THE INCOME TAX RESPONSIVENESS OF THE RICH: EVIDENCE FROM FREE AGENT MLB ALL-STARS.

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Abstract
This paper examines the responsiveness of the rich to state income taxes. We use MLB free agents who were named All-Stars at some point in their career and who signed with a U.S. team for the 1991 through 2002 seasons. This data set overcomes some of the previous difficulties encountered in similar studies but also has limitations representing the general rich population. We find evidence that the wages of this subset of players do adjust to offset the burden of state income taxes, specifically a one percent decrease in net-of-tax rate leads to a 3.3 percent increase in salary. (JEL H20, H24, H71, R23)

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I. INTRODUCTION

Policy revolving around the taxation of the rich is frequently a topic of both positive and normative debate. On the normative side, the issues of tax code progressiveness and tax burden equity typically dominate the discussion of the appropriate income tax rate(s) that the affluent should face. The role of economics has been to provide positive analysis with both theoretical understanding and empirical evidence to the outcomes of policies that have resulted from these debates.[1] While there is a robust literature researching the effects of income taxes in general, the area that has received much less attention has been the ability of individual states to levy income taxes on the rich.

The traditional literature in public finance has been of the perspective that progressive redistributional taxes by the state will be undermined by the ability of high-income earners to exit their jurisdiction and be replaced by those from the lower end of the income distribution (see Tiebout, 1956; Musgrave, 1959; and Oates, 1972). Yet we still observe a considerable amount of taxation of the rich among the states. According to the Internal Revenue Service, 54.9 percent of the taxes due to state governments in 2004 were retrieved from individuals with more than $200,000 in adjusted gross income.[2] This is despite the fact that this group represented just 2.3 percent of the tax returns and 45.3 percent of the total tax liability in those states. Clearly this group serves as a very important component of the tax base of a state, not to mention the role they likely play in the local economy. The fact that we observe rich tax payers remaining in high tax states likely reflects heterogeneous preferences, some mobility constraints, political economy issues, and some preference for redistributional government.

Still, very little empirical evidence exists about the responsiveness of the rich to state income taxes, with the only prior research to our knowledge being that of Bakija and Slemrod (2004).

The primary reason for the empirical absence is likely the difficulties of data pertaining to this group. The term "rich" is rather arbitrarily defined in a relative context to some group, and can vary considerably from person to person. A 2003 Gallup Poll reported that to be "rich" meant an annual income around $120,000 or $1 million in total financial assets (Moore, 2003). Regardless of the actual cut-off point in determining this group, it is by definition that they are small relative to the size of the population of interest. Empirically, this problem manifests as small sample sizes and few degrees of freedom available for hypothesis testing. In addition to a lack of sufficiently large data sets, there are difficulties in both observing their income and their true residence. Groups like business executives commonly accept alternative forms of payment, such as stocks, in addition to their salary that makes it difficult to estimate their true income (Goolsbee, 2000a; Goolsbee, 2000b). Since it is possible for the rich to own housing in multiple states, their reported residence and their true residence may differ, resulting in difficulties estimating their state income tax responsiveness (Bakija and Slemrod, 2004).

The aim of this paper is to contribute to the literature on the state income tax responsiveness of the rich using data from Major League Baseball (MLB). Specifically, we use a set of 235 free agent All-Stars who signed a contract to play on a U.S. team for the 1991 through 2002 seasons. Professional baseball players serve as an appealing target for estimating state income tax responsiveness because of some special treatment they receive from state legislatures. Beginning in 1991, states around the country with professional sports teams began implementing what are popularly known as "jock taxes." These were not new taxes, but rather the states' recognition that they frequently had millionaire nonresidents earning income within their borders not paying taxes, and as a result they began to more aggressively capture them as a tax base.[3] As a part of this, players are considered residents of the jurisdiction where their team is based or

headquartered. Thus we can be reasonably certain they negotiate their salary with the signing team's state income tax rates in mind so that our results are not sensitive to any difference between the true state of residence and the reported residence. Secondly, there is a reasonably accurate reporting of their income, as their salaries are well known and paid in cash form.

