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The home disadvantage in championship competitions: team sports

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ABSTRACT

Objectives: The possibility that home teams might choke in decisive games of championship series was first proposed by Baumeister and Steinhilber in 1984. Their hypothesis was that when the home team was on the verge of winning a championship, it tended to choke. As a result, the home advantage would be smaller in last games than in early games of the same series. The present paper updates the original data for baseball and basketball to 2012 and adds a parallel study of ice hockey.
Design/Method: The analysis compares home win percentage early in a championship series with home advantage in the regular season. Its main focus, however, is on the games in a championship series between the early and late games.
Results: The first of two main results is that in all three sports the percentage of home wins in Game 1 of a championship series is substantially higher than home advantage in the same sport in the regular season. The second result is that, while the tendency for percent home wins to decrease regularly over the course of a best-of-seven series is confirmed in all three sports, this decrease is complete or almost complete by Game 4, well before the home choke, according to Baumeister and Steinhilber, is supposed to occur.
Conclusion: The home-choke hypothesis as originally advanced in 1984 is not supported by subsequent results and analysis.

The idea of a "home choke" in professional sports was introduced by Baumeister and Steinhilber (1984). They studied the World Series from 1924 to 1982 and Finals and Semifinals (Conference Finals) in the NBA from 1967 to 1982 and concluded that in last (and therefore deciding) games of a multi-game series the home team performed worse than it did in early games of the same series, a decrement in performance they attributed to choking.

A decade later Schlenker, Phillips, Boniecki, and Schlenker (1995a) updated the original investigation to 1993. They found in baseball that home win percentage in Games 1 and 2 was 60% in the updated as well as the original series but rose from 41% to 47% in last games. In series that required seven games home win percentage rose from 39% to 47%. The original differences were significant at the .05 level for both last games and 7-game series. The updated differences, though only modestly smaller, were no longer significant. In basketball the results were much the same. The updated differences between early and last or seventh games were smaller than in the original study but enough so that they were no longer significant. There followed a response by Baumeister (1995) and a rebuttal by Schlenker, Phillips, Boniecki, and Schlenker (1995b).

After another 14 years Tauer, Guenther, and Rozek (2009) updated the basketball series to 2005. Baumeister and Steinhilber had studied NBA Finals and Semifinals (Conference Finals). Tauer et al. expanded their data base by including NBA Quarterfinals (Conference Semifinals) as well. They also began their series in 1947, twenty years before Baumeister and Steinhilber began theirs. They followed the original investigators, however, in excluding sweeps, that is, series in which one team won the first four games and therefore the series. Their major finding was that in the updated series (1947–2005) the home team won 83% of the series that required seven games to determine a winner; in those same series the home team won only 69% of the first two games. All three of these games (the first two and Game 7) were played at the same venue and the difference was significant ($\chi^2 = 5.70$, $p < .05$). This difference, of course, is contrary to that predicted by Baumeister's home-choke hypothesis.

Tauer et al. also noted that when the home team (the team that began the series at home) led 3–1 after four games it won 87% of Games 1 and 2 but only 71% of Game 5s. When the home team trailed 1–3 after four games, it won 43% of Games 1 and 2 but 64% of Game 5s. Both differences were significant at the .05 level. They interpreted these results primarily as a regression effect, although they also remarked that "home teams performed better when they were in most desperate need of a win," that is, when they trailed 1–

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3. It might reasonably be inferred that home teams performed less well when they were leading 3–1 and not so desperate for a win or even a little relaxed about the outcome of Game 5. Though not stated explicitly, the implication was that the fall-off in home-win percentage from early to last games (5 and 6)[1] may also be due to regression.

Claims have been made that the home-choke hypothesis holds in individual sports, for example, tennis (Gayton, Steinroeder, & Bonnica, 2009; Gayton, Theriault, & Morneau, 2013) and golf (Wright, Jackson, Christie, McGuire, & Wright, 1991). Jones (2013) describes efforts in which no more than one individual participates on each side as "individual efforts embedded in team sports." Examples include free throws in basketball, shootouts in ice hockey, or penalty kicks in soccer. The home choke hypothesis has been claimed to hold in these efforts also (Dohmen, 2008—penalty kicks; McEwan, Martin Ginis, & Bray, 2012—shootouts). These claims are not under consideration in this paper.

The present paper deals with team sports only and not just the two sports dealt with by Baumeister and Steinhilber, baseball and basketball. Ice hockey, specifically the Finals and Semifinals in the National Hockey League, is added. These three sports, it should be noted, are the only major professional team sports for men that decide their championships by a multiple game series. American football, soccer, rugby, and cricket all decide their championships either in one game or in two, as in soccer (sometimes).[2]

The present paper differs from those that have preceded it in three ways. First, it updates the baseball and basketball series to 2012. In basketball the update is minor (7 years) but in baseball it is major (19 years). The hockey series is, of course, entirely new.

