A REINVESTIGATION OF RACIAL DISCRIMINATION AND BASEBALL CARDS

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INTRODUCTION

Since the late 1970s an extensive secondary market has existed for Major League Baseball (MLB) cards, with prices of cards published in monthly and annual magazines and books. Since performance measures for all players can be found from various publications, the baseball card market is ideally suited for empirical tests of racial discrimination on the part of card buyers. The cards themselves provide information regarding a player's race - a photograph appears on the front of each card - and place of birth. Another characteristic of the market is that all cards sell for no less than the "common player price." This term refers to a minimum price for any card in a series; all cards have some market value for dealers and collectors regardless of the productivity of individual players. Some players' cards have values that exceed common player prices. Most of these are cards of star players (Hank Aaron, Sammy Sosa, Cal Ripken, Jr., etc.) with above average ability and career performance statistics. Other players' cards command premiums because of the notoriety they achieved as coaches, managers or media personalities after their playing careers ended (for example, Joe Torre, Walt Wrniak, Charlie Lau and Bob Ueker).

Nardinelli and Simon (1990) examined the incidence of racial discrimination in the market for the Topps 1970 series of baseball cards. From 1956 to 1980 legal restrictions on the use of player photographs limited competition in this market; Topps was the only national marketer of baseball cards. Nardinelli and Simon (NS) chose the 1970 series because most of the players in this series had retired and career performance statistics would accurately differentiate players. Their sources for card prices and career performance data were the *Official 1989 Price Guide to Baseball Cards* [Beckett, 1989], and *The Baseball Encyclopedia* [Reichler, 1988], respectively. Since card prices have positive minimum values[1] regressions using price as a dependent variable would result in a censored variable problem. Therefore, NS used tobit regressions with the log of the difference between a card's price and its corresponding common player price[2] as a dependent variable and various career player performance statistics as explanatory variables. Separate tobit regressions were performed for hitters and pitchers since career performance measures are different for each group.

The article reported evidence of statistically significant differences between the prices of hitters and pitchers by race, holding constant measures of career performance. NS reported results for two tobit regressions for each player group: one included two dummy explanatory variables for race (one for black players and one for

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Hispanic players) and a second regression included a dummy variable for nonwhite players (black or Hispanic). These results utilized data for only one time period: card prices for 1989 and career performance data from the end of the 1988 season. Since baseball card prices were published as early as 1979 and annual career performance data can be computed for all players represented in the Topps 1970 card series for many years it is possible to use the model employed by Nardinelli and Simon to examine the incidence of customer racial discrimination in years prior to and after 1989.

This article presents a reexamination and extension of Nardinelli and Simon's work. The article compares the descriptive statistics and regression results NS reported using data as of the end of the 1988 season (hereafter referred to as post-1988 season data) with results for the same variables and similar data sources. The new results feature explicit procedures for determining race; NS did not report their procedures for identifying the race of players from the Topps 1970 card series. Only minor differences exist between the results of both studies.

Tobit regressions (for hitters only) similar to those reported by NS are presented for the years 1979-1984, 1986-1997 and 1999-2001. To conserve on space, only results for the race variables are presented. These regressions reveal a race variable that is significantly negative in only certain years, primarily between 1984 and 1991. From 1992 race variables are not statistically significant.

A possible explanation for the disappearance of the race differential is given. This explanation assumes that racial preferences exist among card collectors but not among card dealers. Card dealers are assumed to be motivated by making profits from buying from and selling to collectors. Increases in discretionary incomes among collectors in the 1980s and 1990s bid up the prices of cards of white players more than the prices of nonwhite players with comparable career performance statistics. Preferences among collectors for cards of players from their own cities and regions created additional arbitrage opportunities for dealers and dealers responded by buying the relatively low priced cards of nonwhite players. This activity may explain the disappearance of statistically significant differences between the prices of white and nonwhite players' cards.

NEW STUDY OF THE TOPPS 1970 CARD SERIES

Since the new results presented here (ES refers to all results from the reexamination of Nardinelli and Simon's original work) pertain to various years, card prices were obtained from annual editions of Beckett's price guides for all years between 1979 and 2001, except 1985 and 1998.[3] Career player performance data were taken from *The Baseball Encyclopedia* [Wolf, 1993]. Although most players in the 1970 series had retired by the late 1980s a significant number had not retired by the late 1970s.[4] The annual career statistics used for this study were continually updated and these data were matched with card prices for each year. It was assumed that data published in each price guide reflected market conditions of the season prior to the guide's copyright year.[5]

A total of 344 hitters from the 1970 card series were identified in NS as either white (218) black (78) or Hispanic (48). There were 233 pitchers from the series who were white (207) black (13) or Hispanic (13).[6] NS did not explain their procedure for determining race. A review of the biographical information of players with Hispanic

surnames found in *The Baseball Encyclopedia* implies that "Hispanic players" were those born outside of the United States in a Spanish-speaking country since there are 48 hitters and 13 pitchers who fit this criterion.[7] This study uses the same criterion to identify Hispanic pitchers and hitters.

