2006

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IMMIGRATION OF HIGHLY SKILLED PROFESSIONALS: DISCRIMINATION IN PROFESSIONAL BASEBALL?

Abstract

Are highly skilled foreign professionals paid differently than their native-born counterparts? To address this question, this study focuses on a particular profession with substantial inflows of immigrants, in which human capital is readily transferrable: Major League Baseball (MLB). Racial discrimination in professional sports has received considerable attention, but it remains to be seen whether there has been differential treatment of foreign athletes. Focusing on a 1997-1998 sample of 557 MLB players, we find that foreign players are indeed treated differently than native-born players, favorably in some respects and unfavorably in others. Moreover, when controlling for birthplace, the extent of racial discrimination must be reconsidered.

JEL Codes: *J61* (Immigrant workers)

J71 (Discrimination)

J30 (Compensation)

1. Introduction

As labor markets become increasingly global in nature, an important question is whether there are significant pay differentials between native- and foreign-born workers, other things equal. One source of pay differentials could be imperfect transferability of human capital. A common finding is that productivity and earnings are lower for new immigrants than natives, but as immigrants assimilate to a host country the wage gap narrows and could even be reversed. Not surprisingly, myriad studies have endeavored to estimate the extent of labor market assimilation.[1] Another source of pay differentials may be discrimination against immigrant workers. If there are prejudices against foreigners, native workers could earn a pay premium over similarly productive immigrants. But perhaps discrimination varies with skill level.

Borjas (2005) has written that an inflow to the U.S. of foreign doctoral students results in significantly lower earnings for all doctorates. Turning the issue around, have highly skilled foreigners been treated differently than their native-born counterparts?

It has been argued that highly skilled workers may be complementary to native-born professionals; foreigners may be hired because skilled domestic workers are in short supply (Bauer and Kunze, 2004). Consequently, discrimination against foreign professionals might seem unlikely. Indeed, Barrett et al. (2000) report ed that immigration of skilled labor into Ireland helped reduce earnings inequality in that country. But a study by Goyette and Xie (1999) of scientists and engineers suggests that immigrants are treated differently.

Goyette and Xie reported that immigrant women are less likely to be (1) employed and (2) promoted than immigrant men and native-born women. They speculated (p. 407) that their findings may be due to the "immigration path" taken by many female scientists and engineers, as spouses of immigrant men. Immigration path notwithstanding, are foreign-born professionals treated differently than their native-born counterparts? To address this question, this study focuses on a particular profession with substantial inflows of immigrants, in which human capital is readily transferrable: Major League Baseball (MLB).

Kahn (2000b) has written that the sports business is an ideal "laboratory" for labor market analysis. For professional athletes it is possible to observe levels of both pay and performance. Moreover, there is substantial racial and ethnic diversity among athletes. Indeed, the issue of racial discrimination in professional sports has received considerable attention from labor economists (see surveys by Kahn, 1991, 2000a, 2000b).[2] But it remains to be seen whether there has been differential treatment of foreign-born athletes.[3]

Immigration research would be undermined if information about pre-migration human capital is less accurate than for post-migration human capital. Yet panel data often lack details about immigrants' proficiency in the host country language.[4] To study potential discrimination against skilled immigrants, the case of professional baseball provides several advantages.

Major League Baseball operates franchises in the U.S. and Canada. Detailed data are available about a player's performance, earnings, and personal characteristics (for example, birthplace, age, experience, tenure, race); information is also available on product market characteristics.[5] Although there are opportunities to play baseball elsewhere, MLB is widely regarded as the pinnacle of professional baseball and player salaries are higher than elsewhere.

Baseball requires highly idiosyncratic skills, yet those skills are readily transferrable. Not surprisingly, there are substantial inflows of immigrants into MLB, especially from Latin America. Although English language proficiency is not necessary to play baseball, when it comes to bargaining with teams over pay, foreigners may be at a relative disadvantage. So although playing skills are easily transferrable, immigrants may be paid differently than native players.

Major League Baseball controls the number of franchises, limiting the number of teams that can compete for players. Between 1997 and 1998 MLB expanded from 28 franchises to 30.[6] Increasing the number of competitors for labor may affect salaries, which is why we concentrate on the years 1997 and 1998.