Table 1 lists the 20 highest paid players in MLB on U.S. teams for the 2002 season sorted from highest to lowest gross income. The table demonstrates that state income tax rates are very important to their net income, making it something they are likely taking into consideration when negotiating with signing teams. For instance, while Sammy Sosa and Barry Bonds had the same gross income, Sosa's total tax bill was more than $600,000 lower by playing in comparatively low-tax Illinois instead of California.

<INSERT TABLE 1 HERE>

To estimate the state income tax responsiveness of free agent All-Stars, the player's signing salary is regressed on the net-of-tax rate as well as other player, team, and location characteristics. Our least-squares estimate indicates that free agent All-Stars require a 3.3 percent higher salary for a one-percent decrease in the net-of-tax rate. This is significantly greater than one at the ten-percent level. This result does appear to be sensitive to outliers, as a quantile regression around the median revealed a lower estimate that was still greater than one in absolute value, but was not statistically different from one. These results lend credence to the traditional view in public finance that states will have difficulty implementing progressive income taxes.

II. LITERATURE REVIEW

The question of tax incidence with respect to state income taxes has been addressed by Feldstein and Wrobel (1998). Using wage data from the March Current Population Survey (CPS) for the years 1983 and 1989, the authors find that state and local governments are unable to

redistribute income and conclude that any attempt needs to be undertaken at the federal level or by a sufficiently large group of states.[4] When interjurisdictional migration is possible, gross, or pre-tax wages, will adjust to a change in state income tax until net, or post-tax wages, are equal. While this adjustment has conventionally been recognized in the long run, the authors find that adjustment is rapid over this time period and even short-run effects of redistribution are very small. Additionally, changes in progressivity can result in deadweight efficiency losses as resources are reallocated spatially. The cost of high-skilled labor to firms will increase, reducing employment in this group, and the cost of low-skilled labor will decrease, expanding the employment of this group.

Our paper most closely follows that of Bakija and Slemrod (2004), which estimates aversion to high state taxes by the rich elderly using federal estate tax returns and a tax burden calculator. They use a fixed-effects logit probability model where an individual migrates to the state that provides the highest utility, and find that state income taxes are estimated to have a significant negative correlation with the number of reported income tax returns in that state. Specifically, they estimate the percentage decline in estate tax returns for the state ranges from 1.5 to 2.7 percent given a one percent increase in the effective state average income tax rate.[5] However, as the authors note, the results depend upon the earnest of the filer to report from their actual state of residence. Our data on MLB players overcomes this problem because professional athletes are recognized as residents of the state in which their team resides. The authors also provide an alternate, political economy, interpretation of the Feldstein and Wrobel (1998) conclusion by suggesting that progressive state income taxes may be a response to increasing wage inequality rather than a cause of the inequality.

Examining wage inequality more directly, Leigh (2005) employs an index of redistribution based on the Gini-coefficient for the years 1977 through 2002 and does not find a statistically significant relationship between more redistributive state taxes and pre-tax inequality. As noted above, the expected increase in pre-tax wage inequality was suggested by Feldstein and Wrobel (1998). However, Leigh's evidence on the migratory behavior is mixed, and he finds no evidence that total state personal income is negatively affected by a more progressive state income tax. Finally, he reports limited evidence that states with more inequality are likely to implement more progressive tax systems. This lends some support to the political economy hypothesis of Bakija and Slemrod (2004).

Looking specifically at the migration literature, Linneman and Graves (1983) have established that the migration decision is affected by location specific characteristics such as climate or state and local public finance. Using microdata from the National Longitudinal Survey of Youth (NLSY), Knapp and White (1992) show that individuals do respond to state and local tax and expenditure policies when making a migration decision. Conway and Houtenville (2001) conclude that elderly migrants are attracted to states characterized by lower personal income taxes and lower death taxes. However, the magnitude of the estimates are small and sensitive to model specification. Cebula (1990) finds that just the existence of a state income tax system may act as a deterrent to elderly in-migrants, and Saltz (1998) reports similar findings for individuals between 20 and 40 years of age.

III. DATA AND METHODOLOGY

The motivation for the econometric model comes from the classic hedonic pricing model used for differentiated goods. The suggestion is that teams located in less desirable environments, particularly those with higher income taxes, will have to offer higher salaries to attract better

players. In essence, the teams' demand for high-skill players is less elastic than the supply of that talent, shifting the incidence of the tax burden onto the team. Therefore, letting subscript *i* represent an observed transaction, a player's salary (Y_i) will depend nonlinearly on their own characteristics (Z_i), the signing team's characteristics (X_i), the location's characteristics (L_i), and the relevant income tax rate (T_i). The random error term e_i reflects the individual heterogeneity of team and player preferences in the transaction while D is a vector of dummy variables and the constant term.

