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Is There a Wage Premium or Wage Discrimination

For Foreign-Born Players in the NBA?

Abstract: The influx of international players into the NBA has led researchers to investigate whether either pay discrimination or a pay premium exists for these new entrants. The results have been mixed. An early article, Escher et al. (2004) find evidence that foreign-born NBA players are paid a wage premium. Using a two-stage double fixed-effect model, Yang and Lin (2012), however, find evidence of salary discrimination against international players when analyzing the 1999 through 2008 seasons. Then Hoffer and Freidel (2014) using a cross sectional approach find a wage premium for the 2010-2011 season. Using similar techniques with a longer unbalanced panel dataset (1989-2013) that covers all the years of the previous studies we test for the robustness of the results. We suggest that discrimination results are quite sensitive to the specifications and techniques used. We find that many of the results are not robust and that foreign wage premiums exist only for early foreign entrants and neither pay discrimination nor a wage premium exist after the 1996 season.

Keywords: Wage Discrimination, NBA, International Labor Market

Introduction

As employers pursue talent, labor markets have increasingly become international. For instance, in the United States in the health care profession twenty –seven percent of surgeons are foreign-born while in the education profession forty percent of engineering professors are foreign-born. Aslanbeigui and Montecinos (1998) estimated that in the 1990s approximately 30% of US economics professors were foreign-born. The internationalization of labor markets has led researchers to question whether foreign workers are more productive because of self-selection on the part of immigrants (Borjas and Bratsberg, 1996), less productive due to language and cultural differences than native-born workers (Dustmann and Soest, 2002), or discriminated against (Åslund et al., 2014)?

All sports leagues in pursuit of the most talented players have international labor markets. For instance, in 2014, twenty-five percent of Major League Baseball players were foreign-born and fifty- one percent of National Hockey League players were born in Canada, twenty-four percent were born in the United States and twenty-five percent were born in Europe. Sports leagues provide a fertile ground to further the research on immigration due to the increasing degree of internationalization. For instance, Kahane, Longley and Simmons (2013) find that NHL teams who employ higher proportion of Europeans perform better if the Europeans are from the same country compared to teams with less Europeans or Europeans from many different countries. Alvarez et al. (2011) finds that increases in the number of international players in a domestic soccer league tends to generate improvements of a national team that is only comprised of domestic players.

Focusing of the National Basketball Association, Eschker, Perez, and Siegler (2004) find that there was a premium paid to international players for the 1996-97 and 1997-98 seasons due

to a "winner's curse" in the market from the inability of scouts and general managers to properly evaluate the worth of foreign-born players who did not play college basketball in the U.S. More recently using an unbalanced panel dataset (1999-2008) and a two-stage double fixed-effect model Yang and Lin (2012) find evidence of salary discrimination against international players. Hoffer and Freidel (2014) using data from the 2010-2011 season, however, find the opposite with foreign-born players paid a premium in the NBA.

The purpose of this paper is to check the robustness of the foreign wage discrimination and premium results. Using a large unbalanced panel dataset (1989-2013) covering all the years of the previous studies and using the same econometric techniques, we are unable to verify the existence of pay discrimination against foreign players as found by Yang and Lin (2012). We do, however, verify the wage premiums found by Esckher, Perez and Siegler (2004), and Hoffer and Freidel (2014) using the OLS technique. The premium found by Hoffer and Freidel (2014) is no longer found, however, when using a two-stage double fixed-effect model for later years in our panel. The premium found by Eschker, Perez, and Siegler (2004) for the early years of the panel does remain when using the two-stage double fixed-effect model.

In the next section, we discuss our dataset and the differences between the variables included in our regressions compared to the various papers. We then discuss the empirical technique used to test the robustness of the results. In the next section we report our empirical results and compare them to the various findings. Lastly, we conclude with a discussion concerning the robustness of pay discrimination research.