The identity of black players is more problematic since this information cannot be found in either *The Baseball Encyclopedia* or the price guides. For common player cards this presents a particular challenge since a number of players active in 1969-1970 spent a short time in Major League Baseball before fading from public view. To identify black players *Topps Baseball Cards: The Complete Picture Collection* [Slocum 1990] was used. This publication contains reproductions of the front side of all Topps cards published from 1950 to 1990. Using this source, only 75 black hitters and 221 white hitters were identified. The same source was used to identify 13 black pitchers, the same number identified by NS.

THE BASEBALL CARD MODEL

NS estimated the following model to describe the behavior of the baseball card collector. The model assumes that the utility baseball card collectors receive (V) is linearly related to a vector of player characteristics that reflect on-field performance and race.

(1) $$V = \beta'X$$

Cards that sell for common player prices are assumed to share an intrinsic value not related to performance. Card prices, then, have two independent components

(2) $$P = P_c + P_p$$

The log price of a card (P) is equal to the log price of the common player plus the log price that is related to performance and race. Equation (1) is estimated by assuming V is related to P_p as in equation (3)

(3) $$P_p = \max\,[0,\,V]$$

Rewriting equation (2) and equation (3)

(4) $$P = P_c + \max\,[0,\,V]$$

Substituting from equation (1) yields equation (5)

(5) $$P - P_c = \max\,[0,\,\beta'X]$$

The LHS of this equation is the log of the difference between the card price and the appropriate common player price and the RHS is a linear function of player characteristics [Nardinelli and Simon, 582-584].

TABLE 1
Means and Standard Deviations[*] of Variables for Hitters

	All Races		White		Hispanic		Black	
	ES	NS	ES	NS	ES	NS	ES	NS
Card price	0.341	0.341	0.234	0.237	0.368	0.291	0.639	0.237
(P - P*)	0.826	0.826	0.665	0.669	0.910	0.769	1.095	0.669
Seasons	11.5	6.9	10.9	6.2	11.8	7.5	12.9	8.7
	4.8	4.5	4.6	4.2	5.4	4.5	4.9	4.9
At bats	3,581.0	3,598.0	3,068.5	3,079.7	4,160.0	4,034.7	4,720.4	4,778.0
	2,743.5	2,754.8	2,432.5	2,453.7	2,968.7	2,810.5	3,063.1	3,121.2
Hits	939.2	943.7	777.7	780.4	1,137.3	1,092.4	1,288.2	1,308.6
	786.7	789.0	673.7	678.6	868.6	808.0	901.8	923.5
Singles	671.5	——	559.7	——	856.8	——	881.5	——
	546.6	——	474.5	——	641.5	——	591.2	——
Doubles	147.0	149.2	121.3	124.1	173.7	167.8	205.7	208.0
	131.3	133.1	112.1	116.0	140.7	134.0	154.9	156.7
Triples	26.2	26.4	19.7	19.7	34.9	32.4	40.2	41.2
	26.8	26.8	19.5	19.6	34.1	31.0	33.2	34.2
Home runs	94.4	94.8	77.0	77.5	70.2	71.6	160.9	157.5
	119.3	119.8	94.9	95.6	88.9	89.3	168.6	167.8
Walks	356.5	358.8	323.8	326.2	295.8	283.5	491.6	496.0
	328.1	329.3	305.6	307.4	248.5	222.7	397.5	401.0
Stolen bases	58.7	58.8	27.0	27.1	92.4	82.0	130.6	133.1
	106.4	106.4	40.1	40.4	132.5	125.1	166.1	165.9
Postseason	7.8	——	6.8	——	8.6	——	10.2	——
games	11.9	——	11.3	——	10.5	——	14.1	——
Race (mean)								
Black	0.218	0.227	0.000	0.000	0.000	0.000	1.000	1.000
Hispanic	0.140	0.140	0.000	0.000	1.000	1.000	0.000	0.000
Observations (n)	344	344	221	218	48	48	75	78

*   Standard deviations for each variable lie below their respective mean values.

DESCRIPTIVE STATISTICS FOR HITTERS AND PITCHERS

Table 1 compares descriptive statistics of variables for hitters found in NS with calculations for the same variables using similar but updated data sources (ES). Variables include the log difference between a player's card price and the common player price, career performance measures and race. In most cases NS and ES values are very similar. The main differences are found for "seasons." For ES this variable, the number of years played in MLB, reflects career totals for all players, including those who had not retired by 1988, the year NS used to obtain career performance data. Differences in other mean and standard deviation calculations can be explained by the reclassification of black and white hitters and statistical discrepancies.[8] Only ES values for postseason games appear in Table 1 because NS did not list mean and standard deviation values for this variable. Mean and standard deviation values for pitchers are listed in Table 2. Only slight differences between NS and ES values for pitchers were found. Although postseason innings are used in NS regressions mean and standard deviation values for this variable were not reported.