(1) $$Y_i = T_i^{\beta} Z_i^{\delta} X_i^{\gamma} L_i^{\rho} \exp(\alpha D + e_i)$$

For the econometric specification, we take the log of equation (1). Letting the lowercase letters represent the variables in equation (1) in their log form, and letting $\tau_i = \log(1-T_i)$, we specify the model for estimation as:

(2) $$y_i = \beta\tau_i + \delta z_i + \gamma x_i + \rho l_i + \alpha D + e_i$$

The coefficient of interest will be the net-of-tax rate elasticity, β, and will be interpreted as the percentage increase in income required to compensate the player for a one percent decrease in the net-of-tax rate for playing in that state. The actual specification of this tax rate will be discussed shortly, but the expected sign of β is negative if free agent all-stars require higher compensation to play in states with higher income taxes. The closer |β| is to one, the more fully compensated the players are for the tax rate. If |β| > 1, then it is interpreted that the players require compensation for non-baseball and capital income. Therefore, it should be noted that non-salary income, such as endorsement contracts or capital income, is not included in the current analysis.

Most of the player and team data is extracted from *The Lahman Baseball Database, Version 5.3,* a commonly used source for studies that draw on MLB data.[6] See the Appendix for a full

description of data sources and the methodology for the calculation of variables. It is likely that from the standpoint of the American public, even the lowest paid MLB player is rich. However, what is needed for this study is to select players whose talents would give them market power that is similar to that of the general rich population. Presumably, the general rich population have a skill-set that allows them at least some flexibility in choosing where to live. The desired group of MLB players we want to analyze have the power to negotiate salaries, with the idea being that any team would be willing to sign them if the price was right.[7]

Within the *Lahman* database, we were able to construct an indicator variable that signaled if a given player had ever been voted to play in an All-Star game at any point in his career. This All-Star indicator was used to determine whether or not the player had any bargaining power, as arbitrarily choosing a particular salary or performance statistic would be more likely to lead to a sample-selection bias. For instance, a young promising player may have some market power even if his performance statistics are low and similarly for a player on the tail-end of his career.

This topic also brings up an important limitation of the use of MLB All-Stars as representative of the rich population. It may be expected that the labor supply of MLB All-Stars to a state is more elastic with respect to taxes compared with the general rich population, due to greater mobility among baseball players. Their baseball earnings are relatively front-loaded in their lifespan and concentrated in a small number of years. Players may be willing to relocate temporarily to gain large rewards and move to a preferred location in retirement. Additionally, the labor market for the MLB free agents is presumably better organized than other markets for highly skilled labor to find available positions in alternative locations that are close substitutes. Similarly, player performance is not constrained by agglomeration economies that may affect other highly skilled workers, and spousal working decisions are not likely to be an issue.[8]

According to the Current Population Survey (CPS) produced by the Census Bureau, the probability of a interstate move from March 1990 to March 1995 by individuals over age 15 and earning more than $100,000 in 1994 was 8.9 percent. By comparison, the probability that an All-Star MLB player in 1990 was playing in a different state in 1995 was 47.6 percent. This heightened mobility of MLB all-stars will weigh against the trade-off that players cannot easily choose alternative locations for reporting their residence.

The All-Star indicator variable was then merged with a list of free agent transactions from 1991 into the 2002 season, which we used to exclude any player who was never on an All-Star team. We then limited the list to include only non-pitchers because of the significantly different features of the position that make it an altogether different labor market (see Hylan et al., 1996). This list was then merged together with the players' previous season performance statistics, as well as the signing teams' previous season revenues and performance. Additionally, we added various other characteristics of the Metropolitan Statistical Area (MSA) the team resided in, such as population and housing prices. The resulting dataset has 235 observations, for which the summary statistics are presented in Table 2.