Dataset and Variables

The dataset for our analysis includes all players in the NBA from the 1989-90 season through the 2012-13 season. Unlike many of the previous studies, we use two measures to indicate a foreign-born athlete. Unlike Yang and Lin (2012) and Hoffer and Friedel (2014) who only use a dummy variable equal to one if the NBA player was born outside the United States, we focus on two measures. The first is a dummy variable equal to one if the NBA player was foreign-born and also has no United States college experience. This measure would include Yao Ming who was drafted directly from China but exclude Hakeem Olajuwon who was born in Nigeria and played basketball at the University of Houston. This measure is consistent with the measure used by Escher, Perez and Siegler (2004) and more recently Motomura (2016) who analyzes drafting international players into the NBA. Both articles use this measure because their primary focus was to test for inefficiency in the market due to information problems that arises from obtaining talent directly from other international leagues. The second measure we use is foreign-born with United States college experience. This measure would include Hakeem Olajuwon and exclude Yao Ming. Groothuis and Hill (2016) use both of these measures and find foreign-born players without U.S. college experience have a higher likelihood of exit than do foreign-born players who had U.S. college experience.

To control for on-court performance that influences an individual's marginal revenue product, we include age, age squared, experience, experience squared, games played, and an aggregation the performance variables as measured by the NBA efficiency rating to control for performance. We also use time invariant measures of height, draft number and race as explanatory variables in addition to the foreign-born dummies. Race is defined as one if the player is White and zero for all other races. Our explanatory variables are essentially the same as in Eschker, Perez, and Siegler (2004), Yang and Lin (2012), and Hoffer and Freidel (2014).

Measures that our data does not include that two of the articles do include are dummy variables for position played. In the Eschker, Perez, and Siegler (2004) article these variables were seldom found to be significant in their wage equations. Yang and Lin (2012) also use positional dummy variables in their analysis and include them in the wage equations instead of the fixed-effects regression. We suggest that this is incorrect since player positions rarely, if ever, change from season to season. Thus the inclusion of these dummies is inappropriate in the fixed-effect model and we suggest that the time invariant variable of height captures the same effect. We also suggest that performance variables and height can proxy for these variables and excluding the variables should not lead to different results.

In Tables 1, we report the means and standard deviations of the variables for all the foreign-born player categories as well as native-born players. Some interesting insight can be gleaned from this data. First, on average, foreign-born players are taller by two inches or more. Second, the majority of foreign-born players who did not play basketball in college in the U.S. are White. This is not true for foreign-born players who did play college basketball in the U.S.; only around forty percent of these players are White. Third, foreign-born players in all categories earned higher real salaries on average compared to their counterparts born in the U.S. This is true despite that fact that foreign-born players with no college are generally taken lower in the draft on average. In terms of performance statistics, foreign-born players who played college basketball in the U.S have the highest efficiency rating while foreign-born no college and U.S.-born players have the same efficiency rating.

Econometric Techniques

We utilize both yearly ordinary least squares and the two-stage fixed-effects model. The yearly ordinary least squares technique was utilized by Eschker, Perez, and Siegler (2004) and Hoffer and Freidel (2014). Thus our equation can be written as:

$$\ln S_i = X_i\beta + e_i \,. \qquad (1)$$

where $\ln S_i$ is the log of salary and X_i is a vector of explanatory variables including age, age squared, experience, experience squared, draft number, efficiency rating, height, race, foreign-born no college and foreign-born college. The efficiency rating for each player is calculated using the following: ((Points + Rebounds + Assists + Steals + Blocks) - ((Field Goals Att. - Field Goals Made) + (Free Throws Att. - Free Throws Made) + Turnovers))/ Games Played. We estimate this equation for all 24 years of our panel.

We also estimate the two-stage fixed-effect model developed by Bartel and Sicherman (1999) and utilized by Yang and Lin (2012). In the first stage standard salary estimation equations utilize the natural logarithm of salary as the dependent variable and a vector of productivity measures as the independent variables in a fixed-effect panel. In a panel setting this vector can be classified into two subsets, one which changes yearly with performance (X_{it}) and one which does not change yearly but may affect productivity (Y_i). Thus our equation can be written as:

$$\ln S_{it} = X_{it}\alpha + Y_i\beta + u_i + e_{it} \,. \qquad (2)$$

In a panel setting it is assumed that the vector Y_i consists of unchanging characteristics of each individual and therefore only variables found in vector X_{it} are included in the initial fixed-effect regression. Since the panel is unbalanced the standard errors are clustered by player. The residuals resulting from this fixed-effect regression should reflect the unobserved fixed

component of the error term attributable to time-invariant differences between individuals. Bartel and Sicherman (1999) identify this as an individual wage "premia." The premia is the fixed component of the salary that is not explained by time varying performance characteristics. This premia is individually fixed and can be either positive or negative.