TABLE 2
Means and Standard Deviations* of Variables for Pitchers

	All Races		White		Hispanic		Black	
	ES	NS	ES	NS	ES	NS	ES	NS
Card price	0.240	0.241	0.229	0.230	0.336	0.336	0.334	0.334
(P - P*)	0.690	0.692	0.679	0.680	0.770	0.770	0.831	0.831
Wins	82.3	82.9	78.4	79.1	99.7	99.7	126.8	126.8
	71.8	73.2	69.9	71.6	90.2	90.2	69.4	69.4
Losses	76.4	77.2	74.1	75.0	81.2	81.2	109.2	109.2
	57.3	58.8	56.7	58.4	66.5	66.6	51.5	51.5
Saves	27.7	27.4	28.8	28.4	19.7	19.7	18.2	18.2
	47.0	46.8	48.9	48.7	28.4	28.4	25.3	25.3
Complete Games	44.8	45.1	40.6	40.9	70.5	70.5	85.9	85.9
	60.0	60.3	55.3	55.6	87.5	87.4	81.9	81.9
Hits	1,307.0	1,318.6	1,259.1	1,271.9	1,490.9	1,490.9	1,890.1	1,890.1
	1,040.9	1,065.0	1,026.6	1,054.6	1,240.6	1,240.6	935.3	953.3
Earned runs	538.2	543.0	518.2	523.6	617.9	617.8	778.0	777.8
	408.8	420.7	401.5	415.3	503.5	503.5	368.0	309.9
Strikeouts	882.7	891.7	837.8	846.8	1,011.5	1,011.5	1,472.2	1,487.5
	776.4	796.2	752.5	776.0	892.9	892.9	841.4	828.6
Walks	485.2	490.9	465.4	470.7	545.7	545.8	741.9	741.9
	358.9	796.2	351.6	364.2	452.8	452.7	284.6	284.6
Innings pitched	1,401.2	1,415.7	1,344.4	1,360.6	1,609.7	1,609.4	2,100.9	2,100.5
	1,126.3	1,157.4	1,104.5	1,140.9	1,355.8	1,355.8	1,057.3	1,057.2
Postseason	10.2	——	9.3	——	16.0	——	18.6	——
innings	21.2	——	20.8	——	24.1	——	23.4	——
Race (mean)								
Black	0.056	——	0.000	——	0.000	——	1.000	——
Hispanic	0.056	——	0.000	——	1.000	——	0.000	——
Observations (n)	234	234	208	208	13	13	13	13

* Standard deviations for each variable lie below their respective mean values.

COMPARISON OF TOBIT REGRESSIONS FOR 1988: HITTERS

Since NS results were based on post-1988 season data, comparisons between these results and ES tobit regressions using data from the post-1988 season are compared in Table 3. Since NS used player position dummies as explanatory variables these were also included in ES regressions.[9] The first two columns, ES (1) and NS (1), use a single dummy variable for race (Nonwhite = 1 for black or Hispanic players; = 0 otherwise). ES (2) and NS (2) use two dummy variables, for Black and Hispanic players, to represent race. The signs for all three variables are negative and Nonwhite and Hispanic are statistically significant (at the .05 level). Table 3 validates the price and player performance statistics used to extend the main conclusions reached by NS: following the 1988 MLB season baseball card prices for the Topps 1970 series differed for white and nonwhite hitters after controlling for career offensive performance and defensive position. Both ES and NS regressions indicate card prices had a positive and statistically significant relationship with hits and home runs. Postseason games (the number of postseason games played) is also positive and significant in all regressions.