<INSERT TABLE 2 HERE>

The final variable to discuss is the state tax rate, which is a point of discussion. The measure of the players' tax rate is what we will refer to as the average tax rate, calculated using NBER Taxsim (see Feenberg and Coutts, 1993) to estimate federal and state tax liability and dividing it by total income.[9] This measure captures the interaction of state and federal taxes since the taxes paid to the state are deductible from federal taxable income for itemizers. The problem that arises from this is the average tax rate is an increasing function of income, making it endogenous. To correct for the endogeneity, we created an instrument variable (IV) that was the total tax burden

from an arbitrarily high level of income that was constant across players, states, and time.[10] Since the deductibility of state taxes is a sunk benefit in the location choice and the players have a high enough income that they are located in the highest tax bracket, the correlation coefficient β should capture the effect of differences in the state's top marginal tax rate. Still, year dummies will be included to capture spurious correlation from other changes in the tax code over the period.

IV. RESULTS

The estimation of equation (2) was carried out with an IV for the average tax rate in a two-stage least squares (2SLS) regression with robust standard errors. The estimation of the first stage of the regression can be found in Table 3, while the results of the second stage regression can be found in Table 4 with the robust standard errors reported in parentheses.[11]

<INSERT TABLE 3 HERE>

The first column of Table 4 reports final results of the IV with 2SLS and finds the income elasticity to the net-of-tax rate to be -3.3 percent, which is significantly greater than one in absolute value at the ten-percent level. The interpretation is that we are 90 percent confident that a one-percent decrease in the net-of-tax rate will mean that players would require a greater than one-percent increase in their salary to offset those higher taxes. The second column of Table 4 demonstrates the results of a quantile regression around the median observation in the second stage. The quantile regression indicates that estimation of equation (2) does appear to be sensitive to outliers, which exist on both ends of the distribution of real salaries. While the net-of-tax rate is still statistically different from zero at the five-percent level, it is not statistically different from one.

<INSERT TABLE 4 HERE>

The remainder of the variables seem to take the expected signs. Defensive put outs is positive and significant, as is the sum of on-base and slugging percentages that is advocated by Hakes and Sauer (2006). Age takes the quadratic form that indicates a turning point at approximately 27 years. While individually the coefficients on the age variables are statistically insignificant, they are jointly significant at the five-percent level in the IV/2SLS and at the one-percent level in the quantile regression. There also does not appear to be significant barriers to signing with a new team, as the salary players are willing to accept to stay with the same team is lower by a statistically insignificant amount.

We found the median house price served as the best proxy for amenities, and that players do accept lower salaries in amenity rich states.[12] It also seems that teams are willing to pay slightly more for a player who was born in the state the team is located in. This is probably capturing a marginal revenue effect where local fans would like to see former prep stars return to the area and play professionally.

To control for teams that highly value a player's marginal product the adjusted population, the team's previous year revenues and winning percentage were included.[13] They were consistent in having the expected signs but were significant in only the quantile regression.[14] Cross-correlation and variance inflation factors did not indicate the presence of collinearity between the three variables.

V. DISCUSSION

The evidence provided here supports the traditional view of public finance regarding the inability of states to redistribute income with progressive taxation on the rich. Since professional baseball players are largely incapable of hiding their salary income or reporting their residence in a lower tax state, those players with a highly elastic labor supply will shift the burden of the tax

onto the teams and provide some insight into how strong this impact is among the rich. According to our estimates, a one percent decrease in the net-of-tax rate requires a 3.3 percent higher gross salary to sign a free-agent All-Star. This is significantly greater than one at the ten-percent level, albeit that significance is sensitive to outliers as evidenced by a quantile regression. These results complement the work on state taxation of the rich elderly by Bakija and Slemrod (2004), in which they found the elasticity of higher state income tax rates to reduce the number of federal tax returns filed from 1.5 to 2.7 percent, depending on the specification of the model.

It could still be true that a state could increase its total tax revenue from increasing the marginal tax rate on the top income bracket, our results do not rule this out. To the extent the results are representative of the general rich population, it suggests that states will bear the larger share of the burden of deadweight losses from this form of taxation. Of course there could be other factors to consider from a normative standpoint since the discussion of minimizing deadweight loss alone comes from a normative background (see Sandmo, 1998).