In this study we test for pay discrimination against foreign-born professional baseball players. Our data set includes detailed observations on 557 MLB players. We find that foreign players are indeed treated differently than native-born players, favorably in some respects and unfavorably in others. Moreover, when controlling for birthplace, the extent of racial discrimination must be reconsidered.

2. Data Sample

Baseball players specialize either as hitters or as pitchers. A hitter can play regularly, that is, most of the games played by his team in a 162-game season. Pitchers, in contrast, typically perform more intermittently. Pitchers risk many different types of arm damage, so they require frequent arm rest and usually do not pitch daily. Because hitters can play more often, we concentrate on them. We want to focus on the treatment of regular players, not peripheral part-timers. Thus, we included in the sample only hitters who played at least half the time.[7]

Given the criteria for inclusion, our sample comprises 557 hitters, 101 of whom (18.1 percent) are foreign-born (see Table 1 for descriptive statistics). Of the 557 players in the sample, 52.1 percent are black/Latino. *All* of the immigrants are black/Latino, coming from Latin America or the Caribbean (specifically, Colombia, Cuba, Curacao, Dominican Republic, Jamaica, Mexico, Nicaragua, Panama, Puerto Rico, Venezuela, and the Virgin Islands).[8]

Salary, experience, performance, and position data for each player came from the Lahman Baseball Database (www.baseball1.com).[9] It is especially important to control for a player's experience because his contract status depends on that experience.

The market for MLB players operates under different contract regimes. A monopsonistic regime applies to players with less than six years of MLB experience. These relatively inexperienced players are subject to a *reserve clause*, which constrains them to negotiate pay only with the team that owns their exclusive contract rights. The monopsony power conferred by the reserve clause should hold down the salaries of novice players. If foreign-born novices suffer a relative disadvantage in bargaining, their pay could be especially low.

A competitive regime applies to players with six or more years of MLB experience. These relatively experienced players are eligible for *free agency* and can negotiate pay with any MLB team. Monopsony power effectively begins to erode, however, as early as the fourth year, for then a player is eligible for *final offer arbitration*. Arbitration rights can relieve players of monopsonistic exploitation because arbitrators are free to award competitive salaries, which does occur in practice. Free agency (or eligibility for arbitration), other things equal, should boost player salaries.

For both native- and foreign-born players in the sample, experience averages 7.18 years (see Table 1). Over 90 percent of native players are eligible for free agency or final offer arbitration; for foreigners the ratio is 85 percent. Not only are foreign and native players similar in years of experience and contract status, both groups average roughly 2,500 career at bats, meaning they have similar playing experience too.

The descriptive statistics in Table 1 show that foreign-born players tend to play different positions than the native-born ones. Foreign players are somewhat more likely to play infield positions than natives (51 percent compared to 44 percent). In contrast, natives are more likely to be outfielders or catchers. Foreigners also tend to play in larger metropolitan areas.

A player's hitting prowess can be represented by his career batting average (base hits per at bat) or slugging average (total bases per at bat). Base running acumen can be reflected by the rate of base stealing (career stolen bases per at bat). Despite playing different positions, native- and foreign-born players exhibit strikingly similar hitting performances. Mean values for career batting average (0.270), slugging average (0.420), and base stealing (roughly 2 stolen bases per 100 at bats) are virtually identical between the two groups.

Mean salaries are also similar between native and foreign players. For 1997-1998, a foreign player averaged $2.41 million in pay compared to $2.20 million for a native-born player.

Given that all of the foreign-born players are black/Latino, it may be useful to compare descriptive statistics with those of U.S.-born minority players (see Table 1). Mean values for the

experience and performance variables are comparable.[10] Furthermore, mean salaries are roughly alike) $2.41 million for foreigners, $2.31 million for native-born minorities.

Given similar mean values for pay and performance, it is tempting to conclude that there is no discrimination against immigrant players. Similarly, it may be tempting to think that black/ Latino players, regardless of birthplace, do not suffer pay discrimination. But just because average pay and average performance are similar does not necessarily mean that foreign-born players are treated just like their native-born counterparts. More detailed analysis is needed to see if players are rewarded differently.

3. Salary Regression Model

In other salary regression models estimated for professional baseball players, it is common to estimate salary in terms of explanatory variables that reflect a player's career performance, personal characteristics, contract status, and characteristics of his team's market.[11] Our specification closely follows the work of Kahn (1993a, 1993b), who analyzed the determinants of MLB player salaries.