Following Bartel and Sicherman (1999) and Yang and Lin (2012) these residuals or wage "premia"s are then regressed on the unchanging individual characteristics of individuals, vector Y_i. Given the unbalanced nature of the panel this regression is estimated using weighted least squares. The weights used by the STATA program are inversely proportional to the variance of an observation. This equation takes the format:

$$\hat{u}_i = Y_i\beta + \omega_i. \qquad (3)$$

The regression on the individual wage "pemia"s can then identify the influence of time-invariant characteristics such as height, race, draft number or being foreign-born. One key component of the technique is that the wage "premia" is the residual from stage one regressions; therefore the stage one specification is crucial for the stage two results.

For the estimation of equation 3 on each individual's wage 'premia', we use the independent variables of time-invariant personal player characteristics that includes the player's height, a dummy variable for White players, draft number, a dummy variable for players born outside the U.S. who did not play college basketball in the U. S., and lastly a dummy variable for players born outside the U. S. who did play college basketball in the U.S. Our list includes most of the variables used by Yang and Lin (2012) except for a measure of the domestic market of the player's team, superstar status, and positional dummies. However, unlike Yang and Lin (2012) we use two different classifications for foreign-born players. Once again Eschker, Perez, and

Siegler (2004) suggested the wage premium for foreign-born players in the NBA for 1996-97 and 1997-98 seasons was only true for those players who did not play in college in the U.S. Therefore the current research will designate each classification separately.

Empirical Results

In table 2A, 2B and 2C, we report the 24 single season OLS results for equation 1 as well as the total number of foreign-born by each category for each season. Table 2A, 2B and 2C show that foreign-born with college experience ranges from 15 to 25 players per season with no trend over time. The tables further show, however, that foreign-born with no college grows from only 4 players in 1990 to 58 players in 2013 with an increase trend over time.

In the yearly OLS results, we find that there is a wage premium paid to foreign-born players with no college experience occurring from the 1990 through the 1996 season replicating Esckher, Perez and Siegler (2004) results. We detect no pay premium from the 1997 through 2006 season for foreign-born players with no college experience. We then again find a pay premium for foreign-born players with no college experience for the 2007 through the 2013 seasons replicating the results found by Hoffer and Freidel (2014), who found a wage premium in the 2011 season. In the OLS yearly results, we only find one wage premium for foreign-born with college experience that occurs in the 2011 season further replicating Hoffer and Freidel (2014) results since they used a dummy variable that includes all foreign-born players.

In all twenty-four wage equations the coefficient on efficiency is always positive and significant and draft number is always negative and significant indicating performance influences salary. The coefficient on experience is always positive and significant while the coefficient on experience squared is always negative and almost always significant. Interestingly,

we find that four times in the twenty-four years a wage premium is found for White players and one time wage discrimination is found for White players. Although OLS is informative, we suggest yearly wage equations are not robust and given the panel nature of the data a more appropriate econometric technique is the fixed-effect model.

Given the results from table 2A, 2B and 2C, we estimate four different two-stage fixed-effects models: one for the complete time period 1990-2013, one for the early time period 1990-1996 when OLS detected a wage premium for players who were foreign-born with no college, one for the 2007-2013 period when the wage premium was also detected, and lastly one for the Yang and Lin period from 1999-2007 to test the robustness of their results.

We report the results for the regression models for equation 2 and 3 in Table 3 for all four time periods. In the wage equation, we find that for all time periods that the coefficient on experience is positive and significant and the coefficient on experience squared is negative and significant. We find that the coefficient on age is negative and significant in the 1990-2013 period. Given the high degree of multicollinearity between age and experience we suggest that the negative coefficient on age captures the likelihood of the players who enter the NBA at an older age are less skilled then early entrants as found by Groothuis et al.(2009). The coefficient on efficiency is positive and significant for the two longer periods 1990-2013 and 1999-2007. It is positive but insignificant in the 1990-1996 period and the 2007-2013 period suggesting the draft number and individual fixed-effect capture the influence of an individual's productivity on salary.

