

Is a Ticket to Cooperstown Getting Any Cheaper?

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I think it's getting harder and harder every year to get into the Hall of Fame. You have to have really super numbers or whatever. You've got to be Babe Ruth or Hank Aaron.

— Tony Perez [1]
Hall of Famer, Class of 2000

Introduction

Is it getting easier or harder to get into baseball's Hall of Fame? First-year eligible ballplayers include 10-season veterans who have been retired for five years. An eligible player must receive at least 75 percent of the votes cast by the Baseball Writers Association of America (BBWAA) to earn induction to Cooperstown.¹ Players who do not receive the 75 percent plurality necessary for election have up to 15 years of eligibility with the BBWAA. Four years after their last year of eligibility, a ballplayer (who received at least 60 percent of the votes cast in any one year on the BBWAA ballot) becomes eligible for consideration by the Veterans Committee.

Tony Perez notwithstanding, some fans believe that the Hall has become less exclusive, that the gap between the old-timers and the newest members has been widening in recent years.

There is considerable debate about who belongs in Cooperstown and who does not. In this brief note, we compare selected lifetime statistics of Hall of Fame hitters inducted by the BBWAA between 1936 (the inaugural year of Hall of Fame voting) and 1979 to those inducted since 1980 through the year 2003.

The Data

The forty hitters voted in by the BBWAA before 1980 are listed in Table 1. The twenty-six hitters inducted by the baseball writers since 1980 are listed in Table 2. Various kinds of performance statistics are reported for each hitter: lifetime at bats, *AB*; batting average, *BA*; slugging average, *SA* (expressed as total bases divided by total at bats); the number of runs scored per 100 times at bat, *R%*; the number of runs batted in per 100 times at bat, *RBI%*; and the number of home runs per 100 times at bat, *HR%*.² Performance data are from the 1993 edition of *The Baseball Encyclopedia* [2] and www.baseballhalloffame.org. Clearly, information on career hits and home runs can be derived from *AB*, *BA*, and *HR%*. Similarly, runs scored and runs batted in can be derived from *AB*, *R%*, and *RBI%*.

Not surprisingly, a look at Table 1 reveals that Babe Ruth dominates *SA*, *R%*, *RBI%*, and *HR%*. Among inductees since 1980 (Table 2), Hank Aaron has the highest *SA*, Frank Robinson has the highest *R%*, and Harmon Killebrew leads in *RBI%* and *HR%*. Thus far only four inductees since 1980 have had career batting averages above .300.

The Results

Is there a statistical difference between the various hitting statistics of inductees before 1980 and Hall of Fame hitters inducted since 1980? The results of a series of two-sample *t*-tests on each of eight pairs of averages are reported in Table 3. The average number of at bats and home runs of inductees since 1980 are significantly higher than the corresponding averages of earlier inductees. (Recent inductees have played on average in significantly more games,

2629 v. 2219, $p < .0001$.) Yet, when these higher totals are adjusted for the larger number of plate appearances, inductees since 1980 have significantly *lower* batting averages, *lower* slugging percentages, and on average *fewer* runs scored and runs batted in per 100 times at bat. The comparisons for hits and *HR%* reveal no significant difference. Similarly, there is no difference in the average number (*unadjusted* for plate appearances) of runs scored ($p = .96$) or runs batted in ($p = .71$) between the two groups of Hall of Famers. Yet, in no case did the newest inductees have significantly higher average lifetime marks than the old-timers in any of the offensive categories examined here.

The performance measures presented here for all sixty-six Hall of Fame hitters elected by the BBWAA are a useful yardstick against which to measure the accomplishments of Pete Rose, banned from baseball in 1989 for allegedly gambling on the game and thus ineligible for election to the Hall of Fame. Rose would rank first among all Hall of Famers in hits and at bats. Table 4 gives his z-scores for the same categorical measures of prowess at the plate used in previous comparisons.³ Relative to all sixty-six other Hall of Famers, Pete's lifetime marks (excluding hits) are all below the group average. Relative to inductees since 1980, only Pete's batting average is at least one standard deviation above the mean.

Concluding Remarks

The evidence presented here may not settle the question whether a ticket to Cooperstown is getting any cheaper. Modern Hall of Famers have enjoyed longer careers than Hall of Famers of earlier generations. However, longer most certainly does not mean better. Differences in four offensive categories show that inductees since 1980 are *less* productive hitters than previous inductees. While the tendency might have been to focus only on offense, the voters now seem to reward defense. Ozzie Smith (Class of 2002) is a case in point.