As career performance measures we utilize commonly used variables like *At bats*, *Batting average* (base hits per at bat), *Slugging average* (total bases per at bat), and *Stolen bases* (per 100 at bats). Like Kahn, we also control for experience, contract status, *Infielder* status, *Catcher* status, *Race* (1 if black/Latino, 0 if white), the team's market area population and household income.[12] *Tenure* accounts for a player's service with his team. *Designated hitter* is a 0-1 variable that accounts for those players who specialize as designated hitters (1 if most games played are as a designated hitter). Given our 1997-1998 sample, we control for *Season* with a 0-1 indicator variable (1 if 1998). In addition to the other market characteristics, *Canadian team* is a 0-1 variable to control for teams based in Canada. Our innovation is to use an indicator variable to control for a player's *Birthplace* (1 if foreign-born, 0 otherwise).

Other things equal, there could be pay differences between native and immigrant players, that is, there could be different intercepts by group. There also could be group differences in

slope coefficients. For example, immigrant players may be treated differently according to contract status: foreigners subject to the reserve clause may be especially vulnerable in salary negotiations. Moreover, performance improvements by foreigners may be rewarded differently than those made by U.S.-born players. Because the immigrant ballplayers are also black/Latino, it is important to distinguish between potential racial discrimination and birthplace discrimination.

Given the types of salary equations estimated in other discrimination studies of professional baseball, for the *j*th player at time *t* consider a specification of the form:

$$\ln Salary_{jt} = \alpha_0 + \sum_{i=1}^{k} \alpha_i X_{ijt} + \beta_0 Race_j + \sum_{i=1}^{k} \beta_i (Race_j * X_{ijt}) + \varepsilon_{jt}, \qquad (1)$$

where the *X*s are the explanatory variables) representing a player's experience (and experience squared), contract status, tenure with team (and tenure squared), position played, career performance measures, characteristics of his team's market) and ε is the disturbance term. If any of the β coefficients is non-zero, black/Latino players are paid differently than white players. But because the foreign-born players are *also* non-white, we need to account for both *Race* and *Birthplace*:

$$\ln Salary_{jt} = \alpha_0 + \sum_{i=1}^{k} \alpha_i X_{ijt} + \beta_0 Race_j + \sum_{i=1}^{k} \beta_i (Race_j * X_{ijt}) + \gamma_0 Birthplace_j + \sum_{i=1}^{k} \gamma_i (Birthplace_j * X_{ijt}) + \omega_{jt}, \qquad (2)$$

where ω is the disturbance term. If any of the γ coefficients is non-zero, other things equal (including race), foreign-born players are treated differently than their native-born counterparts.

4. Estimation Results

To isolate the separate influences of *Race* and *Birthplace*, we begin by estimating Equation (1), that is, we start by controlling only for *Race*. Then we estimate Equation (2), accounting for both *Race* and *Birthplace*.

Consider a control only for *Race*. The estimated coefficients are reported in the left column of Table 2. The findings are similar to those reported in other studies. Pay is directly related to performance and experience. There does not appear to be significant discrimination against non-white players.

As expected, players used more intensively earn significantly higher salaries. Increasing *At bats* by one standard deviation (19.603) increases ln*Salary* by 0.8037 points (19.603 x 0.041); at the mean of ln*Salary* (14.047), adding 0.8037 points means adding more than $1.5 million to yearly pay.

Not surprisingly, better batting performance also results in significantly higher pay. Boosting slugging average by one standard deviation (0.0613) raises ln*Salary* by 0.3720 points; at the mean of ln*Salary*, yearly pay rises more than $600,000. A higher rate of *Stolen bases* also means higher pay. Starting at the mean of *lnSalary*, increasing the rate of base stealing by one standard deviation adds nearly $270,000 to a player's pay.

The regression also indicates that pay increases at a decreasing rate with experience. For a player with average years of service, the *Experience* effect is positive. Pay is unrelated to tenure with team. Other things equal, salaries for 1998 (the post-expansion year) were 10 percent higher than for 1997 (the pre-expansion year).

It is baseball lore that catchers are especially important: not only do they hit, they play a vital defensive role in the field (as backstops) and are responsible for guiding pitchers. Controlling for performance and experience, there is a significant pay premium for being a catcher, more than 30 percent. Finally, salary is directly related to market size, although it is relatively inelastic.