To estimate equation 3, the individual wage "premia"s from each of the wage equations are regressed on time-invariant personal characteristics using the same weighted least squares

approach used by Yang and Lin (2015). In this individual wage premia equation, we find that for the complete time period that a wage premium is found for foreign-born players with no college experience. This is a misleading result because when we break up the panel into smaller time periods we find that the wage premium for foreign-born with no college experience occurs only in the 1990-1996 period and is not detected in either the Yang and Lin period from 1999-2007 or the later period from 2007-2013 where the wage premium occurred in the OLS regressions. The results of the model further replicate Eschker, Perez, and Siegler (2004) and consistent with a winner's curse of hiring workers whose productivity was difficult to measure.

Our fixed-effect results do not replicate, however, the Yang and Lin (2012) results. Yang and Lin (2012) found discrimination for all foreign-born players we find that for both classifications of foreign-born the coefficient is positive and insignificant. Although our specifications are not the same our results suggest that their results are not robust. The results from our fixed-effect model for the 2007-2013 time period does in some ways replicate the findings of Hoffer and Freidel (2014). In this time period we find a wage premium for foreign-born with college and for White players but do not find a premium for foreign-born no college. Given eighty percent of foreign-born with no college are White then the White dummy may capture some of the foreign-born/no college premium. In terms of the White dummy itself we draw no conclusions because it is insignificant for the complete time period from 1990-2013 and the Yang and Ling period 1997-2007, as well as negative and significant for the 1990-1996 period, and positive and significant in the last period 2007-2013. Given the differing results we suggest the results are not robust by time period.

Conclusions and Implications

The influx of international players into the NBA has led researchers to investigate whether either pay discrimination or a pay premium exists for these new entrants. The results have been mixed depending upon the time period and the technique utilized. Using similar techniques with a longer unbalanced panel dataset (1989-2013) that covers all the years of the previous studies we test for the robustness of the results. We suggest that discrimination results are quite sensitive to the specifications and techniques used. We find that many of the results are not robust and that foreign wage premiums exist only for early foreign entrants and neither pay discrimination nor a wage premium exist after the 1996 season.

In the past, economics and econometric analysis have provided useful insights into the presence of pay discrimination in this country and helped to shape policy measures designed to alleviate such discrimination. Given that findings of racial discrimination elicit notoriety and that findings of no discrimination generally do not procure the same response it is important that any positive findings of racially unequal treatment be particularly robust (Groothuis and Hill 2013). Unfortunately, the finding of pay discrimination against foreign-born players in the NBA found by Yang and Lin (2015) does not meet this standard.

References

Alvarez J., D. Forrest, I. Sanz, J.D. Tena. (2011). "Impact of importing foreign talent on performance levels of local co-workers" *Labour Economics*, 18 (3): 287–296

Aslanbeigui, Nahid, and Veronica Montecinos. (1998). "Foreign Students in U.S. Doctoral Programs." *Journal of Economic Perspectives*, 12 (3): 171-182.

Åslund, Olaf, Lena Hensvik and Oskar Nordström Skans. (2014) "Seeking Similarity: How Immigrants and Natives Manage in the Labor Market" *Journal of Labor Economics,* 32(3):405-441.

Bartel, A. & Sicherman, N. (1999). Technological change and wages: An interindustry analysis. *Journal of Political Economy*, 10, 285-325.

Borjas, George and Brent Bratsberg. (1996). "Who Leaves? The Outmigration of the Foreign-born" *The Review of Economics and Statistics,*78 (1):165-176.

Dustmann, Christian and Arthur Van Soest.(2002). "Language and the Earnings of Immigrants' *Industrial and Labor Relations Review* , 55 (3):473-492

Eschker, E., Perez, S., & Siegler, M. (2004). The NBA and the influx of international basketball players. *Applied Economics*, 3, 1009-1020.

Groothuis, P. & Hill J. (2013). Pay Discrimination, Exit Discrimination or Both?: Another Look at an Old Issue Using NBA Data, *Journal of Sports Economics*, 14,(2), April 2013.

Groothuis, P. & Hill J. (2016). Career Duration in the NBA: Do Foreigner players exit early? Appalachian State Working Paper,

Groothuis, P., Hill J., & Perri, T. (2009). "The Dilemma of Choosing Talent: Michael Jordans are Hard to Find" *Applied Economics*, 41 (25) November 2009.

Hoffer, Adam J. and Freidel, Ryan. (2014). "Does salary discrimination persist for foreign athletes in the NBA?"*Applied Economics Letters* (21)1:1-5.