TABLE 3
Tobit Regressions for Hitters: Post 1988 Season*

	ES (1)	NS (1)	ES (2)	NS (2)
1. Nonwhite	-0.3052	-0.3188	——	——
	(2.24)	(3.4)		
Black	——	——	-0.2167	-0.202
			(1.43)	(1.4)
Hispanic	——	——	-0.4744	-0.5516
			(2.49)	(2.9)
2. Hits	0.0029	0.0030	0.0030	0.0031
	(4.43)	(4.5)	(4.58)	(4.7)
3. Doubles	-0.0003	0.0008	-0.0003	-0.0008
	(0.15)	(0.5)	(0.17)	(0.4)
4. Triples	0.0022	0.0021	0.0020	0.0016
	(0.64)	(0.6)	(0.57)	(0.5)
5. Home runs	0.0032	0.0032	0.0030	0.0030
	(4.30)	(4.4)	(3.95)	(4.0)
6. Walks	0.0002	0.0004	0.0002	0.0003
	(0.68)	(1.2)	(0.57)	(0.9)
7. Stolen bases	0.0003	0.0002	0.0002	0.0000
	(0.57)	(0.3)	(0.39)	(0.1)
8. At bats	-0.0006	0.0004	-0.0006	-0.0004
	(3.12)	(1.7)	(3.25)	(1.8)
9. Seasons	-0.0371	-0.1417	-0.0347	-0.1336
	(1.43)	(1.7)	(1.33)	(1.6)
10. Postseason games	0.0253	0.0262	0.0253	0.0262
	(5.80)	(6.0)	(5.77)	(6.0)
11. First base	0.1743	0.0597	0.1900	0.0693
	(1.08)	(0.4)	(1.18)	(0.4)
12. Second base	-0.1176	-0.0474	-0.0847	-0.0328
	(0.56)	(0.2)	(0.40)	(0.2)
13. Third base	-0.5931	0.4496	-0.0369	0.4970
	(0.30)	(2.4)	(0.19)	(2.7)
14. Shortstop	0.3966	-0.0839	0.4422	-0.0699
	(2.05)	(0.4)	(2.23)	(0.4)
15. Catcher	0.2029	0.1402	0.2234	0.1602
	(1.11)	(0.8)	(1.21)	(0.9)
16. Constant	-1.2723	1.2845	-1.3087	-1.3116
	(5.32)	(6.3)	(5.38)	(6.4)
Sigma	0.6504	0.6445	0.6505	0.6421
	(14.77)	(14.8)	(14.77)	(14.8)
Log likelihood	-154.99	-154.18	-154.11	-152.49

Asymptotic t ratios are in parentheses.   Sigma is the estimated standard error of the regression.
*   Card price and career performance data are from the end of the 1988 season.

ES and NS results differ in two respects. First, NS assumed the sign of the At Bats variable would be negative[10] and it was in one of their regressions (the minus sign does not appear in NS (1); this may have been a typographical error) although this result was not statistically significant. However, in both ES regressions At Bats is negative and significant. Second, the only position dummy that was significant in NS was Third base, suggesting that cards of third basemen sold at a premium. The Shortstop dummy was negative but not significantly different from zero in NS regressions.

The opposite result was found in ES regressions where Third base was negative but insignificant while Shortstop was positive and significant.[11] Given the similarity of the data used in both sets of regressions this result is puzzling. One possible explanation for this would be a different classification of players' positions. NS did not explain their basis for classifying players who played more than one position, but *The Baseball Encyclopedia* lists the number of games played at different positions. Presumably, they selected the position for which players played the greatest number of games, as was done to classify ES hitters.[12]

COMPARISON OF TOBIT REGRESSIONS FOR 1988: PITCHERS

Table 4 compares ES and NS tobit regressions for pitchers using data from the same time period. As with hitters, two separate regressions were run. ES (1) and NS (1) employ Nonwhite as a race dummy and ES (2) and NS (2) use separate dummy variables for Black and Hispanic pitchers. Results for both pairs of regressions are very similar. In all cases there is a positive and significant relationship between the dependent price variable and career totals for wins, saves and complete games. Contrary to what many fans would expect, neither career postseason innings pitched nor strikeouts was significantly different from zero. All race dummy variables have negative signs; Nonwhite and Black are statistically significant. However, the number of black and Hispanic pitchers is small and only six of these had card prices that exceeded common player prices.[13]

DOES RACE MATTER? INVESTIGATION OF CARD PRICE VARIATIONS FOR 1979-2001

Other studies have sought evidence of racial discrimination by customers in the baseball card market.[14] These studies have used other card series and tested models different from that used by NS. However, the latter work was the first to find evidence of apparent differences in card prices based on player race. Rather than suggest using a different card series or model to address the issue of racial discrimination, this study has implicitly accepted these as given in order to address a different issue. Can evidence of customer racial discrimination be found by applying the same model for the same series of cards to other years?

The greatest challenge raised by this study was obtaining card prices, especially for the earliest years. Until the 1970s there was no secondary market for baseball cards, other than an informal barter market. The growth in popularity of collectibles markets, fueled by the graying of the baby boom generation and growth in discretionary incomes, spawned the growth of the card collectibles markets - especially the market for baseball cards. In 1979 the initial edition of *The Sport Americana Baseball Card Price Guide* was published. Subsequent editions of the Price Guide provide comprehensive price data based on "the 'going' retail prices for each card based on the market place-hobby papers, sports memorabilia conventions, local club meetings, and dealers' catalogues and price lists" [Beckett and Eckes, 1].

