

Bidding for Ballplayers: A Research Note

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I. INTRODUCTION

He has a “Whiting problem,” confesses anthropologist and baseball scholar William Kelly. Tell a Japanese fan he studies baseball, and the fan launches into a rant about Robert Whiting. Even “Annette Weiner at Malinowski’s Trobriand site” faced “a simpler challenge than my ‘Whiting’ problem.” Whiting’s books have become “hungry ghosts,” he muses, and have “surrounded my project from the start.”¹

Among fans who stress the differences between Japanese and American baseball, few have stressed them as prolifically as Robert Whiting.² Whiting does not posit different rules for the sport in the two countries. Even he acknowledges that the “same rulebook is used.”³ Instead, he argues for a fundamental cultural divide. The

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1 WILLIAM W. KELLY, *Caught in the Spin Cycle: An Anthropological Observer at the Sites of Japanese Professional Baseball*, in Susan O. Long, ed., *Moving Targets: Composing Circles of Self and Community in Japan* (Ithaca: Cornell University East Asia Program, 2002), pp. 137-49, at 144-45.

2 ROBERT WHITING, *The Chrysanthemum and the Bat: Baseball Samurai Style* (New York: Avon Books, 1977); ROBERT WHITING, *You Gotta Have Wa* (New York: Vintage Books, 1989).

3 WHITING, *You Gotta Have Wa*, p. 58.

result – Whiting quotes Dodgers and Yomiuri Giants alumnus Reggie Smith – is a game that “isn’t baseball. ... It only looks like it.”⁴

Is Japanese baseball a different game? In this short research note we offer a new approach to the question Whiting posed so famously and polemically three decades ago – we ask whether owners in the two countries bid for players offering different skills. If baseball in Japan “isn’t baseball,” then perhaps owners compete for a different type of player? In the note that follows, we combine data on player performance and salaries to ask whether they do. Obviously, this is a limited inquiry. We do not address many of the myriad other ways in which baseball might indeed differ in the two countries. Nonetheless, we do offer the project as a way to test indirectly an important component of Whiting’s more general proposition – whether fans in the two countries demand different athletic contests.

We follow the discussion with three peripheral but distinct inquiries: (a) which kinds of players earn the highest endorsement incomes?; (b) do teams pay Japanese and American players and black American and white American players equally?; and (c) what effect do the mandatory nine-year contracts in Japan have on player pay?

II. FOR WHOM DO THE OWNERS BID?

Owners must attract fans to the stadiums, buyers to the merchandise retailers, and viewers to the television broadcasts. Toward that end, they will bid for players who can offer fans the games they want to see. To explore whether Japanese and American fans demand different types of games, we study the determinants of player salaries.

We obtain 2004 salary data from the *Supōtsu Nippon* newspaper.⁵ We focus on 2004 because through that year (but no longer) the Japanese National Tax Administration (NTA) published the name, address, and tax liability of everyone who paid over 10 million in taxes (the high-income taxpayer list, or HIT; colloquially known as the *Chōja banzuke*).⁶ From this HIT list we estimate a player’s total income, and by subtracting his salary we approximate endorsement income. Unfortunately (for the scholar), the HIT list is no more. The recent privacy protection statute now prohibits its publication.⁷

4 WHITING, *You Gotta Have Wa*, p. 58.

5 Available at www.sponichi.co.jp.

6 TOKYO SHOKO RESEARCH, *Zenkoku kōgaku nōzei-sha meibo* [Roster of High-Income Taxpayers] (Tokyo: Tokyo Shoko Research, 2005) (CD-ROM).

7 *Kojin jōhō no hogo ni kansuru hōritsu* [Act Relating to the Protection of Personal Information], Law No. 57 of 2003.

Japanese taxpayers pay a tax of 37 percent on ordinary income beyond 18 million yen.⁸ Given deductions, credits, and the lower rates applicable to his infra-marginal income, a player who owed 10 million yen in taxes would have earned about 39.9 million yen (at the close of 2004 rate of 102 yen/\$, \$392,000).⁹ Because of the progressive tax schedule, at higher tax liabilities his income will increasingly approach (tax)/.37.