Kahane, Leo, Neil Longley and Robert Simmons. (2013). "The Effects of Coworker Heterogeneity on Firm-Level Output: Assessing the Impacts of Cultural and Language Diversity in the National Hockey League" *Review of Economics and Statistics*, 95 (1): 302-314.

Motomura, A. (2016). "Money Roundball? The Drafting of International Players by National Basketball Association Teams" *Journal of Sports Economics*, 17,(2) 175-206.

Yang, C. & Lin, H. (2012). Is There Salary Discrimination by Nationality in the NBA?: Foreign Talent or Foreign Market. *Journal of Sports Economics*, 13, (1), 53-75.

Table 1: Means/Std. Dev. of Variables by Foreign-Born Status for Overall Time Period :1990-2013				
VARIABLES	Overall	Foreign-Born, College in US	Foreign-Born, No College	US-Born Players
Height	79.14	81.64	81.48	78.81
	(0.038)	(0.172)	(0.129)	(0.040)
White	0.22	0.38	0.80	0.16
	(0.004)	(0.023)	(0.015)	(0.004)
Draft Number	27.13	23.00	30.97	27.00
	(0.228)	(0.962)	(0.779)	(0.245)
Real Salary	$2,073,304.73	$2,311,923.64	$2,425,460.58	$2,030,310.53
	(23,628.467)	(117,618.383)	(87,182.713)	(25,056.475)
Experience	4.74	4.83	3.32	4.86
	(0.040)	(0.199)	(0.119)	(0.043)
Age	27.22	28.02	25.80	27.30
	(0.044)	(0.211)	(0.139)	(0.047)
Efficiency	9.66	9.97	9.68	9.65
	(0.064)	(0.337)	(0.233)	(0.068)
Games Played	57.29	55.84	55.27	57.54
	(0.231)	(1.145)	(0.854)	(0.245)
Observations	9,661	431	744	8486
Standard errors in parentheses				

Table 2A: OLS Yearly Regressions for 1990-1996							
VARIABLES	Dependent Variable: Natural Log of Salary						
	1990	1991	1992	1993	1994	1995	1996
Age	0.086	-0.101	-0.421*	-0.142	-0.233	-0.475**	-0.423**
	(0.219)	(0.222)	(0.221)	(0.240)	(0.264)	(0.189)	(0.170)
Age Squared	-0.002	0.001	0.007*	0.002	0.002	0.007**	0.008**
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.003)	(0.003)
Experience	0.144***	0.205***	0.272***	0.234***	0.280***	0.351***	0.272***
	(0.047)	(0.048)	(0.047)	(0.053)	(0.055)	(0.046)	(0.046)
Experience Squared	-0.005	-0.009**	-0.014***	-0.010**	-0.010**	-0.018***	-0.020***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Efficiency	0.042***	0.044***	0.057***	0.057***	0.062***	0.064***	0.082***
	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.006)	(0.007)
Games Played	0.005***	0.005***	0.003	0.002	0.004**	0.000	-0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Draft Number	-0.009***	-0.011***	-0.009***	-0.011***	-0.010***	-0.011***	-0.016***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)
White Dummy	-0.052	0.144*	-0.045	-0.102	-0.073	-0.149*	-0.150
	(0.073)	(0.076)	(0.075)	(0.083)	(0.094)	(0.084)	(0.091)
Height	0.041***	0.030***	0.033***	0.021**	0.006	0.005	0.006
	(0.008)	(0.008)	(0.008)	(0.009)	(0.010)	(0.009)	(0.010)
Foreign-Born, College	-0.019	0.078	-0.158	-0.172	0.027	0.103	0.032
	(0.150)	(0.150)	(0.152)	(0.169)	(0.179)	(0.165)	(0.171)
Foreign-Born, No College	0.811***	0.948***	0.717***	0.358	0.713***	0.979***	0.901***
	(0.289)	(0.266)	(0.267)	(0.298)	(0.261)	(0.214)	(0.220)
Constant	8.463***	11.916***	16.079***	13.625***	16.349***	19.776***	18.445***
	(3.040)	(3.048)	(3.105)	(3.353)	(3.717)	(2.744)	(2.488)
Observations	343	353	359	373	366	405	392
# Foreign-born, College	15	15	15	16	16	15	17
# Foreign-born, No College	4	5	5	5	8	11	12
R-squared	0.569	0.640	0.651	0.585	0.584	0.650	0.642
Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1							