Prices were obtained for cards in the Topps 1970 series for all (copyright) years between 1979 and 2001, except 1985 and 1998. Tobit regression results for these years

for hitters and pitchers, similar to those reported in Tables 3 and 4, were obtained. The following section summarizes the results obtained for hitters.[15]

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TABLE 4
Tobit Regressions for Pitchers: Post 1988 Season*

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	ES (1)	NS (1)	ES (2)	NS (2)
1. Nonwhite	-0.6640	-0.6848	——	——
	(2.59)	(2.7)		
Black	——	——	-0.8003	-0.822
			(2.15)	(2.2)
Hispanic	——	——	-0.5679	-0.592
			(1.82)	(1.9)
2. Wins	0.0022	0.02364	0.0218	0.023
	(2.59)	(2.7)	(2.52)	(2.7)
3. Losses	-0.0062	-0.00625	-0.0060	-0.0060
	(0.88)	(0.8)	(0.85)	(0.4)
4. Saves	0.0083	0.00832	0.0082	0.0083
	(4.84)	(4.8)	(4.76)	(4.7)
5. Complete games	0.0086	0.00883	0.0085	0.0088
	(2.52)	(2.6)	(2.46)	(2.6)
6. Hits	-0.0006	-0.00047	-0.6084	-0.00044
	(0.81)	(0.5)	(0.77)	(0.5)
7. Earned runs	-0.0014	-0.00139	-0.0015	-0.0015
	(0.97)	(0.9)	(1.02)	(1.0)
8. Strikeouts	0.0000	0.00006	0.0000	0.00068
	(0.01)	(0.2)	(0.10)	(0.3)
9. Walks	0.0007	0.00007	0.0006	0.00068
	(1.37)	(1.4)	(1.28)	(1.4)
10. Innings pitched	0.0004	0.00007	0.0004	0.00006
	(0.36)	(0.1)	(0.38)	(0.0)
11. Postseason innings	0.0019	0.00209	0.0020	0.00216
	(0.72)	(0.8)	(0.74)	(0.8)
12. Constant	-2.1362	-2.1318	-2.1302	-1.1260
	(8.45)	(2.0)	(8.42)	(8.4)
Sigma	0.5276	——	0.5282	0.528
	(9.44)		(9.44)	(9.5)
Log likelihood	-55.70	-55.60	-55.55	-55.40

Asymptotic t ratios are in parentheses. Sigma is the estimated standard error of the regression.
* Card price and career performance data are from the end of the 1988 season.

SUMMARY OF RESULTS FOR HITTERS

Since the focal point of the ES regressions is race, a brief summary of the results for the non-race variables will be given. A separate summary of the results for the race variables follows. The following variables were statistically significant in regressions for all years, with signs in parentheses:
· Hits (+)
· Home runs (+)
· Postseason games (+)

Other variables were statistically significant in some years but not others:
- At Bats: 1979-1984, 1986-1995 (-)
- Doubles: 1984, 1986, 1987 (+)
- Position dummy variables:
     First base: 1979, 1981-84, 1987 (+)
     Shortstop: 1980, 1981, 1982, 1988 (+)
     Catcher: 1983 (+)

Table 5 lists only the race variable coefficients and t-statistics for these variables from tobit regressions run for 1979 to 2001, except for 1985 and 1998. (Nonwhite (1) refers to the results from one regression while both Black and Hispanic (2) values refer to a second regression.) Race variables were statistically significant in the following years.[16]
- Nonwhite: 1979, 1984, 1986-1990 (-)
- Black: 1984, 1986-87, 1990 (-)
- Hispanic: 1984, 1986-1991 (-)

TABLE 5
Summary of Regression Results for Hitters:
Race Variables Only — 1979-2001
Coefficient (t statistic)

