

Senior Project
Department of Economics



“Race to Employment:
Does Race affect the probability of
Employment?”

Corey Holland
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Advisors: *Francesco Renna*

Abstract

This paper estimates the correlation between demographic and labor market variables and the probability of employment. I find that while work experience, educational attainment, and arrest record are correlated with employment status; none those have a greater affect on the probability of being employed, than being African-American.

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Introduction

There is an alarming trend going on in American society; that trend involves the unemployment gap between African-Americans and Caucasian-Americans. According to the Bureau of Labor Statistics, the unemployment rate between Blacks and Whites have been at 2:1, or even 2.5:1, in favor of White Americans since 1975. While economists such as Stratton (1993) have tried to explain the unemployment gap between races, by controlling for factors that affect employment such as experience and education, they have not been able to explain the entire unemployment differential between the groups. My research examines how much race plays factor in being employed compared to other factors of employment. This research can contribute more knowledge to the affects that race have in our continually changing society. Specifically, I will be looking at how race impacts the employment status of African-Americans and Hispanic-Americans. Using data from the National Longitudinal Survey of Youth (1997 cohort), I will examine what factors contribute to the probability of being employed in the labor market.

Literature Review

The Black and White Unemployment gaps have remained substantial and have not changed much over the last couple of decades Ritter and Taylor (2011). Abowd and Killingsworth (1984) use data from the 1976 Survey of Income and Education (SIE) and the NLY79 to develop a model that compares unemployment, nonemployment, and the different sectors of employment (public and private) status by race. Their dependent variables are binary and they used probit and logit models. The results showed that after a simulated race change from Hispanic to White, there was a relatively small change in

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employment status. However, after a simulated race change from Black to White, there was a very large difference in the predicted employment status. Therefore the characteristics of Black individuals do not account for all of the differences in employment unlike Hispanic individuals. When Stratton (1993) examined differentials in unemployment, she found that only about 20 percent to 40 percent of the differentials can be explained through variables other than race. She estimated a probit model using data from the 1990 Current Population Survey. While both Stratton 1993 and Abowd and Killingsworth (1984) use models based on the Labor Force Participation Rate, Stratton (1993) uses more up- to-date data and uses more control variables than the previous authors.

Giuliano et al (2009) examines how the race of the manager affects the racial composition of new hires. The authors find that the race of the manager does play a role in the race of the new employee. The author uses different variations of a probit model to test the differences in hiring patterns based on race. An interesting caveat to this paper is they use data from large retail employers. This is in contrast to the usual survey or governmental data. Two years later Ritter and Taylor (2011) *examined* the relationship between the unemployment rate of Blacks and their mental aptitude associated with their Arms Forces Qualifications Test score. Some economists have theorized that the reason for the large unemployment gap is because Blacks tend to have lower mathematical and verbal skills than whites Neal and Johnson (1996). To the contrary, Ritter and Taylor (2011) conclude that premarket test scores do not explain the entirety of the unemployment rate differences. Ritter and Taylor (2011) contribute to the literature by using AFQT to measure cognitive skills, and by modeling negative binomial regression.

Shulman (1987) theorizes that there has been a large shift in discrimination from wage-preference to hiring preference. He models the probabilities of being employed in a linear regression model. The data collected for his research is from the Equal Opportunities Office. His paper suggests that because of wage discrimination laws, employers have been able to shift their discrimination toward wage to hiring practices.

The idea of discrimination is hard to quantify. Mullianatham and Bertrand (2003) conduct a field experiment to determine the effects of having a White or Black “sounding” names on the likelihood of that person getting a callback for an interview. The field experiment compared the callback rates after sending otherwise similar resumes to businesses. The results of their experiment were that “White-sounding” names received 50 percent more callbacks for interviews compared to Black “sounding” names. Also, for White names, having a higher quality resume garnered a 30 percent increase in callbacks compared to a very small increase for Blacks. It is hard for African-Americans to be employed, if they cannot get a callback.

Theoretical Model

Becker (1971) was able to conceptualize the idea of discrimination through taste discrimination. The idea of taste-discrimination is that employers value employees with certain physical traits compared to others. In this case, White employers have a taste-preference for White employees compared to their Black counterparts. In this theoretical model, Blacks and Whites are homogenous and their worker output can be replaced by one another.