There are also some possible implications for MLB itself, as it seems from our results that teams that are located in higher tax states are put at somewhat of a disadvantage in the bidding process for the best players. This would be an important consideration in other sports that have salary caps as a team in a high-tax state would not be able to purchase as much free agent talent. It also would follow that different taxes across states would distort the baseball player labor market since a team in a low-tax state could outbid another team in a high-tax state even if their valuation of the player was lower.

[1] Slemrod (1998) provides a summary of both the positive and normative issues at hand in taxing the rich.
[2] These figures are based on authors' calculations from data on state individual income tax statistics provided by the Internal Revenue Service.
[3] For a full discussion of jock taxes, see Hoffman and Hodge (2004).
[4] If the number of states raising income tax progressivity was large enough, individuals would have fewer migration opportunities and pre-tax wages may not fully adjust.
[5] They compute this using their own tax calculator that gives them essentially the economic cost of the tax, which is the combined federal and state income tax liability as a share of income, minus their income tax liability in a state without an income tax.
[6] Recent examples of studies using the Lahman Database include Abel and Kruger (2006) and Bradbury and Drinen (2006).
[7] Ideally, we would like to have an estimate of the present value of the contract at signing. This is not data available to us, but Slemrod (1992) has pointed out that empirically a snapshot of annual income is not a bad representation of income averaged over several years and generally does not provide misleading results.
[8] We appreciate an anonymous referee's contributions to some of the limitations of using MLB free agents.
[9] There is no Canadian counterpart to the NBER Taxsim model that we know of, and since we were unable to devise a similar method to estimate an average tax rate for the Canadian provinces during the time period, those players were dropped from the model. However, there were just 17 transactions between Canadian teams and free agent All-Stars. The inclusion of their top bracket provincial marginal tax rate as a proxy for their average income tax rate did not change the results in any significant way, and those results are available upon request from the authors.
[10] We choose $10 million as our arbitrarily high level of income to serve as the instrument variable. We thank an anonymous referee for suggesting the use of this measure of tax rate.
[11] In both Tables 3 and 4, the year dummies are not reported but are available upon request from the authors.
[12] For a discussion of the use of housing price as a sole proxy of amenities, see Graves (1983) and Knapp and Graves (1989).
[13] We would like to thank an anonymous referee for suggesting revenue to control for this effect.
[14] Other variables were tested but found to be insignificant in controlling for the teams' valuation of a player's marginal product. The revenue control appears to be driven by teams like the New York Yankees and the Boston Red Sox. Without revenue, dummies for these teams were significant but the standard errors were much higher across the regression. Once the revenue was included, these dummies and an interaction term were insignificant. Also we tried the age of the stadium and the stadium's ball-park factor, which is an estimate of how favorable the stadium is to batters, but in both cases were insignificant.

ABBREVIATIONS
MLB: Major League Baseball
MSA: Metropolitan Statistical Area
NBER: National Bureau of Economic Research
IV: Instrument Variable
2SLS: Two-Stage Least Squares

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Table 1
Income Tax Burden of 20 Highest Paid Players on U.S. Teams in 2002[1]