Year	(1) Nonwhite	(2) Black	(2) Hispanic
1979	-0.3885 (2.07)	-0.3974 (1.91)	-0.3730 (1.53)
1980	-0.2567 (1.44)	-0.1888 (0.98)	-0.4016 (1.64)
1981	-0.2670 (1.61)	-0.2455 (1.34)	-0.3073 (1.39)
1982	-0.2810 (1.47)	-0.1822 (0.88)	-0.4762 (1.83)
1983	-0.2622 (1.67)	-0.2528 (1.46)	-0.2800 (1.33)
1984	-0.5555 (3.66)	-0.5504 (3.24)	-0.5647 (2.75)
1986	-0.4518 (3.48)	-0.4456 (3.05)	-0.4627 (2.62)
1987	-0.4027 (3.05)	-0.3598 (2.43)	-0.4816 (2.64)
1988	-0.3052 (2.24)	-0.2167 (1.43)	-0.4744 (2.49)
1989	-0.3331 (2.67)	-0.2632 (1.87)	-0.4542 (2.65)
1990	-0.3738 (3.14)	-0.2967 (2.21)	-0.5130 (3.06)
1991	-0.2465 (1.83)	-0.1755 (1.16)	-0.3716 (2.01)
1992	-0.1984 (1.37)	-0.1346 (0.84)	-0.3216 (1.60)
1993	-0.0527 (0.45)	-0.0788 (0.58)	-0.0156 (0.10)
1994	-0.1402 (1.22)	-0.1398 (1.06)	-0.1410 (0.93)
1995	-0.1708 (1.63)	-0.1883 (1.58)	-0.1439 (1.05)
1996	-0.1330 (1.23)	-0.0816 (0.72)	-0.1095 (0.78)
1997	-0.8174 (1.46)	-0.9653 (1.81)	+0.196 (0.03)
1999	-0.1870 (1.57)	-0.1271 (1.03)	-0.1236 (0.81)
2000	-0.2150 (1.81)	-0.1475 (1.20)	-0.1660 (1.09)
2001	-0.2173 (1.86)	-0.1543 (1.27)	-0.1529 (1.02)

It is not obvious why evidence supporting customer racial discrimination[17] is concentrated in the 1984-1991 period. It is difficult to argue that those who bought cards in the mid-1990s were more enlightened about racial issues than those who bought

cards in the mid-1980s.[18] Certainly, the pool of card collectors in 2001 is not the same as in 1979 or 1984. Discrimination among younger collectors may be less common than among older card buyers, perhaps because baseball fans have become accustomed to watching players of all races. But even if this were true it is not clear why younger collectors would have a special interest in players long retired. Some light may be shone on this issue by examination of the level and change in prices for cards that sold for more than common player prices ("uncommon cards").

TABLE 6
Uncommon Cards in 2001

	White hitters	Nonwhite Hitters
Number of cards	65	55
Number of Hall of Fame Players	6	15
Mean Card Price		
1979	$.49	$.46
1988	$3.88	$3.52
2001	$8.57	$10.09

Using the number of future Hall of Fame players as a criterion, one can argue that there were more nonwhite star players than white star players among these cards.[19] However, through 1988 the mean price of uncommon cards of white hitters was greater than the mean price of uncommon cards of nonwhite hitters. Beginning in 1989 this inequality was reversed and the mean price of the uncommon cards of nonwhite hitters rose at a greater rate than the mean price of nonwhite uncommon cards through 2001.

A plausible explanation for the observed changes in uncommon card prices will be offered based on the following assumptions.

1. Some baseball card collectors prefer owning cards of players of their own race ("own race preferences"). Collectors' card purchases are driven by a desire for utility, not profit; they do not purchase cards in anticipation of selling them later for higher prices. However, a collector will sell a card if the price offered exceeds the value of the utility he derives from it.

2. In addition to own race preferences, collectors who live in or near the home cities of MLB franchises prefer cards of players from their home teams ("home team preferences") to cards of players from other teams.

3. Changes in the discretionary incomes of card collectors will cause changes in the demand for cards and the income elasticity of demand for cards is positive.

4. Card dealers are motivated solely by profit; the race of a player's card does not influence their decisions to buy or sell cards. Dealers will buy cards if they anticipate selling them for a profit to other dealers or to collectors.

Dealers' purchases are made in anticipation of future sales. Should consumer demand rise in response to increases in collectors' discretionary incomes dealers can realize profits from their past purchases. But dealers also have arbitrage opportunities. Regional price variations due to home team preferences allow dealers to purchase cards in one location and sell them in other locations for (riskless) profit.[20]

Regional price variations were more common, and regional price deviations were greater, in the late 1970s and 1980s. In subsequent years both dealers and collectors have become more sensitive to arbitrage opportunities.

During the late 1970s the U.S. was in a period of economic expansion. Rising discretionary incomes combined with the popularity of baseball memorabilia produced rapid appreciation in baseball card prices.[21] But unemployment was much lower and incomes higher among white males than nonwhite males, the groups that accounted for most of the collectors.[22] These different income levels and own race preferences can be used to explain the observed premium for white hitters' cards in 1979 and the mid-1980s.

The U.S. economy suffered two recessions during the 1980-82 period. As unemployment rose and income growth fell, the demand for baseball cards waned. By 1984 the U.S. was in the midst of an economic expansion that would last for the remainder of the decade. Growing discretionary incomes among collectors, especially white males, combined with own race preferences would explain the reemergence of the premium for the prices of white hitters' cards found in the second half of the 1980s.[23] The recession of 1990-1991 and the resulting slowdown in income growth can explain the reduction in the premium for white hitters' cards in this period. The expansion that followed this recession is the longest in U.S. history. Based on the behavior of prices in the 1980s own race preferences and income growth should have caused a premium for white players cards to reemerge. This did not happen. In fact, as noted above, the prices of nonwhite players' cards rose more rapidly than did white hitters' cards from 1988 to 2001.