Empirical Model

$$Y = \beta_0 + \beta_1 MAR + B_2 High + B_3 AS + B_4 Bach - B_5 Blk - B_6 Hsp + \\ B_7 PreviousEmployed1 - B_8 Kid_0 + B_9 Kids_1 + B_{10} Kids_2 + B_{11} Kids_3 + \\ B_{12} Arrest1 + B_{13} West + B_{14} NC + B_{15} NE + \epsilon$$

(The model is explained in the variable section)

Data

This research uses data from National Longitudinal Survey of Youth (1997 cohort). The youths in this survey range from the ages of 12-16 as of December 1996. This survey has approximately 9,000 respondents in total. The race variables were pulled from a list of respondents who had the option of declaring themselves Black, Hispanic, Mixed race/non-Hispanic or non-Black/non-Hispanic. The Mixed race Non-Hispanic respondents were removed from the sample, because it is harder to determine their race based on physical traits. The dependent variable for employment denotes whether or not the respondent was employed at the time of their interview in 2006. The year 2006 was chosen because it was one of two variables that specifically asked the respondent for their current employment status. The year 2000 was other one. A respondent could declare themselves either Employed, Unemployed, Not in the Labor Force, or in the Armed Services. A consideration was given to examine the duration of employment rather than one date of the study as a dependent variable; however the answers of the respondents ranged beyond 52 weeks, meaning they were asked questions about their employment passed 1 year. This could make some of the findings inaccurate.

Previous literature, Ritter and Taylor (2011), have used portions of the NLSY79 in their research for racial indicators. The advantages to using the NLSY97 compared to the NLSY79 for the purposes of this research are respondents are going be just establishing themselves in the labor market compared to respondents who were born in the 50's and 60's.

Variables

Table 1 in Appendix A has a list of all of the variables. The literature emphasizes the importance of human capital accumulation. The variables to control for educational attainment are *As*, *High*, and *Bach*. Because the highest age of any respondent in this sample will only be 26 and very few of the respondents achieved a Master's or Phd level at that time, those who had attained those levels were left out of the sample. The education variables were coded so if a respondent did not answer the question in the current year, the previous year's answer would be put in its place leading up to the year 2006. The variable *Arrest1*, is a binary variable created to denote whether or not a respondent was arrested either during or before December 2006. If a person has a tendency to get arrested often, this can denote a socioeconomic setting of in which employment is sparse. The variable *Mar* controls for respondents marital status. If respondents are married; there is an expected emphasis on employment because of the added responsibility of supporting a spouse. One would expect this variable to be positive, not only because of the added responsibility, but because in the aforementioned literature, marriage variables were always positively correlated to employment. Respondents that have children have an extra responsibility to provide for their children. Therefore, the sign on the variable that represents respondents who are without children

is expected to be negative and the variables that denote respondents with children is expected to be positive. Different regions will have different labor markets, therefore my model includes control variables for the respondents' region. I also control for labor market experience in the model. *PreviousEmployed1* represents whether or not the respondent was employed during the date of their interview in the year 2000. Because of the relative youth in the survey, the majority of the respondents will be between the ages of 15-19 in the year 2000. This can signify the effects of early entry into the labor market on later employment. With the added experience, one would expect this variable to be positive.

Empirical Results

The procedure that was used to interpret the model was a Logistic Regression Model. The parameter estimates are shown on Appendix A Table 2. In this case, the parameter estimates are only valuable in showing the significance of the variable and signs of the coefficients. The variable representing marriage is statistically significant at the 10 percent level. The coefficient for marriage is also positive which is in line with the majority of the aforementioned literature. While having your Associate's Degree is significant at the 10 percent level, having a Master's Degree is significant at the 5 percent level. This is also in line with the variables *Arrested1*, *PreviousEmployed*, and *Blk*. They were all statistically significant at the 1 percent level. Because being employed in 2000 gives the respondent added work experience, as expected the coefficient on that variable is positive. *Hsp* was not significant at all which is not surprising because previous articles written, Abowd and Killingsworth (1984) and Lowell and Ritter (2011), come to the

same conclusion that effects of being Hispanic on employment, are not the same as the effects of being Black on employment. The other race variable, *Blk*, was also significant at the 1 percent level. None of the region variables were statistically significant. Not having children or having multiple children was also not significant, which is surprising considering that in most of the literature having children is significant. Abowd and Killingsworth (1984) used household size as a proxy for family characteristics.

