

MEASURING PLAYER LOYALTY  
AMONG BASEBALL'S HALL OF FAMERS

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When in April 2006 Johnny Damon (formerly of the Boston Red Sox) appeared in Yankee pinstripes, sportswriter Mike Lopresti lamented: "It's as if the mongoose went over to the rattlesnakes' side." The extent to which workers in general (and baseball's Hall of Famers in particular) remain loyal to their original employer is the empirical question that motivates this research note.

Heretofore the Herfindahl index has largely been limited to studies of industrial concentration and market structure. Here, we consider its use as it applies to the distribution of games played for one or more baseball teams, given by the formula:  $H = \sum_{i=1}^n G_i$ , where  $G_i$  is the fraction of games played for team  $i$ . When a ballplayer plays for one team for his entire career,  $H$  attains its maximum of 1.0. The value declines (hence, less player loyalty) with increases in the number of teams (during a player's career) and increases with rising inequality in the number of games played among any given number of teams. Unlike the Gini index, the Herfindahl index is sensitive not only to inequality of distribution, but also to fewness. The Gini index would be zero both for a player who played six years for two teams and another player who played two years each for six different teams. In the former case, the Herfindahl index would be .5; in the latter, it would be .1666.

The Herfindahl index (hereafter,  $H$ ) is applied to all of baseball's Hall of Famers who played their last year between 1940 and 1999. Data on the number of games played for each team by each inductee were obtained from Thorn, Birnbaum and Deane's *Total Baseball* (2004). For the inductees who retired between 1940 and 1999, there was no statistically discernible difference ( $p = .24$ ) between the average  $H$  of batters ( $\overline{H}_{batters} = .755$ ,  $n = 72$ ) and that of pitchers

( $\bar{H}_{pitchers} = .686$ ,  $n = 31$ ). All Hall of Famers who retired between 1940 and 1975, however, were more loyal to their teams ( $\bar{H}_{before} = .785$ ) than were the 37 inductees who retired after 1975 ( $\bar{H}_{after} = .643$ ) [ $p = .008$ ]. The difference before and after 1975, a watershed year for free agency in Major League Baseball, arises not because batters were less loyal in the post-1975 period ( $\bar{H}_{before} = .777$ ,  $\bar{H}_{after} = .713$ ,  $p = .311$ ), but because player loyalty as measured by the Herfindahl index significantly declined for Hall of Fame pitchers ( $\bar{H}_{before} = .804$ ,  $\bar{H}_{after} = .498$ ,  $p = .001$ ). There was no difference between batters and pitchers in the 1940 to 1975 period ( $\bar{H}_{batters} = .777$ ,  $\bar{H}_{pitchers} = .804$ ,  $p = .691$ ). But pitchers were less loyal than batters since 1975 ( $\bar{H}_{batters} = .713$ ,  $\bar{H}_{pitchers} = .498$ ,  $p = .012$ ).

Free agency has had an effect on the stability of baseball's Hall of Fame players. During their careers, Hall of Famers moved more often after free agency than before. The application of the Herfindahl index presented here suggests that player loyalty since 1975 has diminished the most for Hall of Fame pitchers.