

Home advantage persists in football even without fans: study

March 31 2021, by Issam Ahmed



Empty seats are pictured in the empty stands ahead of the English Premier League football match between Tottenham Hotspur and Burnley at Tottenham Hotspur Stadium in London

Even with spectators absent from matches during the Covid-19 pandemic, European professional football teams playing on their home ground enjoy a significant edge over visiting teams, a new study showed

Wednesday.

The analysis took advantage of the unprecedented conditions created by lockdowns, which generated a "natural experiment" allowing the researchers to take a closer look at home advantage, one of the best known phenomena in sport.

"People usually assume that spectators are the main reason or only reason for home advantage," first author Fabian Wunderlich of the German Sport University Cologne told AFP. "The effect that we saw was smaller than what we expected."

But the paper, published in the journal *PLoS ONE*, did confirm that crowds influence refereeing.

The researchers compared more than 1,000 professional matches played without spectators and more than 35,000 matches that occurred with spectators prior to the pandemic.

Ten top leagues were chosen among six countries—Spain, England, Italy, Germany, Portugal and Turkey—during the seasons 2010/11 to 2019/20.

The researchers were surprised to find that, while the absence of spectators was associated with a slight decrease in home advantage, as measured by the number of goals and points scored, the difference was not statistically significant.

This means they could not say with a high degree of certainty that the decrease observed was not due to chance.

"Over the last 10 seasons, with spectators, home teams won 45 out of 100 matches, away teams won 28 out of 100 matches, and the other 27

out of 100 matches were a draw," said Wunderlich.

"Now, during the pandemic, home teams won 43 out of 100 matches, away teams won 32, and draws were 25 out of 100."

While that might sound like a tangible reduction, it is not enough to untangle it from the general trend of declining home advantage observed over the past several decades, added Wunderlich.

Overall, he added, the study highlights the role of other factors behind the phenomenon of "home advantage," such as a team's familiarity with their own facility, as well as "territoriality"—increased hormonal drive to defend one's turf, which is well documented in animal behavior.

Travel fatigue has also been put forward as an explanation, but Wunderlich said he was inclined to assign less weight to this factor.

This is because the researchers carried out a separate analysis that examined the differences in results before and during the pandemic among German amateur teams, which generally play within the same city, and found the home advantage was comparable to professional teams who travel much further.

Less referee pressure

While teams didn't suffer greatly in their overall results, there were certain metrics that were reduced significantly, the researchers found.

Home teams experienced a statistically significant decrease in match dominance measures such as number of shots, and shots on target.

A possible explanation of why more shots didn't translate to more goals and wins could be that, in the presence of spectators, home teams take

more unpromising shots.

Additionally, in matches during normal circumstances, home teams received fewer disciplinary sanctions compared to away teams.

This is thought to be the effect of social pressure on referees, who might use crowd noise as a cue to evaluate the severity of fouls.

But the effect was eliminated during the pandemic, with visiting teams conceding fewer fouls and yellow and red cards.

Although this apparent bias didn't translate significantly to the results, Wunderlich believes it could prove useful in informing sports policy.

"As there is the referee bias, referees should be aware that this actually exists and maybe there's a possibility for increased training for the referees," concluded Wunderlich.

More information: Wunderlich F, Weigelt M, Rein R, Memmert D (2021) How does spectator presence affect football? Home advantage remains in European top-class football matches played without spectators during the COVID-19 pandemic. *PLoS ONE* 16(3): e0248590. doi.org/10.1371/journal.pone.0248590

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