Appendix A Table 2 shows the marginal effects, evaluated at the mean: the change in probability of being employed when an independent variable is increased by one unit. If a respondent was married, the probability of them being employed increased by approximately 3.1 percent. The probability of being employed increases by approximately 7.2 percent if the respondent has an Associate's Degree and 7.1 percent for Bachelor's Degree respectively. The experience variable *PreviousEmployed1*, increases the probability of being employed by 6 percent. If the respondent was arrested, it decreases their probability of being employed by 4 percent. While being Hispanic is not significant at any level, it still only carries a 1.5 percent decrease in probability in employment. Black, to the contrary, is not only statistically significant at the 1 percent level, but it carries the largest probability of not being employed out of all the variables. If the respondent was African-American, the chances of them being employed went down by 7.9 percent. This marginal effect is almost double the percentage of being previously arrested and larger than the marginal effect of having an Associate's or Bachelor's Degree.

Conclusion

The results of this paper suggest that race does play a role in the employment status of the individuals in America. After controlling for human capital factors such as work experience, educational attainment, dependent family members, and region; race still has a relatively large effect on the probability of employment. My research focused on two specific groups of people, Hispanics and African-Americans. I find that for Hispanics, race is not an important factor in determining their employment status. In contrast, if the respondent was African-American, the probability of them being employed decreased substantially. The probability could be reflecting the large incarceration rates of African-Americans. According to the bureau of justice statistics, 836,000 of the Black population were incarcerated in 2006. With such large percentage of the Black population not in the labor force, this would reflect negatively on employment status.

Another possible reason could be discrimination in the market. Even though Blacks do have a large institutionalized population, their civilian labor force participation rate has only been less by 2-3 percent less than their White counterparts. This coincides with Stratton (1993) and Ritter and Taylor (2011), that high unemployment of Blacks, is largely unexplained as compared to Whites and Hispanics.

Limitations and Future Study

One of the limitations to this study was the use of the dependent variable. Because the respondent is only asked about their employment status at one time, they may have just become employed or unemployed on that particular day. In the future it would be

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interesting to measure employment in weeks worked during the year. Also, a future study could measure the probability of employment using the NLYS79 and compare those results with the probability of employment using NLSY97 data. Examining the probabilities of the older and younger generations could show how age and race both affect employment status.

Bibliography

- Abowd, John, and Mark Killingsworth. "Do Minority/White Unemployment Differences Really Exist?" *Journal for Business and Economic Statistics* 2.1 (1984): 64-72. Print.
- Becker Gary S. *The Economics of Discrimination*. 2nd Ed. Chicago: University of Chicago Press.
- "Civilian Labor Force Participation Rates by Age, Sex, Race, and Ethnicity." *U.S. Bureau of Labor Statistics*. U.S. Bureau of Labor Statistics, 01 Feb. 2012. Web. 08 May 2013.
- Giuliano, Laura, David I. Levine, and Jonathan Leonard. "Manager Race and the Race of New Hires." *Journal of Labor Economics* 27.4 (2009): 589-631. Print.
- Neal, Derek A., and William R. Johnson, "The Role of Premarket Factors in Black-White Wage Differences," *Journal of Political Economy* 104 (1996), 869-895.
- "Prison Inmates at Midyear 2009– Statistical Tables." *Bjs.gov*. Bureau of Justice Statistics, 2009. Web. 8 May 2013.
- Ritter, Joseph A., and Lowell J. Taylor. "Racial Disparity in Unemployment." *Review of Economics and Statistics* 93.1 (2011): 30-42. Print.
- Shulman, Steven. "Discrimination, Human Capital, and Black-White Unemployment." *The Journal of Human Resources* 22.3 (1987): 361-76. Print.
- Stratton, Leslie. "Racial Differences in Men's Unemployment." *Industrial and Labor Relations Review*, 46.3 (n.d.): 451-63. Apr. 1993. Web. 11 Feb. 2013.
- "Unemployment Rates by Race and Ethnicity, 2010." U.S. Bureau of Labor Statistics. U.S. Bureau of Labor Statistics, 05 Oct. 2011. Web. 08 May 2013

