.011)	(0.004)	(0.006)	(0.010)	(0.004)
Experience <sup>2</sup>	<b>-0.002</b>	<b>-0.001</b>	<b>-0.002</b>	<b>-0.002</b>	<b>-0.001</b>	<b>-0.002</b>	<b>-0.002</b>	<b>-0.002</b>	<b>-0.002</b>
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Out of the Labor Force				-0.014	-0.021	-0.030	-0.009	-0.007	<b>-0.044</b>
				(0.020)	(0.035)	(0.018)	(0.017)	(0.029)	(0.015)
Out of the Labor Force <sup>2</sup>				0.000	0.004	-0.000	-0.000	0.002	0.001
				(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)
Education	<b>0.094</b>	<b>0.071</b>	<b>0.082</b>	<b>0.064</b>	<b>0.047</b>	<b>0.055</b>	<b>0.073</b>	<b>0.073</b>	<b>0.063</b>
	(0.007)	(0.016)	(0.005)	(0.007)	(0.015)	(0.005)	(0.007)	(0.015)	(0.005)
AFQT	<b>0.004</b>	<b>0.004</b>	<b>0.004</b>	<b>0.004</b>	<b>0.003</b>	<b>0.003</b>	<b>0.004</b>	<b>0.003</b>	<b>0.004</b>
	(0.001)	(0.002)	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.002)	(0.000)
P-Value for the Joint Significance of Experience	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
P-Value for the Joint Significance of Out of the Labor Force				0.247	0.069	0.000	0.232	0.189	0.000
<b>Panel B. Decomposition Results (relative to white—white weights)</b>									
<u>Total Log Wage Differential</u>									
	0.282	0.146		0.282	0.146		0.282	0.146	
<u>Attributable to Differences in Characteristics</u>									
Experience	<b>-0.029</b>	<b>-0.041</b>		<b>0.047</b>	0.005		0.020	-0.013	
	(0.009)	(0.015)		(0.015)	(0.015)		(0.014)	(0.016)	
Out of the Labor Force				<b>0.045</b>	<b>0.013</b>		<b>0.046</b>	<b>0.024</b>	
				(0.011)	(0.003)		(0.010)	(0.006)	
Education	<b>0.060</b>	<b>0.070</b>		<b>0.040</b>	<b>0.047</b>		<b>0.046</b>	<b>0.054</b>	
	(0.004)	(0.004)		(0.004)	(0.004)		(0.004)	(0.004)	
AFQT	<b>0.132</b>	<b>0.089</b>		<b>0.102</b>	<b>0.069</b>		<b>0.107</b>	<b>0.072</b>	
	(0.015)	(0.010)		(0.014)	(0.010)		(0.014)	(0.009)	
Other	0.007	-0.023		0.009	-0.023		0.009	-0.018	
	(0.009)	(0.015)		(0.009)	(0.015)		(0.009)	(0.015)	
Total	0.170	0.096		0.243	0.111		0.228	0.120	
<u>Attributable to Differences in Coefficients</u>									
Total	0.111	0.050		0.039	0.035		0.054	0.025	

Note: See Table 2 notes.

Panel A: Unrestricted Out of the Labor Force



Panel B: Restricted Out of the Labor Force

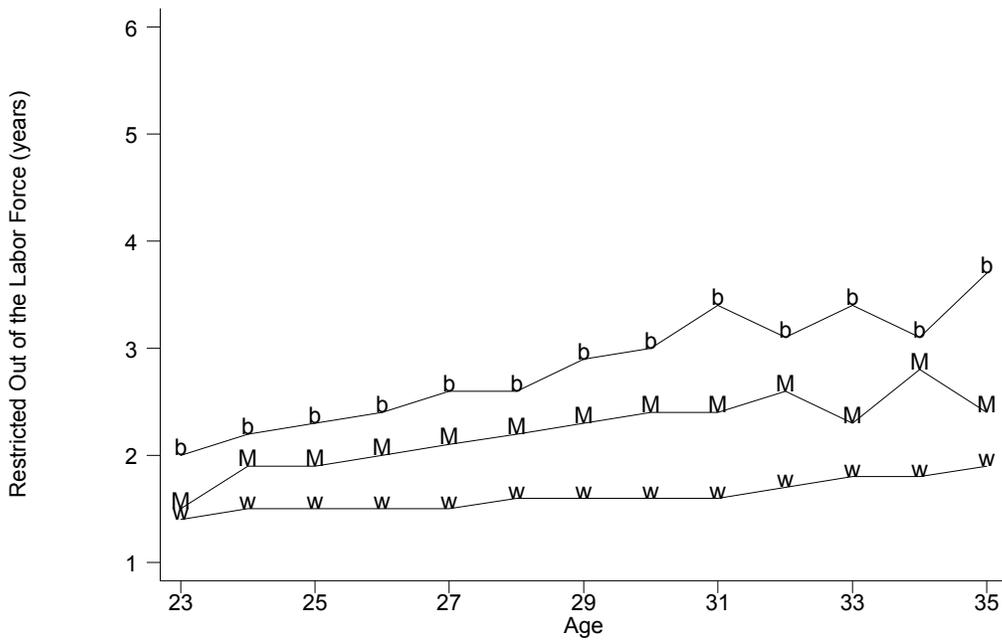


Figure 1  
Time Spent Out of the Labor Force by Age and Race