Although many high-income taxpayers reduce their taxable income (or avoid the HIT list) through legal or illegal means, a majority of the high-income baseball players do appear on the list.¹⁰ Of the 173 players with salaries of at least 40 million yen, 64 percent appeared on the HIT list in 2004. Of the 123 players with salaries of at least 60 million 76 percent appeared on the list, and of the 84 with salaries of at least 80 million yen 90 percent appeared on the list.

We take our data on player performance from the baseball statistical handbook.¹¹ We use each player's career statistics at the end of 2003. For reasons of data availability, we include all players listed on a team's roster in late 2006, provided they played ball professionally in 2004.¹² Because a few of these men played only in the Japanese minor-league equivalent (known as Division 2) before 2004, we limit our pay-performance calculations to those players with at least some major league (known as Division 1) experience before 2004. Note that although each team maintains a 70-man roster, the number of players with Division 1 time has hovered around 50 (see *Table 1* on page 88).

8 *Shotoku-zei hô* [Income Tax Act], Law No. 33 of 1965, Sec. 89, as amended by *Shotoku-zei tô futan keigen sochi-hô* [Act for Measures to Reduce the Burden of the Income and Other Taxes], Law No. 8 of 1999, as amended by Law No. 21 of 2005.

9 For the details behind this calculation, see MINORU NAKAZATO, J. MARK RAMSEYER & ERIC B. RASMUSEN, *Executive Compensation in Japan: Estimating Levels and Determinants from Tax Records* (unpublished, 2007); MINORU NAKAZATO, J. MARK RAMSEYER & ERIC B. RASMUSEN, *Public and Private Firm Compensation Compared: Evidence from Japanese Tax Returns*. (unpublished, 2007); MINORU NAKAZATO, J. MARK RAMSEYER & ERIC B. RASMUSEN, *The Industrial Organization of the Japanese Bar: Levels and Determinants of Attorney Income* (unpublished, 2007). Note that in Japan, couples may not file joint returns, and taxpayers with rising incomes may not "average" their income across years. The tax treatment of capital gains, dividend, and other income is discussed in greater detail in the articles cited immediately above.

10 For a discussion of some of the ways taxpayers avoided the HIT list, see NAKAZATO, ET AL., "Executive Compensation," NAKAZATO, ET AL., "Public and Private," and NAKAZATO, ET AL., "The Industrial Organization." Foreign players, as part-year residents, were exempt from the HIT list.

11 *Nihon puro yakyû kiroku dai-hyakka*, ed., [The Official Baseball Encyclopedia, 2004] (Tokyo: K.K. Bêsu bôru magajin, 4th ed., 2004).

12 This is a function of the way *Spo'nichi* has constructed its website (the source of the salary data), but it does create some unfortunate anomalies. The Eagles, for example, were formed in late 2004. Our data cover those players on the 2006 Eagles team who were playing ball (obviously in other teams) in 2004. Similarly, our data on Giants salaries (given below) count those players who were listed on the Giants roster in late 2006 who had been professional ballplayers during 2004 and had spent some time in Division 1 in earlier years.

Table 1 :

Selected Summary Statistics

A. Pay and Performance

	n	2004 Salaries				% HIT*	2003 Performance		
		Low	Mean	Median	High		Slug Av	SO/Walk	W/L.
<i>All Players</i>	620	0	4,461	1,885	65,000	.194	.334	2.122	
<i>Central League</i>									
Tigers	52	480	4,827	2,000	26,000	.25	.357	1.892	.630
Dragons	48	560	5,608	2,500	25,000	.27	.319	2.406	.525
Giants	51	480	8,485	3,000	54,000	.373	.318	2.591	.518
Swallows	54	440	3,733	1,100	30,000	.111	.343	2.943	.518
Carp	51	440	2,858	900	17,000	.157	.311	2.013	.486
Baystars	47	460	5,265	1,310	65,000	.213	.342	2.504	.324
<i>Pacific League</i>									
Hawks	52	450	4,606	2,000	40,000	.25	.337	2.033	.599
Lions	53	600	4,762	1,900	40,000	.189	.348	1.852	.558
Buffalos	57	480	2,884	1,300	27,000	.053	.308	1.959	.536
Mariners	52	0	3,283	1,900	23,000	.154	.325	1.822	.496
Fighters	50	480	4,027	2,000	40,000	.16	.351	1.927	.456
Eagles	53	490	3,579	2,700	12,500	.170	.347	1.743	**
Foreigners	23	500	9,520	5,500	54,000	0	.416	2.289	
Pitchers	268	460	4,404	2,350	65,000	.198			
Batters	352	0	4,504	1,600	54,000	.190			
Free agents	61	1,900	12,153	8,400	65,000	.689	.388	2,269	