	Name		Team	Gross Income	State Marginal Tax Rate[2]	Federal Liability	State Liability[3]	Net Income	N.I. Rank	Average Tax Rate
1	Rodriguez	Alex	Texas Rangers	$22,000,000	0.00%	$8,466,384	$0	$13,533,616	1	38.48%
2	Brown	Kevin	Los Angeles Dodgers	15,714,286	9.30	5,659,014	1,459,274	8,595,998	4	45.30
3	Ramirez	Manny	Boston Red Sox	15,462,727	5.30	5,806,145	818,999	8,837,583	2	42.85
4	Bonds	Barry	San Francisco Giants	15,000,000	9.30	5,400,670	1,392,845	8,206,485	6	45.29
4	Sosa	Sammy	Chicago Cubs	15,000,000	3.00	5,731,468	449,879	8,818,653	3	41.21
6	Jeter	Derek	New York Yankees	14,600,000	6.85	5,393,463	999,517	8,207,020	5	43.79
7	Martinez	Pedro	Boston Red Sox	14,000,000	5.30	5,254,519	741,475	8,004,006	7	42.83
8	Green	Shawn	Los Angeles Dodgers	13,416,667	9.30	4,828,007	1,245,595	7,343,065	10	45.27
9	Johnson	Randy	Arizona Diamondbacks	13,350,000	4.79	5,036,169	637,647	7,676,184	8	42.50
10	Maddux	Greg	Atlanta Braves	13,100,000	5.83	4,888,891	763,116	7,447,993	9	43.15
11	Walker	Larry	Colorado Rockies	12,666,667	4.77	4,777,528	603,869	7,285,270	11	42.48
12	Belle	Albert	Baltimore Orioles	12,368,790	4.75	4,665,555	587,142	7,116,093	12	42.47
13	Williams	Bernie	New York Yankees	12,357,143	6.85	4,561,051	845,882	6,950,210	13	43.76
14	Vaughn	Mo	New York Mets	12,166,667	6.85	4,490,358	832,834	6,843,475	14	43.75
15	Jones	Chipper	Atlanta Braves	11,333,333	5.83	4,226,188	660,106	6,447,039	17	43.11
16	Bagwell	Jeff	Houston Astros	11,000,000	0.00	4,220,384	0	6,779,616	15	38.37
16	Gonzalez	Juan	Texas Rangers	11,000,000	0.00	4,220,384	0	6,779,616	15	38.37
16	Mussina	Mike	New York Yankees	11,000,000	6.85	4,057,362	752,917	6,189,721	18	43.73
19	Piazza	Mike	New York Mets	10,571,429	6.85	3,898,303	723,560	5,949,566	19	43.72
20	Giambi	Jason	New York Yankees	10,428,571	6.85	3,845,283	713,774	5,869,514	20	43.72

[1] Tax Burdens Estimated by NBER TAXSIM Version 5.1 with the assumption their spouse earns no income, has one child, and no other form of income or property taxes.

[2] Effective State Marginal Tax Rate as reported by NBER TAXSIM v. 5.1

[3] Does not take into account different tax rules applying to income earned in out-of-state games.

Table 2
Descriptive Statistics

Variable	N	Mean	Std. Dev.	Minimum	Maximum
Real Signing Salary	235	$2,773,129	$1,874,022	$124,140	$9,624,601
Average Tax Rate	235	0.41	0.04	0.26	0.47
Tax Instrument Variable	235	$4,264,271	$339,449	$3,094,464	$4,719,885
Put Outs	235	252	344	0	1,458
On-Base+Slugging Percentage	235	0.759	0.136	0.125	1.137
Age	235	33.5	3.5	25.0	46.0
Age2	235	1,132.8	244.0	625.0	2,116.0
Re-Signed with Same Team = 1	235	0.3	0.4	0.0	1.0
Signing Team located in Birth State=1	235	0.1	0.3	0.0	1.0
Lagged Signing Team's Revenues (mills)	235	$84.8	$36.1	$26.6	$207.6
Lagged Signing Team's Winning Pct	235	0.509	0.071	0.327	0.716
MSA's Median House Price	235	$149,741	$58,087	$73,705	$384,130
Adjusted MSA Population	235	4,797,333	3,255,051	1,449,760	13,155,584

TABLE 3
First Stage Least Squares Estimates

Dep: ln(1-Average Tax Rate)	**OLS**	
Tax Instrument	-1.89E-07	***
	(0.00)	
ln(Put Outs)	-0.0043	***
	(0.00)	
ln(On-Base Pct + Slugging Pct)	-0.0465	***
	(0.01)	
Age	-0.0060	
	(0.01)	
Age^2	0.0001	
	(0.00)	
Re-Signed with Same Team = 1	-0.0049	
	(0.00)	
Signing Team located in Birth State=1	-0.0010	
	(0.01)	
ln(Lagged Signing Team's Revenues)	-0.0069	
	(0.01)	
ln(Lagged Signing Team's Winning Pct)	0.0380	**
	(0.02)	
ln(Median House Price of Team's MSA)	0.0241	**
	(0.01)	
ln(Team's Adjusted Population)	-0.0044	
	(0.00)	
Time Trend	0.0022	*
	(0.00)	
Constant Term	-4.1922	
	(2.66)	
R^2	0.7747	
Sample Size	235	

Notes: Robust standard errors is reported in parentheses. Year effects are not reported but are available upon request from the authors.

