<u>1.</u> <u>Introduction</u>

Since their advent, professional sports have served as a microcosm of the societies that have

established them. This has manifested in positive ways, such as through athletic excellence and

gestures of sportsmanship, as well as echoed serious social problems. One such issue that has

historically pervaded professional sports is that of discrimination,

demographic than American society itself. Therefore, nonwhite players are not entirely being shut out from competing in the league. However, it may be possible that minority players are paid less for the value they contribute to their teams, or that they still make up a smaller proportion of rosters than they should simply based on talent. This is especially important to keep in mind considering pay discrimination in Major League Baseball has generally been abandoned as a research topic for the last decade or so.

Unsurprisingly, racial discrimination has been present in major sports for centuries. The existing literature holds that at varying times post-Jackie Robinson's breaking of the color barrier in 1947 (representing the first integration of any major U.S. sport), nonwhite players have been treated differently and paid less for their contributions to their teams. Additionally, for Major League Baseball specifically, there is previous evidence that teams were slow to integrate for no reason other than discrimination, that consumer discrimination may play a part in

mean salaries, but after controlling for performance, market, and draft position, black players were subject to a compensation shortfall of 20% compared to white players. Additionally, they found that replacing a black player with an identical white player increased home attendance substantially, findings consistent with consumer discrimination. Studies from the next decade, however, found that evidence of discrimination was no longer apparent. Bodvarsson and Brastow (1998),

pitcher. Specifically, he found that ticket sales decreased by 5 percent when a nonwhite pitcher

started for the home team, and by 10 percent when the away team's starting pitcher was not

that appears to have prevailed over time considering that Arthur (2020) discovered that minority players reach the Major Leagues on average 0.6 years later than their white counterparts, holding performance constant. Both of these stunt career earnings in a way that would not show up in typically-run salary discrimination regressions; shorter careers and more time spent in the minor leagues keep earnings over time lower, rather than minimizing salaries during a specific year. Additionally, Holmes (2010) found that black players in the lower half of the salary distribution

Based on knowledge of historically differing treatment between players of different races, this paper will attempt to shed light on three possible areas of continued discrimination. The first, and most obvious, would be outright, ad-valorem pay discrimination, which would be represented by equally-skilled players receiving unequal salaries because they differ in skin tone. This is represented by hypothesis one:

H_1 : Darker skin will have a significant, negative impact on the salaries of Major League Baseball players holding their performance constant.

This would be the most blatant demonstration of employer discrimination of the three; it would mean that players are immediately valued differently solely because of their skin color, and not because of what value they can bring to a team. However, it is possible that this could be too visible, and owners and general managers are no longer ostensibly biased enough to factor a player's race against him strictly when negotiating dollar values. For most players successful enough to earn a Major League free agent contract above the league minimum, it would be inefficient for decision-makers to hold their skin tone against them based on how rare acquiring an established big-league player truly is. However, it is possible that discrimination could occur in two other, more subtle (and per-unit) ways. This leads to hypotheses two and three:

H_2: Darker skin will have a significant, negative impact on the likelihood of signing any contract at all, whether Major or Minor League, holding performance constant.

H_3: Darker skin will have a significant, negative impact on the likelihood of signing a Major League contract, holding performance constant.

Hypothesis two holds that darker skin will cause a player to be less likely to sign a contract. If two players may or may not be good enough to sign a professional contract at all, there would be nearly no harm at all in signing a lighter-skinned player over a darker one, as each would add

little to the team anyway. Hypothesis three involves a similar idea: it holds that darker-skinned

from Baseball Prospectus. Spotrac held information on each player's position and age as well as the terms of their contract in years, total dollars, and average annual value (abbreviated as AAV - it is the total dollar amount of the contract divided by the amount of years it spans). Before tackling the question of how skin tone and nationality influence these contracts, it was necessary to also collect statistics for the sample over that same period, as it goes without saying that they form the majority of the basis for contract terms. These statistics were collected from FanGraphs.com and featured a variety of both simplistic and advanced measures; most importantly, they included the Wins Above Replacement figure for each player. Wins Above Replacement (WAR) is this paper's fundamental statistic in evaluating the efficiency of Major League Baseball salaries in terms of player value. A replacement player is defined as a readily-available stand-in player who can be acquired for the league minimum salary and who is essentially AAA-quality (the highest level of the minor leagues). Therefore, WAR details just how much better a player is than someone right off of a AAA