B. Performance Range

	Low	Mean	Median	High
Slugging Percentage	0	.334	.349	1.00
Strike Out/Walk	0	2.122	1.938	12
Years Played	0	4.753	4	22

Source: See Table 2

Notes: Financial figures in 10,000 yen.

* High-income taxpayer: those players who paid at least 10 million yen in taxes in 2004.

** The Eagles were formed in late 2004. Because we take our rosters from late 2006, the Eagles' financial and performance figures are based on 2003 performance for those players who had joined the Eagles by late 2006.

Japanese teams do pay less than the Majors. In 2004, the perennially high-paying Yankee-equivalent Yomiuri Giants counted 51 players with Division 1 experience – 19 pitchers and 32 batters. It paid the pitchers salaries that ranged from 8.7 to 300 million yen (median: 39 million yen). It paid the batters 4.8 to 540 million (median: 21 million). These veteran pitchers had played professionally for up to 22 years (median: 4), and the veteran batters for up to 18 years (median: 6.5).

By contrast, according to the Associated Press Major League players in 2004 earned about \$2.5 million. The mean varied widely by team, from less than \$1 million at Pittsburgh to over \$6 million at the Yankees. The teams paid a minimum \$380,000 salary (in 2007) to their Major League players, and at least \$60,000 to those minor leaguers who spent a day or more on their 40-man rosters.

Yet although Japanese and American baseball salaries differ in levels, they do not differ in their determinants. Closely, player salaries in both countries depend on the same factors. For the determinants of U.S. salaries, we focus on Gerald Scully's classic account.¹³ Scully asked what performance characteristics determined player salaries in the Major Leagues. After trying a wide variety of performance indices, he found he best explained batter compensation by regressing salaries on career slugging percentages, years in the Majors, annual at-bat rates, and a dummy variable equal to 1 for those with above-average batting averages but below-average slugging percentages.¹⁴ To explain pitcher compensation, he regressed salaries on career strike-out-to-walk ratios, years in the Majors, and annual innings pitched. Simple as they were, these regressions explained 81 percent of the variation in batter pay, and 78 percent of the variation in pitcher pay.¹⁵

Almost precisely the same principles apply in Japan. In Column (1) of *Table 2 Panel A* (see following pages), we regress batter compensation (salary and 2004 bonus) on career slugging percentages, Division 1 years played, Scully's high-batting-average dummy, and annual at-bat rates. Together, these variables explain an almost uncanny 81 percent of the variation in batter pay. In Panel B Column (1), we regress pitcher compensation on career strike-out-to-walk ratios, Division 1 years played, and annual pitching rates. Together, the variables explain 68 percent of the variation in pitcher pay.

13 GERALD W. SCULLY, Pay and Performance in Major League Baseball, *American Economic Review*, vol. 64 (1974), pp. 915-930.

14 This dummy variable captures those players with high batting averages who fail to earn high slugging percentages. Scully, Pay and Performance, p. 925, explains that he added the high batting average dummy because "some excellent hitters have low slugging averages." In fact, however, the coefficient on the dummy is insignificant in his regression; in ours, it is significantly negative.

15 Additionally, Scully added the population of the team's hometown, an attendance variable, and a league dummy. The coefficient on the attendance variable was significantly positive for the batting regression, and insignificant in the pitching regression; the other calculated coefficients were insignificant. Note that Scully logs all of his variables.