*** indicates statistical significance at 0.01 level, ** at 0.05 level, and * at 0.10 level.

TABLE 4
Estimation Results

Dep: ln(Real Salary)	IV/2SLS	Quantile
ln(1-average tax rate)	-3.3497 **	-1.2011 **
	(1.45)	(0.59)
ln(Put Outs)	0.1181 ***	0.1199 ***
	(0.02)	(0.01)
ln(On-Base Pct + Slugging Pct)	0.6904 *	0.8580 ***
	(0.37)	(0.09)
Age	0.1295	0.0817
	(0.15)	(0.07)
Age^2	-0.0024	-0.0015
	(0.00)	(0.00)
Re-Signed with Same Team = 1	-0.0118	-0.0579
	(0.11)	(0.04)
Signing Team located in Birth State=1	0.1451	0.2432 ***
	(0.16)	(0.06)
ln(Lagged Signing Team's Revenues)	0.1742	0.1716 **
	(0.16)	(0.08)
ln(Lagged Signing Team's Winning Pct)	-0.3489	-0.6599 ***
	(0.37)	(0.16)
ln(Median House Price of Team's MSA)	-0.5198 ***	-0.2777 ***
	(0.19)	(0.07)
ln(Team's Adjusted Population)	0.0768	0.0812 **
	(0.08)	(0.03)
Time Trend	0.0572 **	0.0615 ***
	(0.03)	(0.01)
Constant Term	-99.4828 *	-109.2985 ***
	(55.02)	(21.83)
R^2	0.4879	0.2261
Sample Size	235	235

Notes: Robust standard errors is reported in parentheses. Quantile regression is based around the median. Year effects are not reported but are available upon request from the authors. Age and Age^2 are jointly significant in both specifications at the five- and one-percent level, respectively. For Quantile regression the pseudo R-square is reported.

*** indicates statistical significance at 0.01 level, ** at 0.05 level, and * at 0.10 level.

APPENDIX

Variable Name	Data Description and Source
Real Signing Salary[1]	The player's real salary in the first year with the signing team. Salary deflated to 2000 dollars with personal consumption expenditures chain-type price index from the St. Louis Fed.
Average Tax Rate[2]	Federal tax liability plus state tax liability divided by gross income.
Tax Instrument[2]	The federal plus state tax burden on $10 million in income.
Put Outs[1]	A put out occurs when a defensive player is involved in preventing a player from safely reaching a base.
On-Base + Slugging Percentage[1]	On-base percentage is the sum of hits, walks, and hit-by-pitches divided by the sum of at-bats, walks, sacrifice flies, and hit-by-pitches. Slugging percentage is total bases divided by at bats.
Age[1]	Year of transaction minus year player was born.
Re-Signed with Same Team[1]	Dummy variable where '1' indicates the signing team and the previous team were the same, else zero.
Signing Team located in Birth State[1]	Dummy variable where '1' indicates the signing team is located in the same state the player was born in, else zero.
Lagged Signing Team's Revenues[4]	The signing team's total revenues for the previous season in millions of 2000 dollars, deflated with personal consumption expenditures chain-type price index from the St. Louis Fed. For the 1994 season, a hypothetical estimate from Financial World that assumed no strike was used.
Lagged Signing Team's Winning Pct[1]	The signing team's percentage of games won in the previous season.
Median House Price of Team's MSA[3]	The median house price of an owner-occupied housing unit for the MSA the team is located in as reported by the 2000 Census. This price was then extrapolated over the time-series using the MSA housing growth rates from the OFHEO and then deflated to 2000 dollars with personal consumption expenditures chain-type price index from the St. Louis Fed. This method was also employed by Bakija and Slemrod (2004).
Team's Adjusted Population[5]	The adjusted population is calculated by taking the population of the MSA and dividing it by the square root of the number of teams in the MSA, as used in Hylan et al. (1996).
Free agency transactions[4]	Free agents were not limited to six-year free agents or to those awarded free agency by an arbitrator.

Data Sources:

1. The Lahman Baseball Database, Version 5.3
2. NBER Taxsim Version 5.1 (Feenberg and Coutts, 1993)
3. Median House Price: U.S. Census Bureau, 2000 Census; House Price Index: Office of Federal Housing Enterprise Oversight (OFHEO).
4. Doug Pappas, Business of Baseball Committee
5. U.S. Census Bureau, Population Estimates Program