The coefficient on the *Race* variable is negative but not significant at the five percent level. Other things equal, there is no apparent *Race* effect. A couple of the interaction terms, however, are significantly positive (*Race* x *Batting average*, *Race* x *Catcher*), suggesting that *Race* could affect pay in other, more subtle ways. But evaluating any so-called *Race* effects is

problematic, for all of the immigrant ballplayers are also black/Latino. Do any apparent *Race* effects reflect differential treatment of foreigners?

Controlling for both *Birthplace* and *Race*, we estimated Equation (2), reporting the results in the right column of Table 2. As one would expect, the coefficient estimates are nearly identical for *At bats*, *Slugging average*, *Stolen bases*, *Experience*, *Season*, and the position variables. Once there are separate controls for *Race* and *Birthplace*, however, there are distinctive pay differentials.

The *Race* coefficient is significantly negative but the *Birthplace* coefficient is significantly positive (see Table 2). Furthermore, the *Birthplace* and *Race* effects are offsetting.[13] So controlling for factors like batting and base stealing performance, experience, and position played, immigrant ballplayers earn the same as native-born white players. Moreover, immigrant players) all of whom are black/Latino) earn substantially more than U.S.-born black/Latino players. Using the mean of ln*Salary* as the reference point, *ceteris paribus*, the difference would be $960,000.[14]

Grouping black/Latino players together) both foreign- and native-born) *Race* does not appear to have a significant impact on salaries, other things equal. Controlling for *Birthplace* shows otherwise. U.S.-born black/Latino players earn less than other ballplayers, *ceteris paribus*. For these minority players there is a significant payoff for improving *Batting average* or by being a *Catcher*. Thus, to earn a similar salary as others, a non-white American must exhibit a sufficiently strong hitting performance or play the vital *Catcher* position.

Other things equal, foreign-born ballplayers are *not* paid less than native-born white players. Nevertheless, immigrant players suffer some disadvantages. Immigrant ballplayers tend to be concentrated in infield positions; the *Birthplace* x *Infield* term shows that foreign infielders do indeed earn less than other players. Foreigners are rewarded less for their playing experience. As reported in Table 2, the return to an extra year of experience is smaller for foreigners than U.S.-born players. Furthermore, their pay is significantly related to their contract

status.

Immigrant players are particularly hurt by the reserve clause. Unlike native-born players, graduating from the reserve clause is quite lucrative for the foreigners. Once an immigrant player qualifies for final-offer arbitration, *ceteris paribus*, he experiences a significant pay increase. Starting with the mean of ln*Salary* for a player subject to the reserve clause, graduation to *Arbitration-eligible* status results in a doubling of pay (roughly from $226,000 to $452,000).[15] Qualifying for free agency also substantially boosts immigrants' salaries. Passing from *Arbitration-eligible* status to *Free agent* status means a tripling of pay (roughly from $590,000 to nearly $1,767,000).[16]

Release from the reserve clause provides a substantial payoff to foreign-born players but not domestic ones. Evidently, in the early years of their careers immigrant ballplayers are at a relative bargaining disadvantage.

5. Concluding Remarks

In a study of native-immigrant wage differentials in western Germany, Lang (2000) reported that there was discrimination against ethnic Germans from eastern Europe but not those from eastern Germany. But human capital varied in Lang's sample, especially language skills. Focusing our attention on highly skilled professionals with readily transferrable skills, Major League Baseball (MLB) players for the years 1997-1998, we find that foreign-born players are indeed treated differently) unfavorably in some respects, favorably in others.

Immigrant ballplayers subject to MLB's reserve clause, *ceteris paribus*, suffer bargaining disadvantages. Once salaries for foreigners are competitively determined, their pay jumps dramatically. Nevertheless, foreigners earn smaller returns to years of service than native-born players. Future efforts should attempt to isolate the source(s) of the initial bargaining disadvantage, whether immigrants have weaker "fall-back" positions or suffer in the negotiating process. If immigrants are indeed less skillful negotiators, that may help to explain why they realize relatively small returns to extra years of experience.

In other studies research of immigrant earnings, researchers have been unable to control for changes in employer monopsony power. Our analysis of professional baseball shows that relaxation of monopsony power does matter. As contractual structure changes) that is, as ballplayers graduate from the reserve clause to arbitration eligibility or free agency) the salaries of foreign-born players increase substantially. Thus, it is important to control for labor market structure when estimating the marginal effect on immigrant earnings of time spent in the host country.