Table 2 :

Determinants of Compensation

A. Batters:

	Dependent variable : Total Compensation									
	(1)		(2)		(3)		(4)		(5)	
Slugging %	1.121	(4.48)	1.112	(4.47)	1.115	(4.47)	1.133	(4.51)	1.053	(4.12)
Years Played	.435	(11.50)	.442	(10.15)	.440	(10.06)	.423	(9.77)	-.426	(9.77)
D High Bat Aver	-.308	(2.96)	-.287	(2.77)	-.287	(2.77)	-.306	(2.93)	-.266	(2.29)
Annual At Bat	.005	(19.56)	.005	(17.89)	.005	(17.89)	.005	(19.17)	.005	(18.46)
Free Agent			.064	(0.64)	.067	(.067)	.055	(0.54)	.302	(0.24)
American			.775	(2.51)						
Black American					.924	(2.51)				
White American					.467	(0.90)				
FA * Slugging %									2.340	(1.69)
FA * Years Played									-.317	(0.66)
FA * DHBA									-.132	(0.48)
FA * Annual At Bat									-.001	(1.19)
Constant	6.181	(72.00)	6.183	(71.60)	6.184	(71.53)	6.189	(71.03)	6.203	(70.43)
n	289		289		289		298		289	
R2	.81		.81		.81		.81		.81	

B. Pitchers:

	Dependent variable : Total Compensation									
	(1)		(2)		(3)		(4)		(5)	
Strike Out/Walk	0.90	(2.90)	0.93	(3.03)	.093	(3.03)	.089	(2.89)	.067	(2.28)
Years Played	.465	(9.75)	.460	(8.77)	.460	(8.77)	.438	(8.46)	.432	(8.83)
Annual Pitches	.004	(14.94)	.004	(13.67)	.004	(13.67)	.004	(14.60)	.004	(16.04)
Free Agent			.216	(1.37)	.216	(1.37)	.210	(1.32)	1.975	(0.92)
American			.064	(0.64)						
Black American					*					
White American					.519	(2.10)				
FA * Strike Out/Walk									.752	(4.04)
FA * Years Played									-.734	(0.90)
FA * Annual Pitches									-.004	(4.40)
Constant	6.344	(65.41)	6.354	(63.87)	6.354	(63.87)	6.375	(63.96)	6.377	(67.26)
n	240		240		240		240		240	
R2	.68		.69		.69		.68		.72	

Notes: Compensation and Years Played (in Division 1) are logged.

D High Bat Aver equals 1 for those players with above-average batting averages but below-average slugging percentages.

* There are no black American pitchers in the dataset.

Sources for Tables 1 to 4 :

NIHON YAKYŪ KIKŌ, ed., *Nihon puro yakyū kiroku dai-hyakka*, 2004 [The Official Baseball Encyclopedia, 2004]

(Tokyo: K.K. Bēsu bōru magajin, 4th ed., 2004);

TOKYO SHOKO RESEARCH, *Zenkoku kōgaku nōzei-sha meibo* [Roster of High-Income Taxpayers] (CD-ROM)

(Tokyo: Tokyo Shoko Research, 2005); www.sponichi.co.jp.

Apparently, Japanese owners bid for players who offer a very similar game as the players for whom American owners bid.¹⁶ Obviously, this finding does not settle the “is it the same game” question – the games could differ along a wide variety of dimensions not explored here. It does, however, address a crucial component of that question – and suggests that Japanese and American fans want to see very similar athletic spectacles.¹⁷

III. FOR WHOM DO THE MANUFACTURERS BID?

Among the players, a fortunate few earn large amounts from product endorsements. Are they the same players who earn the highest salaries? To approximate a player’s endorsement income, we first estimate a player’s total income from his tax liability: we divide his 2004 tax liability by the top marginal rate of .37, adjust for the lower infra-marginal brackets and unobserved exclusions and deductions by adding 20 million yen, and subtract his 2004 salary.¹⁸

By this very rough calculation, most players earn very little from endorsements. Even among the 120 HIT-list players, we estimate median endorsement income of only 4.7 million yen. We obtain a maximum value of 163 million yen, but few players approach that level. Only 22 players earned more than 40 million yen from sources other than their salary, and only five earned more than 100 million.

