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Football match? We can predict the outcome!

adapted from an article by Taha Yasseri, Associate Professor, School of Sociology; University College Dublin

The legendary German goalkeeper Manuel Neuer once said: “You can plan, but what happens on a football field cannot be predicted.” This sentiment goes a long way to explaining why football is the most popular sport worldwide. Anything can happen on the field, and the more surprising the outcome of a match, the more memorable it will be.



But our new study suggests the results of football matches are becoming more predictable.

Data comparison

We developed a computer model to predict the results of football matches based on data from almost 88,000 matches played over 26 years (1993-2019) across 11 major European leagues. Our model tried to predict whether the home or away team would win by looking at their performance in a certain number of previous matches. Our model is simpler than the state-of-the-art predictive models used by betting houses today. Its simplicity means our model is going to be less accurate than the more complex predictive models. Even so, our model predicted the results correctly roughly 75% of the time.

Increasingly correct

We found it has become progressively easier to predict the results of football matches over the years. For instance, our model could correctly predict the winner of a Bundesliga (German league) match in 60% of matches in 1993, whereas its performance was as high as 80% in 2019. Finding that football results have become more predictable initially surprised us. We thought more money and higher stakes must have made the game more competitive over time, and therefore we should expect more excitement and less predictability in recent years. Examining the data more closely helps us understand why this isn't the case.

A widening divide

When we looked at teams in the same league in a given season, we observed that in more recent years, the points have been distributed among teams much less evenly: overall the stronger teams have become more successful, while the weaker teams have become less successful.

This echoes the notion that “the rich get richer and the poor get poorer”. This widening gap could be the result of a cycle where stronger teams end up making more money, which makes them even more powerful in the players market, which then leads to an even stronger squad.

Home-field advantage

One other trend in our results helped us understand why football matches could be becoming more predictable. As football fans will know, many of the most exciting games take place when a strong team plays away in the field of a weaker team, and the weaker home team, relying on often epic support from their fans, ends up winning. We observed an initial home-field advantage of 30% in the early 1990s – which means on average a team playing at home was 30% more likely to win compared to a team playing away. The home-field advantage has gradually shrunk to only 15% during the most recent seasons. In other words, it has halved over the past two-and-a-half decades.

The strong are getting stronger

So there's less and less chance for the weaker teams to benefit from playing at home. It seems, in general, that stronger teams will win anyway, no matter where they play. This could be in part because transportation and training have significantly improved over the past few years, minimising the logistical challenges of playing away, and making it easier for the players to adapt. But more importantly, this seems to be further evidence of the increasing strength of the stronger teams.

The (future) success of the sport

There are some limitations to our study. We only looked at the 11 largest European men's leagues, and our analysis didn't go further back than 1993. Nevertheless, the results of our work are robust, particularly for bigger leagues such as the ones in England, Spain and Germany. Our findings highlight the need for stronger regulations around club incomes, expenditures and player salaries, including, perhaps, the introduction of more effective caps. Otherwise, the success of the sport might become the very reason for its decline. A game that's easy to predict is not one that will necessarily keep bringing crowds to the stadiums.

theconversation.com, 2021