Finally, our study is relevant for research on racial/ethnic discrimination. Previous studies of professional baseball generally have not found significant *Race* effects on player salaries. But those earlier studies did not control for possible *Birthplace* effects. Our analysis shows that in a racially diverse labor market with both native- and foreign-born workers, it is crucial to distinguish between the effects of *Race* on salary and those of *Birthplace*, particularly when *Race* and *Birthplace* are correlated. Other things equal, U.S.-born blacks/Latinos earn significantly less than other ballplayers, including foreign-born blacks/Latinos.

Unlike Lang, our study has focused on highly skilled professionals with readily transferrable human capital. And unlike Lang, we find more pronounced discrimination against a domestic racial/ethnic group than an immigrant group. Future research should seek to identify why treatment of non-white ballplayers varies by birthplace.

The majority of U.S.-born ballplayers are white; likewise, the majority of foreign-born players are black/Latino. Other things equal, these “majority group” players are paid more than the “minority group” of U.S.-born blacks/Latinos. Perhaps differential tastes for discrimination (by team owners or team-mates) contribute to this differential treatment. Or maybe the process of discovering and assessing talent differs between “majority” and “minority” groups. Perhaps that is why “minority group” players are rewarded more than others for good performance (for example, the *Race* x *Batting average* effect).

Beyond the case of baseball, we would expect future studies to focus on other professional sports (like soccer, basketball, or ice hockey) to see if there are salary (dis)advantages for foreign athletes. And beyond sports, we would expect research to focus on other skilled occupations, including those professions where language skills are important.

Notes

1. On immigrant assimilation, see the pioneering works of Borjas (1985, 1987), Chiswick (1978, 1980), Chiswick *et al*. (1997), and Chiswick and Miller (1985); also see Borjas (2002a) and Borjas *et al*. (1996). Borjas (1990, 1994, 1995, 2002a, 2002b) has discussed how the assimilation process may be hampered if cohorts of immigrants are increasingly less skilled; also see Cohen *et al*. (1997) and Duleep and Regets (1997). For earlier surveys of immigration research, see Borjas (1994) and Greenwood and McDowell (1986).

2. Research on racial discrimination in professional sports includes analyses of salary, as well as discrimination in hiring and retention discrimination and discrimination by playing position (see the surveys by Kahn, 1991, 2000a, 2000b). Salary discrimination has been the most studied issue. The primary method used to test for racial discrimination in pay involves a regression of log salary on a vector of performance indicators, team and market characteristics, and 0-1 indicator variable for race. In Major League Baseball, there is little evidence of significantly positive salary premia for white players.

3. While there has not been research on wage discrimination against immigrant athletes, Jones *et al*. (1999) studied discrimination in the National Hockey League by Canadian teams against French-speaking players.

4. McManus *et al*. (1983) demonstrated that a potentially large portion of the native-immigrant worker wage gap can be accounted for by differences in host country language proficiency.

5. With the exception of Daneshvary (1993) and Bucci and Tenorio (1997), past studies of birthplace discrimination generally have not controlled for industry, occupation, or the degree of employers' monopsony power. But the appearance of non-discrimination may mask discrimination across particular industries and occupations. Controls for occupation or industry are also important because they may proxy unobserved human capital. Finally, estimates of wage discrimination could be confounded by the influence of any employer monopsony power.

6. In 1997 and 1998 two franchises were operated in Canada; the rest were in the U.S.

7. Specifically, to be included in the 1997 (1998) sample, a hitter must have played in at least 81 of a possible 162 games in 1996 (1997).

8. Following previous studies of discrimination in professional baseball, we inspected *Topps* baseball cards for 1997 and 1998 to infer a player's race. According to our playing criteria, 563 players could be included in the sample, but we omitted 6 foreign-born white players (3 observations from Canada, 2 from Australia, 1 from Germany). Given only 6 data points for foreign-born white players, there are not enough observations to separate the potential influences of race and birthplace on their salaries.

9. The salary information is the dollar value of contractual earnings for the particular year, which includes the value of any bonuses. Information is not provided about contract length.

10. One exception is in the rate of base stealing. Native-born black/Latino players average 3.70 stolen bases per 100 at bats, compared to a rate of 2.16 for the foreign players. The minority groups do differ according to position played. Native-born black/Latino players tend to be outfielders (63 percent), but foreign-born black/Latino players tend be infielders (51 percent).