Pete Rose, whose Hall eligibility still remains (at the time of this study) an issue, is the undisputed leader in career hits. His hustle, consistency, and longevity are legend. Yet, “hits” aside, Pete’s prowess at the plate does not compare favorably to that of Hall of Fame inductees.

So long as voters (and recreational mathematicians) compare baseball stats from different eras, there will always be questions whether Rose, future hopefuls (passed over by the baseball writers), and even ballplayers who achieved the 75 percent threshold necessary for election earned enshrinement in Cooperstown.

Table 1. Hall of Fame Hitters Inducted by the BBWAA, 1936-1979

<i>Player</i>	<i>Year Selected</i>	<i>AB</i>	<i>BA</i>	<i>SA</i>	<i>R%</i>	<i>RBI%</i>	<i>HR%</i>
L. Appling	1964	8857	.310	.398	14.89	12.60	0.51
E. Banks	1977	9421	.274	.500	13.85	17.37	5.43
Y. Berra	1972	7555	.285	.482	15.55	18.93	4.74
L. Boudreau	1970	6030	.295	.415	14.28	13.08	1.13
R. Campanella	1969	4205	.276	.500	14.91	20.36	5.76
R. Clemente	1973	9454	.317	.475	14.98	13.80	2.54
T. Cobb	1936	<i>11429</i>	.367	.513	19.64	17.16	1.03
M. Cochrane	1947	5169	.320	.478	20.14	16.10	2.30
E. Collins	1939	9951	.333	.429	18.29	13.06	0.47
J. Cronin	1956	7579	.301	.468	16.27	18.79	2.24
B. Dickey	1954	6300	.313	.486	14.76	19.19	3.21
J. DiMaggio	1955	6821	.325	.579	20.38	22.53	5.29
J. Foxx	1951	8134	.325	.609	21.53	23.62	6.57
F. Frisch	1947	9112	.316	.432	16.81	13.65	1.15
L. Gehrig	1939	8001	.340	.632	23.60	24.87	6.16
C. Gehringer	1949	8860	.320	.480	20.02	16.11	2.08
H. Greenberg	1956	5193	.313	.605	20.24	24.57	6.37
G. Hartnett	1955	6432	.297	.489	13.48	18.33	3.67
H. Heilmann	1952	7787	.342	.520	16.58	19.92	2.35
R. Hornsby	1942	8173	.358	.577	19.32	19.38	3.68
W. Keeler	1939	8585	.343	.418	20.12	9.44	0.40
R. Kiner	1975	5205	.279	.548	18.66	19.50	7.09
N. Lajoie	1937	9592	.338	.466	15.67	16.67	0.87
M. Mantle	1974	8102	.298	.557	20.70	18.63	6.62
R. Maranville	1954	10078	.258	.340	12.45	8.77	0.28
E. Mathews	1978	8537	.271	.509	17.68	17.02	6.00
W. Mays	1979	10881	.302	.557	18.95	17.49	6.07
J. Medwick	1968	7635	.324	.505	15.70	18.11	2.69
S. Musial	1969	10972	.331	.559	17.76	17.78	4.33
M. Ott	1951	9456	.304	.533	19.66	19.68	5.40
J. Robinson	1962	4877	.311	.474	19.42	15.05	2.81
B. Ruth	1936	8399	.342	.690	25.88	26.32	8.50
A. Simmons	1953	8761	.334	.535	17.20	20.85	3.50
G. Sisler	1939	8267	.340	.468	15.53	14.21	1.21
T. Speaker	1937	10197	.345	.500	18.46	15.29	1.15
B. Terry	1954	6428	.341	.506	17.42	16.77	2.40
P. Traynor	1948	7559	.320	.435	15.65	16.84	0.77
H. Wagner	1936	10441	.327	.466	16.62	16.59	0.97
P. Waner	1952	9459	.333	.473	17.19	13.84	1.18
T. Williams	1966	7706	.344	.634	23.33	23.86	6.76

Note: Italicized entries denote category leader.