people of darker skin tones better; it features 10 shades, with 1 being the lightest and 10 the darkest. For the purposes of this research, the scale was simplified, with shades 1-3 representing tone 1, 4-6 tone 2, and 7-

(depending on which country) who speak the same language. By including each of these additional variables, it minimizes the chance that any discrimination found solely based on skin tone in the first regression could be due to the contributing factors of nationality and the language.

From there, the same set of regressions was run, this time using the natural log of average annual value. This was done for two reasons: it minimizes the impact of outliers and puts the

contract dummy variable was also created,

Before analyzing the results of the regressions, it is important to share summary statistics in order to place them into context. There are quite a few items of note regarding the summary statistics found in Table Two. AAV is the first variable in the tabl

different sample size than the rest of the variables; this is because it includes only those players who signed contracts (948 of the total sample of 1,319) in order to prevent those who did not sign a contract from clouding the results of its regressions. S -289.0ssions.

of lighter-skinned, observationally African-American players. The dark skin tone group, meanwhile, was about half observationally African-American players, and half darker-skinned Hispanic players, mostly from the Dominican Republic, Venezuela, and Cuba. 71.6% of the players in the sample were from the U.S., which stayed relatively consistent across the three samples (slightly more in the middle group, slightly fewer in the high group). The same held for the Dominican Republic and Venezuela, the two other largest producers of MLB players (10.3% and 8.7% overall). Interestingly, all other countries combined to make up just 9.3% of the sample as a whole, but 12.5% of the high WAR group. English speakers dominated the sample at 73.2% overall, making up more of the middle group but less of the high group. Spanish speakers were 24.4% of the sample, conversely making up less of the middle group and more of the high group. Just 2.4% of the sample spoke a language other than English or Spanish, staying within a percentage point difference for each WAR subgroup.

Results from Regressions for AAV - Table Three

Cuban and Asian (Japanese, South Korean, or Taiwanese) players both had positive relationships with AAV statistically significant at the .05 level. The results show that Cubans sign for about $2,240,000 more per year than Americans on average holding performance constant, while Asians sign for $3,109,000 more annually. This is interesting considering players from each of these countries tend to sign after already accruing professional experience; however, international free agents were not included in the sample. It is possible that teams feel more comfortable paying these players more because they are more experienced than other players considering their foreign and domestic years of service. Also, being from Venezuela or the Caribbean (the Bahamas, Curacao, Jamaica, or the Virgin Islands) negatively impacted AAV with significance at the .10 level. The regression shows that Venezuelans sign for $771,515 less

shown in Table Four. Again, age was negatively correlated and WAR and WAR3 were positively

to possibly declining as they age. Also, it makes sense that the better a player performs, the more

likely he is to earn a contract. Again, skin tone had no statistically significant relationship with

the likelihood of earning a contract in any of the three regressions; however, it is interesting to

paid less. As for nationality results from the second regression, only Mexican players saw a

result with any statistical significance, which was at

Central American players were less likely to. Skin tone, however, had no impact on the likelihood of a player to sign a contract. In the third group of regressions on the reception of Minor League contracts, much stronger evidence of discrimination was found. Medium-skinned players were significantly less likely than light-skinned players to sign Minor League contracts, and this was even more significantly true for dark-skinned players. This marries well with Holmes and Kane's (2017) per-unit discrimination idea; marginal players were the ones discriminated against, driving down the number of non-white players in the Major Leagues. Also, Mexican players were found to be more likely to sign Minor League contracts.