Second, in the interim a new and unanticipated development has occurred which promises to shed an entirely fresh look at the data. In 2005 Pollard and Pollard reported home field advantage year by year in regular season play, in baseball from 1876 and 1901 (for the National and American Leagues respectively) and in basketball from 1947 (the NBA). Against this background an observed drop in home win percentage from early to last games may be either higher in the early games or lower in last games than it is in regular-season play. If it is higher in the early games, the drop Baumeister and Steinhilber pointed out may be just a return to normalcy, requiring no special explanation.

Third, the present analysis takes all of the games played in a series into account. Baumeister and Steinhilber focused exclusively on early and last games. Games in between, for example, games 3–6 in a 7-game World Series, were simply ignored. In addition, all series sweeps were excluded. Baumeister and Steinhilber advanced reasons to justify these actions, of course. Nevertheless, clipping and excluding data as they did opens the door to what one commentator calls "false-positive psychology" (Simmons, Nelson, & Simonsohn, 2011). The present paper attempts to avoid at least some of these hazards.

Methods

Baumeister and Steinhilber (1984) used χ^2 for contingency tables to evaluate the reliability of their results. This practice is continued in the present paper wherever their results or updates of them formatted in the same way are at issue. Otherwise, with one exception, all tests of significance are of the difference between two sample proportions or a sample proportion and a population value. The exception is a variant of partial rank correlation which will be described in the Results section where it first applies.

Results

Baseball

Update

Since 1924, when Baumeister and Steinhilber begin their study, the World Series has been a best-of-seven championship series. The first two games are played at the home field of Team A, Games 3, 4, and 5 at the home field of Team B, and Games 6 and 7 back at team A's home field.[3] A series ends when one team wins four games. Hence, Games 5, 6, and 7 are not always necessary, and when not necessary are not played.

The design of Baumeister and Steinhilber's study contrasted Games 1 and 2 with the last game played, 5, 6, or 7. They argue that in the first two games, when neither team is facing elimination, self-awareness is weaker than in a "last" game, when one or both teams face elimination. "Although early games," they write (p. 86), "are certainly important performances, they are less pressured than the game that decides the championship."

This reasoning is especially pertinent when the series is decided in the seventh game. "The impending redefinition of self (as champions), particularly in front of the home crowd, engenders self-attention, which causes performance decrements … The visiting team will [also] have a tendency to become self-aware when facing imminent victory, but this tendency is dampened by the presence of a hostile, rejecting audience, which subdues or removes the salient, immediate self-presentational value of winning the championship. Therefore, performance decrements in decisive contests will be shown particularly by the home team." (pp. 86–87).

Baumeister and Steinhilber also excluded sweeps, that is, series in which one team wins the first four games and therefore the Series. "If one team is drastically superior to the other, there is little room for effects such as we sought. To screen out the bulk of such mismatches, we elected to ignore all Series in which the same team won all the games." (p. 87).

Baumeister and Steinhilber found that the home team won 60.2% of the first two games but only 40.8% of last games ($\chi^2 = 4.94$, $p < .05$). In the 26 Series that required a Game 7 the home team won 10 and lost 16.

The Baumeister and Steinhilber paper was published in 1984. In the 30 years since 1982 there have been eight seven-game series.[4] All eight have been won by the home team. Table 1 presents the results. χ^2 for the difference between Games 1 and 2 and last games equals .86 ($p > .2$) and the direction of the difference is opposite to that predicted by the disadvantage hypothesis; that is, the percentage of home wins is higher for last than for the first two games.

If the two series are merged to make a single series stretching from 1924 to 2012, the percentage of home wins is higher for Games 1 and 2, (83/138=) 60.1%, than for last games, (35/69=) 50.7%, but χ^2 equals 1.67, $p > .15$.

[1] But not Game 7, where there was, as noted, no fall-off in Tauer's series but a significant increase. The difference may be that "the first two games" makes no reference to performance level whereas "leading or trailing after four games" does. In the former there is no selection with respect to level of performance (and, hence, no regression effect) but in the latter there is.

[2] In soccer, moreover, the two games are not usually played back-to-back as are the games in a best-of-seven series.

[3] In 1943 and 1945 the format was changed to 3-4, presumably because of wartime travel restrictions. Team A played the first three games at home and the last four, or as many as were necessary, away. These two departures are ignored in Fig. 1 because the issue there is the ordinal position of the game, not whether Team A or Team B was at home.

[4] Thirty years but only 29 series. In 1994 the World Series was canceled because of a strike.