Table 2. Hall of Fame Hitters Inducted by the BBWAA, 1980-2003

<i>Player</i>	<i>Year Selected</i>	<i>AB</i>	<i>BA</i>	<i>SA</i>	<i>R%</i>	<i>RBI%</i>	<i>HR%</i>
H. Aaron	1982	<i>12364</i>	.305	.555	17.58	18.58	6.11
L. Aparicio	1984	10230	.262	.343	13.05	7.73	0.81
J. Bench	1989	7658	.267	.476	14.25	17.97	5.08
G. Brett	1999	10349	.305	.487	15.30	15.41	3.06
L. Brock	1985	10332	.293	.410	15.58	8.71	1.44
R. Carew	1991	9315	.328	.429	15.29	10.90	0.99
G. Carter	2003	7971	.262	.439	12.86	15.37	4.06
C. Fisk	2000	8756	.269	.457	14.57	15.19	4.29
R. Jackson	1993	9864	.262	.490	15.72	17.25	5.71
A. Kaline	1980	10116	.297	.480	16.03	15.65	3.94
H. Killebrew	1984	8147	.256	.509	15.75	<i>19.44</i>	<i>7.03</i>
W. McCovey	1986	8197	.270	.515	14.99	18.97	6.36
J. Morgan	1990	9277	.271	.427	17.79	12.21	2.89
E. Murray	2003	11336	.287	.476	14.35	16.91	4.45
T. Perez	2000	9778	.279	.463	13.01	16.90	3.88
K. Puckett	2001	7244	.318	.477	14.78	14.98	2.86
B. Robinson	1983	10654	.267	.401	11.56	12.74	2.52
F. Robinson	1982	10006	.294	.537	<i>18.28</i>	18.11	5.86
M. Schmidt	1995	8352	.267	.527	18.03	19.10	6.56
O. Smith	2002	9396	.262	.328	13.38	8.44	0.30
D. Snider	1980	7161	.295	.540	17.58	18.61	5.68
W. Stargell	1988	7927	.282	.529	15.08	19.43	5.99
B. Williams	1987	9350	.290	.492	15.08	15.78	4.56
D. Winfield	2001	11003	.283	.475	15.17	16.66	4.23
C. Yastrzemski	1989	11988	.285	.462	15.15	15.38	3.77
R. Yount	1999	11008	.285	.430	14.83	12.77	2.28

Note: Italicized entries denote category leader.

Table 3. Comparisons of Inductees, 1936-1979 v. 1980-2003

<i>Category</i>	<i>Averages</i>		<i>p-value on difference</i>
	<i>Before 1980 (n = 40)</i>	<i>Since 1980 (n = 26)</i>	
At bats	8140	9530	.0009
Hits	2599	2696	.49
Home runs	265	377	.017
Batting average	.318	.282	<.0001
Slugging average	.506	.468	.017
Runs%	17.84	15.19	<.0001
RBI%	17.65	15.35	.015
HR%	3.39	4.03	.23

Table 4. Selected Lifetime Statistics for Pete Rose

<i>Category</i>	<i>Rose's Lifetime Mark</i>	<i>Rose's z-score</i>	
		<i>All Inductees</i>	<i>All Inductees Since 1980</i>
At bats	14053	3.02	3.18
Hits	4256	2.78	3.32
Home runs	160	-0.77	-1.24
Batting average	.303	-0.02	1.16
Slugging average	.409	-1.22	-1.04
Runs%	15.41	-0.49	0.13
RBI%	9.35	-1.90	-1.73
HR%	1.14	-1.15	-1.53

References

1. "No fame for Hall nominees," *The Washington Post*, January 9, 1996, p. E1.
2. *The Baseball Encyclopedia* (ninth edition), Macmillan Publishing Company, New York, 1993.

Footnotes

1. No player has ever been named on all ballots, but two pitchers — Tom Seaver in 1992 (98.84 percent) and Nolan Ryan in 1999 (98.79 percent) — came closest. Among hitters, George Brett in 1999 (98.19 percent) and Hank Aaron in 1982 (97.83 percent) were near unanimous selections. On occasion, the BBWAA fails to elect anyone. The last shutout was in 1996, the first one since 1971.
2. The adjusted measures — R%, RBI%, and HR% — do not penalize Hall of Famers with shorter than average careers. For examples, Kirby Puckett's career was halted prematurely in 1996 by glaucoma, Roy Campanella's in 1958 by a car accident, and Roberto Clemente's in 1972 by a plane crash. The Hall waived the normal five-year waiting rule and inducted Clemente in 1973.
3. Standardized or *z*- scores are obtained by subtracting the appropriate group mean from Pete's mark and then dividing this difference by the standard deviation for the group.