In general, the players earning the large endorsements performed at high levels – though not as high as the players earning the top salaries. The batters with over 40 million yen in endorsement income had career slugging percentages of .423 compared to the .334 industry average (compare *Table 3* and *Table 1*), while the pitchers had strike-out-to-walk ratios of 3.26 compared to the industry average of 2.12. With a mean salary

16 In unreported regressions (available upon request) we offer several checks on the robustness of our results. For example, using NTA tax data as a dependent variable (and tobit) for our *Table 2* Col. (1) regression yields results close to those with official team salary data. Using 2003 performance data rather than career performance data likewise yields similar results, and so does limiting the regression to the 100 highest-earning batters and pitchers.

In other unreported regressions, we add team fixed effects. We use the Yomiuri Giants as the omitted variable. We find that the Giants apparently outbid the other teams for batters, but not necessarily for pitchers. Among batters, all team coefficients are negative, and all are significant at the 90 percent level (or stronger) except the Dragons. Among pitchers, though, the coefficients are positive for the Tigers, Dragons, and Hawks. What is more, even the negative coefficients are not significant at the 90 percent level except those for the Carp and Eagles. More relevantly here, in both regressions the coefficients on the performance variables are significant in the predicted directions, and the calculated coefficient on the free agent dummy is insignificant.

17 Note that the team paying the most (the Giants) is also the most profitable team – suggesting that it is indeed buying the players fans want to see.

See www.wretch.cc/blog/bfh%26article_id=4027383.

18 Among older taxpayers, we obviously would capture significant investment income. Professional baseball players are young, though, and we doubt that many would have accumulated enough wealth to earn much from investments.

of 95 million yen, moreover, the high endorsement earners remained comfortably ahead of the industry mean at 45 million.

Table 3 :

Players with High Endorsement Income or Salaries

A. Mean Values for Players with Endorsement Income Above.....

Endorsement >	Slug Aver	Strike Out/Walk	Age	Salary
30 million	.412 (15)	3.098 (13)	29.2 (29)	90.2 million
40 million	.423 (11)	3.256 (10)	29.0 (22)	94.8 million

B. Mean Values for Players with Salaries Above.....

Salary >	Slug Aver	Strike Out/Walk	Age	Salary
100 million	.451 (44)	2.707 (26)	33.1 (71)	200.1 million
200 million	.499 (17)	3.293 (9)	33.9 (26)	300.0 million

Notes: Salary includes bonuses paid by the team in 2004.

The Table gives the mean values, followed by the number of players in parentheses.

Sources: See *Table 2*.

Yet the high-endorsement-earners were also younger than the very highest salaried players. Indeed, among the HIT-list players, age is negatively (and significantly) associated with endorsement income.¹⁹ Where the 22 players with over 40 million yen in endorsements averaged 29 years old, the 17 players with salaries over 200 million averaged 34 years old (*Table 3*). Both the high salary and high endorsement players performed at high levels, in short, but where the teams pay a premium for experience, manufacturers bidding for endorsements apparently attach value to youth as well.

19 In other words, an OLS regression of our (admittedly crude) endorsement income estimate on age for the 120 high-income players yields a significant and negative coefficient. Note too the following: A tobit regression of our endorsement estimate (censored at 0) for the entire player database on the *Table 2* Column (2) variables yields significant coefficients on slugging percentage and at-bat rates for batters, strike-out-to-walk ratios and pitching rates for pitchers, and insignificant coefficients on years played for both groups. A tobit regression of logged total tax liability on the standard performance variables resemble those using salary data in *Table 2*. Reflecting the extra endorsement income to the very highest performing players, however, the coefficients on slugging and strike-out-to-walk rates are higher than in the salary regressions. These regressions are unreported, but available upon request.

IV. DO OWNERS PAY FOREIGNERS DIFFERENTLY?

Do owners pay foreign players differently from Japanese and black players differently from whites? In general, the pay foreign players could earn abroad should operate as a floor on what their Japanese owners can pay them: offer them less than what they could earn abroad and they will not come. Indeed, Whiting (1989: 79) himself writes that “[f]oreigners always make two or three times as much as Japanese players of comparable ability.”²⁰

In *Table 2* Column (2) we add a dummy variable equal to 1 if a player is an American. For both batters and pitchers, the coefficients on the dummy are positive and statistically significant. At “two or three times” the comparable Japanese’ salary, Whiting nails the size of the effect: because the regression uses a logged dependent variable, subtracting .775 from the median American pitcher’s salary lowers compensation from 142 million yen to 65 million yen.