11. For example, see studies by Bodvarsson and Pettman (2002), Kahn (1993a, 1993b, 2000a), Marburger (2004), and Miller (2000).

12. For U.S.-based teams, metropolitan area population and per-capita income data are available from the Bureau of Economic Analysis (www.bea.gov). For Canada-based teams, the same data are available from Statistics Canada (www.statcan.ca); we converted into U.S. dollars the per-capita income figures for the Canadian metropolitan areas.

13. A Wald test cannot reject the null hypothesis that the *Race* and *Birthplace* coefficients sum to zero (F-statistic = 0.015).

14. Starting at the mean of ln*Salary*, 14.047, the *Race* effect pushes ln*Salary* down to 11.983 ($160,011); the *Birthplace* effect boosts ln*Salary* to 13.928 ($1,119,060), meaning a

difference of $959,049.

15. *Offer* status adds 0.692 points to ln*Salary* (see Table 2). Starting at the mean of ln*Salary* for reserve clause players, 12.449, and then adjusting for *Race* and *Birthplace*, the *Offer* effect pushes ln*Salary* from 12.330 ($226,387) to 13.022 ($452,254).

16. *Free Agent* status adds 1.097 points to ln*Salary* (see Table 2). Starting at the mean of ln*Salary* for *Offer*-eligible players, 13.407, and then adjusting for *Race* and *Birthplace*, the *Free Agent* effect leads ln*Salary* to jump from 13.288 ($590,072) to 14.385 ($1,767,364).

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Table 1. Descriptive Statistics.

VARIABLE	FULL SAMPLE (557 players) Mean (Std. Dev.)	NATIVE-BORN (456 players) Mean (Std. Dev.)	FOREIGN, MINORITY (101 players) Mean (Std. Dev.)	NATIVE, MINORITY (189 players) Mean (Std. Dev.)
Salary ($ millions)	2.225 (2.202)	2.196 (2.178)	2.409 (2.328)	2.311 (2.463)
Experience (Years)	7.181 (3.840)	7.180 (3.824)	7.178 (3.836)	7.275 (3.998)
Tenure w/team (Years)	2.346 (2.751)	2.390 (2.820)	2.196 (2.405)	2.132 (2.551)
Race (=1if minority)	0.521	0.414		
B*irthplace* (=1 if non-U.S.)	0.181			
Free agent (%)	0.618	0.614	0.645	0.619
Arbitration-eligible (%)	0.280	0.296	0.206	0.291
At bats (Career, 100s)	24.841 (19.603)	24.725 (19.603)	25.139 (19.299)	26.276 (21.026)
Batting avg. (Career)	0.270 (0.022)	0.270 (0.023)	0.270 (0.020)	0.274 (0.021)
Slugging avg. (Career)	0.418 (0.061)	0.419 (0.060)	0.416 (0.069)	0.422 (0.062)
Stolen bases (Career, per 100 at bats)	2.363 (2.334)	2.408 (2.452)	2.157 (1.699)	3.701 (2.873)
Infielder (%)	0.454	0.441	0.514	0.275
Outfielder (%)	0.364	0.377	0.308	0.630

Table 1 (continued). Descriptive Statistics.

VARIABLE	FULL SAMPLE (557 players) Mean (Std. Dev.)	NATIVE-BORN (456 players) Mean (Std. Dev.)	FOREIGN, MINORITY (101 players) Mean (Std. Dev.)	NATIVE, MINORITY (189 players) Mean (Std. Dev.)
Catcher (%)	0.118	0.125	0.084	0.026
Designated Hitter (%)	0.063	0.055	0.103	0.069
Income per capita ($ thousands)	27.746 (3.627)	27.763 (3.500)	27.755 (4.114)	27.797 (3.407)
Metro population (millions)	5.584 (4.727)	5.359 (4.558)	6.400 (5.262)	5.737 (4.967)

Table 2. Determinants of Player Salaries.†

Dependent variable: ln*Salary*
(t-ratios in parentheses; *significant at 5%)