Appendix A

Table 1

Variable Name	Description	Mean
Mar	1=If Currently Married or have been Married 0=Not currently Married	0.2585630
High	1=Highest Degree Completed is High School 0=Highest Degree Completed is not High School	0.5399176
As	1=Highest Degree Completed is Associate's Degree 0=Highest Degree Completed is Associate's Degree	0.563997
Bach	1=Highest Degree Completed is Bachelor's Degree 0=Highest Degree Completed is not Bachelor's Degree	0.1578676
Blk	1=If Respondent is Black or African-American 0=If Respondent is not Black or African-American	0.2531548
Hsp	1=If Respondent is Hispanic 0=If Respondent is not Hispanic	0.2161988
PreviousEmployed1	1=If Respondent was employed 6 years previous 0=If Respondent was either unemployed, Not in the Labor Force, Institutionalized, or Armed Services 6 years previous	0.4933041
Employed1	1=If Respondent was employed 0= If Respondent was either unemployed, Not in the Labor Force, Institutionalized, or Armed Services	0.8740070
Kids_0	1=If Respondent has no children 0=If Respondent has more than one child	1.3781847
Kids_1	1=If Respondent has only one child	0.1162420

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	0=If Respondent does not have only one child	
Kids_2	1=If Respondent has two children 0=If Respondent does not have only two children	0.1675251
Arrest1	1=If respondent has been arrested previous to month of December or in the month if December. 0=If Respondent has not been arrested previous to December 2006	0.3577131
West	1=Respondent was located in (AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY) 0=Respondent was located in one of these states	0.2226371
NC	1=Respondent was located in (IL, IN, IA, KS, MI, MN, MO, NE, OH, ND, SD, WI) 0=Respondent was located one of these states	0.1800155
NE	1=Respondent was located in (CT, ME, MA, NH, NJ, NY, PA, RI, VT) 0=Respondent was not located in this region.	0.2267577

Table 2

Variable Name	Marginal Effects	Logistic Procedure
Mar	0.0315980	0.246287(0.137039)*
High	0.0108413	0.089884(0.134722)
As	0.0717014	0.594465(0.354795)*
Bach	0.0709862	0.588535(0.291453)**
Blk	-0.0789742	-0.654763(0.152445)***
Hsp	-0.0154000	-0.127679(0.152445)
PreviousEmployed1	0.0595464	0.493690(0.122009)***
Kids_0	-0.0151931	-0.125964(0.229087)
Kids_1	0.0297980	0.188820(0.188820)
Kids_2	0.0331093	0.274504(0.202477)
Arrest1	-0.0407794	-0.338096(0.133174)***
West	-0.0185445	-0.153749(0.183122)
NC	-0.0287067	-0.238003(0.155440)
NE	0.0162077	0.134376(0.194057)

Marginal Effects column has the marginal effects each variable has on the dependent variable. The Logistic Procedure has the Parameter Estimates with the standard Errors in parenthesis. *denotes significance to the 10 percent level. **denotes significance to the 5 percent level. ***denotes significance to the 1 percent level.

Table 3

Variable Name	Mean	Min	Max
Mar	0.2585630	0	1.0
High	0.5399176	0	1.0
As	0.563997	0	1.0
Bach	0.1578676	0	1.0
Blk	0.2531548	0	1.0
Hsp	0.2161988	0	1.0
PreviousEmployed1	0.4933041	0	1.0
Employed1	0.8740070	0	1.0
Kids_0	1.3781847	0	1.0
Kids_1	0.1162420	0	1.0
Kids_2	0.1675251	0	1.0
Arrest1	0.3577131	0	1.0
West	0.2226371	0	1.0
NC	0.1800155	0	1.0
NE	0.2267577	0	1.0