To test for racial bias, in *Table 2* Column (3) we replace the American dummy with two variables – White American (including Hispanic) and Black American. Although both coefficients are positive for batters, the coefficient on Black American is larger and significant, while the coefficient on White American is insignificant. For whatever reason (obviously, we cannot rule out racism), the teams had no black American pitchers. At least among batters, however, Japanese teams did not pay their black Americans less than they paid their white Americans.

V. WHAT EFFECT DOES THE NINE-YEAR CONTRACT HAVE?

Japanese players turn free agents (and earn the right to switch teams) only after spending at least 150 days on a Division 1 roster for nine seasons.²¹ Until that time, they remain locked to the team with which they initially contracted or to its assignee. The nine-seasons test is not an easy one to pass. According to the players’ union, most players never become free agents, and those that do take a mean 11.5 years.²² Among the 13 players who became free agents in 2003, total (Divisions 1 plus 2) professional experience varied from 10 to 17 years.

The 61 free agents among our 620 players did earn high salaries. Where the mean player earned 45 million yen, the mean free agent earned 122 million. Of the total wage bill of the 12 teams, the 61 took home 27 percent. These free agents seem not to have earned a higher *base* salary than the rest. In Column (4) of *Table 2*, we add a dummy

20 WHITING, You Gotta Have Wa, p. 79.

21 The rule is subject to a variety of qualifications (e.g., 10 rather than 9 years for players who picked their team independently in the draft, provisions for tacking days from years with fewer than 150 playing days). See generally NAOTAKA SAITÔ, *Puro yakyû senshu to iu ikikata* [The Life of a Professional Baseball Player (K.K. Aspekuto, 2004), pp. 152-55].

22 www.jpbbpa.net/topics/03.htm (accessed spring 2007).

variable equal to 1 if a player is a free agent. For both batters and pitchers, the coefficient is insignificant.

Yet the free agents did negotiate contracts that offered better pay. They earned higher salaries both because they played better ball, and because they negotiated more highly incentivized contracts. Where the mean batter had played 6.4 years, the mean free agent batter had played 14.5. Where the mean batter had appeared at bat 148 times a year, the mean free agent had appeared 272 times. Where the mean batter had a .334 career slugging percentage, the mean free agent batter had .388. Pitchers presented a similar contrast.

The 61 free agents worked under contracts that rewarded this top-flight performance generously. Consider Column (5) of *Table 2*, where we interact free agency with our Column (1) variables. The coefficients on the interaction terms give the additional effect that a variable has on a free agent's salary. According to these results (and with appropriate caveats for the small number of observations), a batter's career slugging percentage had over three times the effect on a free agent's salary that it had on the salary of the others (Panel A). A pitcher's career strike-out/walk ratio had nearly ten times the effect on a free agent's salary that it had on everyone else's (Panel B).

Consider, then, how a player's pay package develops over the course of his career. Owners pay their new players considerably more than any benefit they bring to the team. These men play on one of the 24 rosters of Division 2 teams, but these are largely training programs that do not directly generate profits. The players, however, collect 4-6 million yen.

In effect, Japanese teams fund these Division 2 salaries by advancing new players some of the revenue they will generate in the future. Because players vary in the number of years they will stay in these subsidized programs, so does the size of this effective loan. Of all professional baseball players in 2004, 116 had spent no time in Division 1 for three or more professional years. Twenty-six had spent no time in Division 1 for five or more years. And some retire without playing any Division 1 baseball at all.

Japanese teams try to recoup the subsidized salaries they pay players in Division 2 by signing them to a multi-year deal. Under this arrangement, once players move from Division 2 to Division 1 the teams pay them sub-market salaries for several years. The difference during their Division 1 years between (a) their estimated market wage and (b) the wage they actually receive represents, in other words, (c) the repayment of their Division 2 salary (plus sign-on bonuses; see discussion below).