Given the challenge of acquiring each player's skin tone and nationality by hand, as well as the somewhat limited availability of contract terms, there are ways for this area of research to be furthered. Data over a longer term, which could include more contract signings with announced terms, could show more evidence of discrimination in bands based on quality of player. Additionally, more statistics could be added in addition to WAR to gain an even fuller picture of performance.

8. Tables

Table One - All Variables Used

Variable	Definition
AAV	Average Annual Value of a contract - the total dollar amount divided by the number of years the contract spans
Contract	Dummy variable assuming a value of 0 if the player did not sign and a value of 1 if they did
MinorLeague	Dummy variables assuming a value of 0 if the player signed a Major League contract and 1 if they signed a Minor League contract - no value if no contract was signed
Year	Offseason in which the year was signed
Position	Player's primary position
Age	Age at beginning of free agent period in offseason year of signing
WAR	Wins Above Replacement - measures value a player adds to a team compared to a replacement player
WAR3	Composite 3-year WAR
Light/Medium/Dark	Skin tone variable created through a simplified version of the Monk skin tone scale
Nationality	Set of 12 dummy variables based on country of origin; certain countries were combined into regions
Language	Set of 3 dummy variables - English, Spanish, and Other - to identify a player's first language

Table Two - Summary Statistics

Variable	Full Sample	Low Third of WAR	Middle Third of WAR	High Third of WAR
AAV*	5,095,147	1,961,808	2,417,052	7,496,759
Contract%	71.873%	60.502%	68.519%	86.192%
Minor League%**	49.789%	76.604%	66.554%	18.605%
Age	32.361	32.069	32.104	32.893
WAR	0.343	-0.488	0.066	1.420
WAR3	1.773	0.560	1.16.08 l 5.92cm (	

Table Three - Results of Regressions for AAV

VARIABLES	1 AAV	2 AAV	3 AAV
Age	-202,715***	-232,803***	-203,297***
	[44,812]	[45,593]	[44,842]
WAR	2,212,000***	2,138,000***	2,211,000***
	[135,415]	[136,838]	[135,632]
WAR3	811,049***	842,641***	807,791***
	[52,253]	[52,915]	[52,505]
Medium	332,970	429,954	319,952
	[438,328]	[439,831]	[444,042]
Dark	53,689	55,929	-5,565
	[534,831]	[589,445]	[583,642]
Canada		1,040,000	
		[1,840,000]	
Cuba		2,240,000**	
		[910,641]	
DR		308,571	
		[498,592]	
Mexico		-1,780,000	
		[1,080,000]	
PR		1,090,000	
		[1,090,000]	
Venezuela		-771,515*	
		[465,290]	
Caribbean		-2,457,000*	
		[1,370,000]	
South America		-576,177	
		[1,620,000]	
Central America		-	
Asia		3,109,000**	
		[1,230,000]	

Table Six - Results

Table Seven - Results of Regressions for Minor League Contract

VARIABLES	1 Minor League	2 Minor League	3 Minor League
Age	0.012	0.012	0.012*
	[0.00713]	[0.00734]	[0.00716]
WAR	-0.340***	-0.341***	-0.341***
	[0.0333]	[0.0339]	[0.0332]
WAR3	-0.113***	-0.117***	-0.113***
	[0.0116]	[0.012]	[0.0116]
Medium	0.126*	0.122*	0.127*
	[0.0649]	[0.0667]	[0.0653]
Dark	0.226**	0.273***	0.225**
	[0.0897]	[0.0989]	[0.0978]
Canada		0.275	
		[0.301]	
Cuba		-0.186	
		[0.126]	
DR		-0.078	
		[0.0797]	
Mexico		0.377***	
		[0.134]	
PR		0.069	
		[0.18]	
Venezuela		0.027	
		[0.0795]	
Caribbean			
South America		-0.009	
		[0.302]	
Central America			
Asia		-0.185	
		[0.139]	
Africa/Australia/Europe		-0.083	
		[0.185]	
Spanish			0.011
			[0.0567]
Other			-0.163
			[0.11]
Observations	948	941	948

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