The rapid growth in the prices of white hitters in the 1980s offered those who bought cards in the early 1980s the opportunity to sell these cards for a profit. It was assumed that collectors are not motivated by profit, but would sell their cards if prices were sufficiently high. Dealers, on the other hand, are assumed to be motivated solely by profit. The number of Hall of Fame hitters who were nonwhite was notably greater than the number of white Hall of Fame hitters in the Topps 1970 card series. Dealers became increasingly attracted to nonwhite players' cards that had a greater potential for appreciation than white hitters' cards. The opportunities to realize gains from buying and selling white players' cards had diminished by the late 1980s while profits from trading nonwhite players grew. Home team preferences caused the potential for gain to be greatest when dealers (a) bought nonwhite players' cards outside of the players' home team areas and (b) sold them in the players' home team areas.

This explanation of the pattern of card prices does not preclude alternative explanations; for example, a reduction in own race preferences among collectors over time. Nor is it meant to suggest that all collectors express own race preferences or that all collectors are not motivated by profit. But the profit motive of dealers provides a plausible explanation for the disappearance of statistically significant differences between the prices of white and nonwhite players' cards beginning in the 1990s.

NOTES

1. Since the number of cards produced and sold was not uniform - certain groups of cards were sold at different times during the year - there are six different common player prices listed in the 1989 Beckett Guide, ranging from $.20 to $1.50.
2. Each Topps card is numbered. The common player price used by NS for numbers from one to 132 was $.20. For a player with a card number between one and 132 (inclusive) the dependent variable would be the log of the difference between the player's card price and $.20.
3. Attempts to find price guides for these years were unsuccessful.
4. Graig Nettles was the last hitter from the series to retire (1988) and Nolan Ryan was the last pitcher to retire (1992).
5. The copyright year, in turn, typically precedes the title year of the guides. Therefore, the 2001 guide was on sale during 2000. It is assumed that prices in the 2001 guide reflect market conditions for the 1999 post-season.
6. There are 720 cards in the series. Only individual player cards were included in the hitter and pitcher totals. Other cards included team cards, World Series cards, etc.
7. One could argue that card buyers are as likely to practice discrimination against a player named Martinez born in the United States as one born in the Dominican Republic. However, a review of hitters found only four players with Spanish surnames who were born in the United States.
8. The NS means and standard deviations for card prices of black and white hitters are identical. Comparing these to the ES measures suggests that the NS mean and standard deviation for black players were reported incorrectly; apparently, the values were copied from the values computed for white hitters.
9. The outfield position is omitted. Nardinelli and Simon argued that the "position dummies partly measure the effect of fielding ability" [585]. But they do not explain why they believe card collectors would systematically value fielding ability differently by position. For example, the positive expected sign for Third base in NS is questionable. One can argue that certain third basemen, Brooks Robinson is an obvious example from the 1970 season, are well known for their defensive skills. It is doubtful that collectors consider all third basemen better fielders than all outfielders. One may also question whether card collectors value defensive skills for any position; Reggie Jackson was a poor fielder but was elected to the Hall of Fame because of his offensive prowess. In any event, this question is better addressed by examining players' defensive statistics - perhaps putouts, assists or fielding percentage - rather than their positions in the field.
10. Although no explanation was given in the article for the negative sign expected for At Bats one can argue that good hitters need fewer at bats to reach a given number of hits than an average or poor hitter.
11. This is an ironic result, given the earlier comments about the importance of defensive skills; it has been a tradition in baseball, at least until the 1980s and 1990s when several infielders became stars with both their gloves and bats, that managers have been willing to sacrifice offensive production for defensive ability in middle infielders (shortstop and second base). Although the position dummies are imperfect measures of defensive ability the ES results suggest that in 1989 card collectors valued the defensive skills of shortstops, but no other players.
12. Using this criterion the numbers of players at each position are: first base - 36, second base - 42, third base - 37, shortstop - 43, catcher - 61, outfielders - 125. Since ES and NS used different editions of The Baseball Encyclopedia for this information it is possible that some players who had more games played at a position at one point in their careers would have more games played at a different position at a later time. However, it is difficult to believe that this would have affected many players; certainly not enough to explain this result.
13. Hispanic pitchers: Juan Marichal, Louis Tiant, Mike Torrez and Mike Cuellar. Black pitchers: Ferguson Jenkins and Bob Gibson.