Like their Major League counterparts, Japanese teams hire their rookies in an only haphazardly effective annual draft. Would-be players register, and every fall (typically with separate drafts for high-school and university graduates) the teams select. The actual mechanics have changed over the years, but currently teams can each take two of the top-ranked university and corporate players if those players choose them independ-

ently.²³ All other players face take-it-or-leave-it offers – formally. Yet form has not always been substance. For much of the past several decades, through various strategies many players circumvented the draft entirely and negotiated more favorable contracts on their own.²⁴

Players can turn professional at several points in their career. Compulsory education ends at 16 in Japan, and four players in our dataset joined a professional team immediately. Most players joined after high school, some joined after college, and a few joined later still. Among those in our dataset, the modal age of turning professional was 18 (40.9 percent of the players), the next most common was 22 (25.3 percent), and the oldest player entered the draft at age 28.

Hypothetically, Japanese teams could accommodate the variation in player ability by varying the length of these terms. They could sign the strongest players to the shortest terms, and the weakest players to the longest. After all, the stronger players do spend the least time on subsidized Division 2 salaries. And they generate the largest revenue stream once they join Division 1.

Yet Japanese teams do not take this straightforward approach. Instead, they offer their most talented players lucrative sign-on bonuses. In effect, they sign their players to arrangements of uniform length, but advance them amounts that vary by a player's expected strength. To the weakest players they offer subsidized Division 2 salaries for several years, but only trivial bonuses. To the strongest they need give little or no Division 2 training, but pay a large cash bonus. And from all their players, they then recoup the sum of the training cost and bonus over the next nine (or more) years.

The strongest players negotiate very large bonuses indeed. Where first-year players in 2006 earned 4.4 to 15 million yen (median: 9.6 million yen) salaries, they collected bonuses ranging from 10 million to 100 million yen with a median of 55 million (recall the 102yen/\$ exchange rate). Among the 2004 players who had started earlier, sign-on bonuses ranged from 10 million to 160 million. The median pre-2004 player received a 60 million bonus, and the modal player collected 100 million (mean: 61.4 million yen).

Obviously, teams will pay the highest bonuses to those players best able to prove their talent. Because universities play substitutes for Division 2, teams will have the best information about those who wait to enter the draft until age 22. Predictably, they pay bonuses that rise with draft age (a .251 correlation coefficient, significant at 99 percent). Perhaps because players obtain better contract terms if they can prove their ability,²⁵ the best players are those who waited to enter the draft (even at the cost of foregoing

23 SAITÔ, *Puro yakyû*, pp. 32-35.

24 For evidence on the elaborate contacts between professional scouts and the university team players, see SAITÔ, *Puro yakyû*, pp. 14-15, 27-31; see ID., pp. 20, 36 (ban on extra-draft hires in 1991).

25 Highly ranked older entrants can also more readily negotiate their contracts outside the draft. For evidence that school teachers pass on this advice to their players, see SAITÔ, *Puro yakyû*, p. 13.

Division 2 salary). Those batters who signed at age 18 proceeded to earn a career slugging average of .327 (115 players), while those who signed at 22 earned .340 (76 players). Pitchers who signed at 18 earned a career strike-out to walk ratio of 1.773 (69 players), while those who signed at 22 earned 2.185 (60 players). More generally, the older the age at which a player turns professional, the higher his career slugging percentage and at-bat rate in Division 1.²⁶

The teams train players and offer sign-on bonuses, but then dock their salaries for the next several years. Does the salary shortfall merely offset the initial advance – as we suggest above? Or do the teams keep the advances small enough to retain a large advantage for themselves?

To address the issue, we first turn to the results of our *Table 2* Column (5) regression. Using the coefficients, we predict the salary non-free-agent players would have received under a free-agent contract. We then subtract their actual salary from that predicted amount, and estimate their salary shortfall.

Second, we roughly approximate the amount that the teams advanced their players at the outset of their careers. To do so, we multiply the number of years a player spent in Division 2 by the minimum salary paid Division 2 players in his cohort. We add the bonus the team paid the player, and present-value all figures at a 10 percent annual discount rate.