Table 2B: OLS Yearly Regressions for 1997-2006										
VARIABLES	Dependent Variable: Natural Log of Salary									
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Age	-0.194	0.028	-0.235*	-0.111	0.058	0.066	-0.078	-0.021	0.252***	0.159
	(0.186)	(0.136)	(0.132)	(0.135)	(0.135)	(0.139)	(0.136)	(0.125)	(0.096)	(0.114)
Age Squared	0.004	-0.000	0.004	0.001	-0.002	-0.001	0.002	0.000	-0.005***	-0.002
	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
Experience	0.267***	0.233***	0.305***	0.324***	0.326***	0.271***	0.329***	0.279***	0.283***	0.258***
	(0.048)	(0.042)	(0.040)	(0.039)	(0.041)	(0.042)	(0.037)	(0.038)	(0.035)	(0.035)
Experience Squared	-0.018***	-0.013***	-0.015***	-0.015***	-0.014***	-0.015***	-0.019***	-0.014***	-0.013***	-0.015***
	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Efficiency	0.077***	0.077***	0.081***	0.073***	0.066***	0.061***	0.073***	0.070***	0.066***	0.059***
	(0.008)	(0.007)	(0.007)	(0.006)	(0.007)	(0.008)	(0.007)	(0.006)	(0.006)	(0.006)
Games Played	-0.001	0.004	0.002	0.002	-0.001	-0.002	-0.003	-0.001	0.001	0.002
	(0.002)	(0.003)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)
Draft Number	-0.015***	-0.010***	-0.008***	-0.009***	-0.010***	-0.013***	-0.014***	-0.010***	-0.009***	-0.012***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
White Dummy	-0.155	0.026	0.080	0.050	-0.042	-0.068	-0.048	-0.076	0.092	0.065
	(0.095)	(0.082)	(0.081)	(0.080)	(0.088)	(0.097)	(0.087)	(0.083)	(0.079)	(0.078)
Height	0.008	0.026***	0.013	0.026***	0.024***	0.021**	0.014	0.020**	-0.000	0.014*
	(0.010)	(0.008)	(0.008)	(0.008)	(0.009)	(0.010)	(0.009)	(0.009)	(0.008)	(0.008)
Foreign-Born, College	0.231	-0.055	0.144	0.108	0.067	0.103	-0.237	0.055	0.203	-0.032
	(0.177)	(0.152)	(0.146)	(0.140)	(0.156)	(0.183)	(0.170)	(0.149)	(0.130)	(0.120)
Foreign-Born, No College	0.316	0.031	-0.141	-0.087	-0.068	0.150	0.131	0.211*	0.105	0.109
	(0.253)	(0.185)	(0.176)	(0.158)	(0.150)	(0.143)	(0.118)	(0.110)	(0.103)	(0.099)
Constant	15.162***	10.454***	15.466***	12.908***	10.999***	10.933***	13.500***	12.151***	10.291***	9.961***
	(2.695)	(2.020)	(1.956)	(1.934)	(1.930)	(2.066)	(1.951)	(1.828)	(1.463)	(1.618)
Observations	398	405	402	419	414	389	401	428	428	428
# Foreign-Born, College	17	18	19	21	18	15	14	19	23	25
# Foreign-Born, No College	9	14	14	19	25	36	43	50	52	52
R-squared	0.611	0.650	0.672	0.685	0.661	0.595	0.680	0.661	0.709	0.717
Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1										