14. For example, Andersen, et. al. [1991], and Gabriel, et. al. [1999].
15. The small number of nonwhite pitchers makes these results less interesting than the hitters' regression results and they are not reported here. Upon request the author will provide these results.
16. Complete regression results are available upon request from the author.
17. One must be careful not to characterize this as evidence of racism, although racial preferences may be consistent with racism.
18. However, it may be tempting for some to infer a political explanation: the election of a new president from a different party in 1992 ushered in a new era of racial sensitivity!
19. Were it not for his suspension from baseball on gambling charges Pete Rose would certainly be in the Hall of Fame. Including Rose would still result in a greater than two-to-one ratio of nonwhite to white Fall of Fame hitters.
20. In other words, dealers perform the traditional role of a broker who brings buyer and seller together when transaction and information costs allow different prices to exist for the same product in different markets.
21. The rapid appreciation of card prices ended in 1993 [Neely, 1993].
22. In 1979 the unemployment rates for white males and black males were 4.5 percent and 11.4 percent, respectively. The median income (1998 dollars) of white males 15 years of age and over was over $26 thousand, compared to under $16 thousand for black males [U.S. Census Bureau, 1999, 344, 355].
23. One may also presume that arbitrage trades took place whereby dealers bought cards of players outside of their teams' home regions and sold them within their home regions.

REFERENCES

Andersen, T. and La Croix, S. J. Customer Racial Discrimination in Major League Baseball. *Economic Inquiry,* 1991, 665-77.

Beckett, J. *The Sport Americana Baseball Card Price Guide*. Lakewood, OH: Edgewater Book Company, 1986, 339-344.

_____. *The Sport Americana Baseball Card Price Guide*. Lakewood, OH: Edgewater Book Company, 1987, 341-346.

_____. *The Sport Americana Baseball Card Price Guide*. Lakewood, OH: Edgewater Book Company, 1989, 465-470.

_____. *The Official 1991 Price Guide to Baseball Cards*. New York: House of Collectibles, 1990, 155-165.

_____. *The Official 1992 Price Guide to Baseball Cards*. New York: House of Collectibles, 1991, 503-512.

_____. *The Official 1993 Price Guide to Baseball Cards*. New York: House of Collectibles, 1992, 447-455.

_____. *The Official 1994 Price Guide to Baseball Cards*. New York: House of Collectibles, 1993, 510-519.

_____. *The Sport Americana Baseball Card Price Guide*. Cleveland: Edgewater Book Company, 1994, 821-827.

_____. *The Official 1996 Price Guide to Baseball Cards*. New York: House of Collectibles, 1995, 624-631.

_____. *The Official 1997 Price Guide to Baseball Cards*. New York: House of Collectibles, 1996, 651-658.

_____. *The Official 1998 Price Guide to Baseball Cards*. New York: House of Collectibles, 1997, 613-614.

_____. *The Official 2000 Price Guide to Baseball Cards*. New York: House of Collectibles, 1999, 593-597.

_____. *The Official 2002 Price Guide to Baseball Cards*. New York: House of Collectibles, 2001, 484-488.

Beckett, J. and Eckes, D. W. *The Sport Americana Baseball Card Price Guide.* Cleveland: Williams Collins, 1979, 1; 152-156.

_____. *The Sport Americana Baseball Card Price Guid*e. Lakewood, OH: Edgewater Book Co. 1981, 316-320.

_____. *The Sport Americana Baseball Card Price Guide*. Lakewood, OH: Edgewater Book Co. 1982, 330-334.

_____. *The Sport Americana Baseball Card Price Guide*. Lakewood, OH: Edgewater Book Co. 1983, 332-338.

_____. *The Sport Americana Baseball Card Price Guide*. Lakewood, OH: Edgewater Book Co. 1984, 310-316.

Beckett, J. Klein, R, and Sandground, G. eds. *Beckett Baseball Card Price Guide*. Dallas: Beckett Publications, 2000, 939-942.

Gabriel, P. E., Johnson, C. D. and Stanton, T. J. Customer Racial Discrimination for Baseball Memorabilia. *Applied Economics*, November 1999, 1331-1335.

Nardinelli, C. and Simon, C. Customer Discrimination in the Market for Memorabilia: the Case of Baseball. *The Quarterly Journal of Economics*, August 1990, 575-95.

Neely, E. Card Dealers Diversifying as Market Oversaturates. *Baltimore Business Journal*, July 30, 1993, 30.

Reichler, J. L., ed. *The Baseball Encyclopedia, 7th ed*. New York: Macmillan Publishing Company, 1988.

Slocum, F. *Topps Baseball Cards: The Complete Picture Collection A 40 Year History*. New York: Warner Books, 1990.

U.S. Census Bureau. *Statistical Abstract of the United States: 1999*, 119th ed. Washington: Government Printing Office, 1999.

Wolf, R.E. ed. dir, *The Baseball Encyclopedia*, 9th ed. New York: Macmillan Publishing Company, 1993.