In *Table 4* (*see next page*), we give the resulting loan recovery rates for batters: the salary shortfall divided by that player's initial loan (Division 2 salary plus bonus), for all players in a given cohort.²⁷ The recovery rate drops rapidly, from nearly 40 percent in year 1 to 3 percent in year 6. At these rates, the average player would pay back his Division 2 salary and bonus in five years. Once he does, the team apparently pays him the salary he would earn under free agency – even though he is not yet a free agent.

In effect, the high free-agent salaries mask the inter-team competition that drives even pre-free-agent compensation toward market levels.²⁸ At the outset of their careers, a team will lavish recruits with promises and cash to induce them to join its roster. Midway through their contracts, it will offer financial incentives to induce them to train hard. As star players approach the nine-year mark, it will cultivate their good will lest they abandon it when they can. And throughout its players' careers, it will treat its best players well lest they emigrate to the U.S. Majors.

26 Unreported regressions, available upon request.

27 We are unable to offer a comparable table for pitchers. The coefficient on free agency in our Panel B Column (3) regression is massive, but only insignificantly different from zero. Accordingly, we omit any analogous pitching estimate.

28 "Toward" market levels – but we emphatically do not claim that the salaries necessarily constitute a player's marginal revenue product. Without team revenues we simply cannot tell whether Japanese teams are paying their players their marginal revenue product. Note that that a third of the players leave baseball after two years (*Table 4*). Apparently, the teams forfeit nearly half of their advance to a large cohort of players.

Table 4 :

Loan Recovery Rates (Batters)

Div. 1 Years	n	Recovery (%)
1	40	39.1
2	39	23.2
3	24	10.6
4	25	14.5
5	21	20.2
6	17	2.9
7	23	-4.7
8	15	7.5
9	17	2.3

Notes: The recovery rate represents (a) the difference between (i) the salary a player actually received and (ii) the estimated amount he would have received as a free agent, calculated by the coefficients given in Table 2 Column (3), divided by (b) the sum of (i) a player's starting bonus and (ii) the number of years he spent in Division 2 times the lowest salary paid to a Division 2 player in his cohort, all discounted at (c) 10 percent per year.

Sources: See Table 2.

VI. CONCLUSION

Is baseball in Japan a different game from baseball in the U.S.? Observers often claim it is, though the rules by which the game proceeds are remarkably similar. In this short research note, we offer a new approach to the question. We reason that owners will compete for the players best able to offer fans the game they want to see. We then ask: do owners in Japan and the U.S. bid for different kinds of players? In fact, owners in the two countries bid for remarkably similar athletes. To address the inquiry, we combine salary and performance data, and examine the determinants of player salaries. We find them strikingly close to the determinants found in studies of the U.S. Apparently, fans want to see athletes who offer a similar spectacle.

ZUSAMMENFASSUNG

Unterscheidet sich japanisches Baseball grundlegend von amerikanischem? In diesem Kurzbeitrag gehen wir dieser Frage, die Robert Whiting vor drei Jahrzehnten stellte, auf neue Weise nach. Da Vereine versuchen werden, diejenigen Spieler zu rekrutieren, die Sport nach dem Geschmack der Fans bieten, untersuchen wir, ob Vereine in Japan Spieler mit anderen Eigenschaften zu rekrutieren suchen als sie in den USA hoch im Kurs stehen. Wir kombinieren hierfür Daten zur Bezahlung der Spieler (Spielergehälter und Steuerverbindlichkeiten) mit Leistungsstatistiken und gelangen zu dem Ergebnis, dass japanische und amerikanische Vereine sich die Dienste ähnlicher Spieler zu sichern suchen. Offenbar wollen also japanische und amerikanische Fans ähnliche Leistungen sehen.

Wir nutzen unsere Datensätze noch für andere Fragen und gelangen dabei zu folgenden Ergebnissen: (a) Die Stars, welche Sponsorenverträge abschließen können, decken sich weitgehend mit den Spielern mit den höchsten Gehältern, sind jedoch im Schnitt etwas jünger. (b) Wie gemeinhin angenommen, bezahlen japanische Vereine eine Prämie für amerikanische Spieler. (c) Weiße amerikanische Spieler erzielen in Japan keine höheren Gehälter als schwarze. (d) Die neunjährige Mindestdauer für Spielerverträge im japanischen Baseball wirkt sich nicht unbedingt nachteilig für die Spieler aus.