Table 2C: OLS Yearly Regressions for 2006-2013							
VARIABLES	Dependent Variable: Natural Log of Salary						
	2007	2008	2009	2010	2011	2012	2013
Age	0.106	0.084	-0.069	0.003	-0.026	-0.061	0.023
	(0.119)	(0.121)	(0.061)	(0.058)	(0.055)	(0.050)	(0.054)
Age Squared	-0.002	-0.002	0.000	-0.000	0.000	0.001	-0.001
	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Experience	0.314***	0.331***	0.396***	0.267***	0.238***	0.252***	0.228***
	(0.038)	(0.038)	(0.035)	(0.033)	(0.031)	(0.029)	(0.033)
Experience Squared	-0.016***	-0.014***	-0.018***	-0.013***	-0.010***	-0.012***	-0.010***
	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Efficiency	0.065***	0.073***	0.033***	0.077***	0.086***	0.079***	0.071***
	(0.006)	(0.006)	(0.005)	(0.007)	(0.006)	(0.006)	(0.007)
Games Played	-0.000	-0.003	0.006***	-0.001	0.002	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Draft Number	-0.009***	-0.007***	-0.011***	-0.010***	-0.008***	-0.010***	-0.010***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
White Dummy	0.034	0.069	0.150*	0.207**	-0.002	0.151*	0.037
	(0.079)	(0.082)	(0.089)	(0.083)	(0.081)	(0.087)	(0.093)
Height	0.019**	-0.001	0.007	-0.008	0.009	0.008	0.005
	(0.008)	(0.008)	(0.009)	(0.009)	(0.008)	(0.009)	(0.010)
Foreign-Born, College	-0.090	-0.039	0.156	0.101	0.403***	0.270	0.125
	(0.138)	(0.129)	(0.145)	(0.131)	(0.140)	(0.165)	(0.171)
Foreign-Born, No College	0.209**	0.293***	0.183*	0.202**	0.199**	0.265***	0.336***
	(0.100)	(0.101)	(0.107)	(0.098)	(0.097)	(0.100)	(0.108)
Constant	10.679***	12.869***	14.210***	14.250***	13.155***	14.095***	13.208***
	(1.686)	(1.795)	(1.182)	(1.140)	(1.086)	(1.056)	(1.126)
Observations	421	418	415	423	425	427	429
# Foreign-Born, College	20	22	20	23	18	14	16
# Foreign-Born, No College	53	51	53	57	51	57	58
R-squared	0.677	0.683	0.628	0.662	0.673	0.642	0.592
Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1							

Table 3: Fixed Effect and WLS Regressions using Panel Data

	1990-2013		1990-1996		2007-2013		1999-2007 (Yang/Lin)	
	lnrealsal	residual	lnrealsal	residual	lnrealsal	residual	lnrealsal	residual
VARIABLES	Fixed Effect	WLS	Fixed Effect	WLS	Fixed Effect	WLS	Fixed Effect	WLS
Age	-0.181**		-0.157		-0.121		-0.151	
	(0.076)		(0.262)		(0.163)		(0.145)	
Age Squared	0.001		-0.002		-0.005**		0.001	
	(0.001)		(0.005)		(0.002)		(0.002)	
Experience	0.471***		0.543***		0.676***		0.506***	
	(0.040)		(0.089)		(0.117)		(0.077)	
Experience Squared	-0.017***		-0.015***		-0.019***		-0.025***	
	(0.001)		(0.005)		(0.003)		(0.003)	
Efficiency	0.024***		0.007		0.007		0.018***	
	(0.003)		(0.005)		(0.004)		(0.004)	
Games Played	0.001***		0.002*		-0.000		0.000	
	(0.000)		(0.001)		(0.001)		(0.001)	
White Dummy		-0.038		-0.191**		0.404***		0.007
		(0.049)		(0.076)		(0.138)		(0.067)
Height		0.009*		0.021**		-0.011		0.013
		(0.005)		(0.009)		(0.013)		(0.008)
Draft Number		-0.010***		-0.010***		-0.003		-0.013***
		(0.001)		(0.001)		(0.003)		(0.001)
Foreign- Born, College in US		0.150		0.167		0.395*		0.143
		(0.092)		(0.159)		(0.202)		(0.099)
Foreign- Born, No College		0.499***		1.744***		0.196		0.057
		(0.083)		(0.256)		(0.167)		(0.094)
Constant	16.500***	-0.480	16.948***	-1.335*	18.719***	0.785	16.015***	-0.678
	(1.213)	(0.406)	(3.729)	(0.682)	(2.857)	(0.994)	(2.317)	(0.630)
Observations	9,661	9,661	2,591	2,591	2,958	2,958	3,730	3,730
# Foreign- born, College	431	431	109	109	133	133	174	174
# Foreign- born, No College	744	744	50	50	380	380	344	344
R-squared	0.414	0.195	0.297	0.245	0.305	0.042	0.433	0.199
Number of clusters	1,759	1,759	733	733	804	804	921	921
# Foreign- born, College	79	79	29	29	31	31	50	50
# Foreign- born, No College	168	168	21	21	102	102	103	103

Clustered Robust Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1