VARIABLE	Eq.(1): *Race* effects only	Eq. (2): *Birthplace* and *Race* effects
Birthplace		1.945*
		(1.97)
Race	-1.354	-2.064*
	(-1.75)	(-2.31)
Birthplace x *Free agent*		1.097*
		(2.37)
Race x *Free agent*	0.315	0.017
	(0.90)	(0.04)
Birthplace x *Arbitration-eligible*		0.692*
		(2.31)
Race x *Arbitration-eligible*	0.078	-0.073
	(0.37)	(-0.32)
Birthplace x (*At bats* x 100)		0.007
		(0.62)
Race x (*At bats* x 100)	0.003	0.003
	(0.39)	(0.23)
Birthplace x *Batting average*		-0.879
		(-0.20)
Race x *Batting average*	6.061*	6.719*
	(2.01)	(1.95)
Birthplace x *Slugging average*		-2.014
		(-1.23)
Race x *Slugging average*	-0.309	0.344
	(-0.26)	(0.25)
Birthplace x *Stolen bases per 100 at bats*		-0.089
		(-1.91)
Race x *Stolen bases per 100 at bats*	0.004	0.029
	(0.13)	(0.89)

Table 2 (continued). Determinants of Player Salaries.†

Dependent variable: ln*Salary*
(t-ratios in parentheses; *significant at 5%)

VARIABLE	Eq.(1): *Race* effects only	Eq. (2): *Birthplace* and *Race* effects
Birthplace x *Experience*		-0.364* (-2.69)
Birthplace x (*Experience*)^2		0.018* (2.72)
Race x *Experience*	-0.150 (-1.48)	-0.049 (-0.45)
Race x (*Experience*)^2	0.005 (0.89)	-0.0004 (-0.07)
Birthplace x *Tenure*		0.066 (0.98)
Birthplace x (*Tenure*)^2		-0.002 (-0.25)
Race x *Tenure*	0.077 (1.86)	0.040 (0.85)
Race x (*Tenure*)^2	-0.005 (-1.59)	-0.003 (-0.91)
Birthplace x *Infielder*		-0.389* (-2.24)
Race x *Infielder*	0.125 (0.96)	0.219 (1.56)
Birthplace x *Catcher*		-0.572 (-1.65)
Race x *Catcher*	0.473* (2.40)	0.684* (2.07)
Birthplace x *Designated hitter*		-0.538 (-1.58)
Race x *Designated hitter*	0.079 (0.31)	0.259 (0.93)

Table 2 (continued). Determinants of Player Salaries.†

Dependent variable: ln*Salary*
(t-ratios in parentheses; *significant at 5%)

VARIABLE	Eq.(1): *Race* effects only	Eq. (2): *Birthplace* and *Race* effects
Free agent	0.244 (0.91)	0.247 (0.92)
Arbitration-eligible	0.154 (0.96)	0.152 (0.94)
At bats x 100	0.041* (8.34)	0.041* (8.24)
*Batting averag*e	-2.092 (-0.91)	-2.072 (-0.90)
Slugging average	6.068* (6.54)	6.068* (6.47)
Stolen bases per 100 at bats	0.076* (2.89)	0.076* (2.86)
Experience	0.411* (5.15)	0.411* (5.08)
(*Experience*)^2	-0.027* (-6.40)	-0.027* (-6.33)
Tenure	0.044 (1.55)	0.044 (1.54)
(*Tenure*)^2	-0.002 (-0.77)	-0.002 (-0.74)
Infielder	0.121 (1.17)	0.121 (1.16)
Catcher	0.312* (2.24)	0.309* (2.19)
Designated hitter	0.162 (0.87)	0.157 (0.84)
ln*Metro population*	0.094* (1.94)	0.077 (1.62)

Table 2 (continued). Determinants of Player Salaries.†

Dependent variable: ln*Salary*
(t-ratios in parentheses; *significant at 5%)

VARIABLE	Eq.(1): *Race* effects only	Eq. (2): *Birthplace* and *Race* effects
ln*Metro income per capita*	-0.200 (-0.58)	-0.187 (-0.54)
Canadian team	-0.123 (-0.75)	-0.139 (-0.84)
Season	0.100* (1.96)	0.108* (2.14)
Constant	9.942* (3.08)	10.063* (3.15)
Number of observations	557	557
Mean of dependent variable	14.047	14.047
Adjusted R^2	0.768	0.772
F-statistic (overall significance of regression)	60.43*	42.82*

†For each equation, the White test rejects the null hypothesis of no heteroskedasticity. Thus, each equation is estimated with White heteroskedasticity-consistent standard errors and covariance.