The Effects of Tie-Breaker Procedures on Competitive Balance

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Introduction
Despite the four traditional North American Major Leagues (i.e. MLB, NBA, NFL and NHL) in general being more regulated in both player labour markets and team product markets compared to European soccer leagues, competitive balance measured as win dispersion is better in the latter. This anomaly might be explained by Rottenberg’s invariance proposition, that competitive balance is invariant to market intervention (Rottenberg, 1956). Another suggested explanation has been the incentive effects of the promotion-and- relegation system (Szymanski & Ross, 2000; Noll, 2002).

Another structural difference is that European soccer leagues allow tied games. Cain and Haddock (2006) and Fort (2007) considered the theoretical and empirical effects of different scoring systems and the inclusion of tied games on win dispersion as measured by the relative standard deviation (RSD). Both studies focused on English soccer. However, Fort does make the claim that by applying the methods adopted by Cain and Haddock, the RSD would have been 17% higher in the NHL without the introduction of an award of one point for a loss in overtime. This study will focus on the effects on win dispersion in North American Major Leagues of allowing tied games similar to European soccer.

There are further cross-Atlantic differences in league structures that may affect competitive balance. For example, North American Major Leagues tend to have unbalanced game schedules rather than balanced round-robin game schedules favoured by European soccer leagues. But the tendency for weaker teams to play proportionately fewer games against stronger teams should tend to reduce win dispersion and so exacerbates rather than explains the cross-Atlantic competitive balance anomaly.

A possible explanation of differences in win dispersion between leagues with and without tied games is provided by Cain and Haddock who claim that: “Because soccer and ice hockey tend to result in such low scoring affairs, an inferior team is quite often able to achieve a tie against a superior one. If those games were twice as long, there would be fewer ties, of course; however, more to the point the superior team would likely win more than one half of them.” (p. 331) This argument emphasises the hypothesis in this study that, ceteris paribus, win dispersion is weaker in leagues with binary outcomes compared to leagues with the possibility of a third outcome, namely, tied games.

The data in this study is from the regular seasons in the four major leagues over the period 1999(/00)-2008(/09). Ties are defined as games having some form of “overtime” decision, that is, games going beyond the 9th inning in the MLB, and games going into overtime in the NBA, NFL and NHL.

This study will only focus on one dimension of competitive balance, the win dispersion (also called within-season competitive balance or static competitive balance). The most popular measure for win dispersion is the ratio of standard deviation (RSD), which is the actual standard deviation (ASD) divided on the idealized standard deviation (ISD) (see Fort, 2007 for references).

The “original” RSD is based on binomial match outcomes. However, this measure has been applied in leagues with more than two match score outcomes, such as in the NHL and in European soccer. In these cases, the ASD is measured on basis of a transformation into a (1-0.5-0) score system (ties are valued as half wins), while the ISD is still based on the (1-0) system (win-loss). Here, we will follow this system, but our study also includes other approaches such as including the possibility of trinomial score outcomes in the ISD, as is taken into account in the discussions in Cain and Haddock (2006) and Fort (2007).

The preliminary results show that given the recent systems, the major leagues with the exception of the NHL, would have had a hypothetical tie percentage between 6% and 9%, ceteris paribus, while the hypothetical tie percentage in the NHL is 23.2%. The tie percent is highly variable across sports. The hypothetical tie percentage in the NHL is similar to the real tie percentage of the top division in Scottish soccer over the same period while the English Premier League was slightly higher at 25.6 %.

The relatively low frequency of hypothesised ties in the MLB, NBA and NFL suggests that allowing for tied games by abandoning the tie-breaker procedures would have a relatively small impact on the RSD of between 2.1% (NFL) to 4.5% (AL). This means that the scoring frequency relative to the length of the games in these leagues is high enough to give a winner and a loser on basis of differences in sporting quality. But, as noted in Fort (2007), incentive effects on tactics during the games might appear when changing score outcomes, as evidenced in the NHL.
The NHL has a different scoring system, allowing for three possible outcomes. For this league, we compare the “actual” $RSD(1-0.5-0)$, which is calculated on basis of actual outcome converted to win percentage, with the $RSD(1-0.5-0)$ based on hypothesised ties, which is equal to the frequency with which teams played overtime. The results for the NHL show that the win dispersion would have been improved if ties in regular time had been treated as the final result. But again, the effect is relatively low, with only an improvement of 3% in the current system (4.8% before the lockout).

A preliminary conclusion from our study is that the North American Major Leagues could have improved their win dispersion slightly by adopting a scoring system that allows for tied games at the end of normal time as in, for example, European soccer. However, the improvement is relatively small and hence can only be a partial explanation of the cross-Atlantic anomaly that despite greater league regulation, the North American Major Leagues tend to have greater win dispersion than the leading European soccer leagues.