# Playing Football behind Closed Doors during the Corona Crisis. A Natural Experiment on Crowd Support and Home Advantage

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#### **Abstract**

The abstract should be capable of standing by itself, in the absence of the body of the article and of the bibliography. Therefore, it must not contain any reference citations. In football, as in many other sports, there is a sizeable advantage for the home team, found all around the globe, which means that home teams have a significantly higher chance of winning. While this effect has shrunk over the years, the exact reasons are unknown. They may include familiarity with the ground, travel burdens for the away team, and, of course, crowd support for the home team (directly, by affecting players' performance, or indirectly, by pressuring referees). Currently, due to the Corona-Crisis, all major leagues in Europe are suspended and it's unclear whether professional football can resume any time soon. In Germany, preparations for re-opening the league have advanced the furthest. It seems possible that the Bundesliga might return to play in the second half of May, without supporters. There are still 81 games to play until the end of the season. While there is a public debate about the dangers of resuming the league, playing in empty stadiums would create a natural experiment on the effect of home crowd support on the match result: As no supporters are present, the home advantage should vanish or at least diminish significantly if crowd support is the major driver. Games played on neutral venues could serve the same purpose (as currently discussed in England).

#### **Keywords**

fan support, ghost games, Covid-19, Football, home advantage, natural experiment

# Introduction

Articles of standard length that report on original research or analysis are normally of 5000-8000 words in length, inclusive of references, notes, tables, and figures. Such research articles should include an abstract of 100 - 200 words and 5 key words must also be supplied, placed at the beginning of the article. While style and organization may vary according to theoretical and methodological traditions, these research articles normally include (1) an introduction (no heading) that clearly states the purpose and rationale for the article and places its importance in context (2) a review of literature that sets the stage for the investigation and basic approach, (3) a methodological summary that situates and details the approach and frames basic questions or hypotheses, (4) a report of results or analysis of findings, followed by (5) a discussion that emphasizes new and important observations of the study, (6) a conclusion that considers the study's limitations and implications for future research.

Football as collective action

Crowd Support – when spectators show their emotions

Review of Literature

a review of literature that sets the stage for the investigation and basic approach

Previous research on home advantage in Football

Home advantage – historical and international comparisons Home advantage in other sporst?

Likely causes:

Crowd support

Likely mechanisms:

Direct emotional support

Pressure on the referee

Travel burden for the away team

Ground familiarity – condition of the green, pitch size, altitude, Stadium in Quito – Ecuadorian national team

Previous evidence:

Crowd Sizes

Existence of running tracks

Football derbies played in the same Stadium

Previous ghost games

Previous research on Covid-19

Problems with previous research

Football in Times of Corona

The example of the German Bundesliga How leagues dealt with Corona-Crisis – creating bubbles for the players

- Regular Testing - Training at home -

Rule Adjustments – allowing five substitutions

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Training without Körperkontakt

How clubs and fans adjusted to the situation:

Did style of play change due these circumstances and the prolonged break? What protagonists said about the experience of "ghost ghames" Societal acceptance of resuming play Bad TV ratings in Germany.

# Theoretical Underpinnings

# **Methodological Summary**

a methodological summary that situates and details the approach and frames basic questions or hypotheses

# Hypotheses

Home advantage disappears in ghost ghames The effect of ghost games dies off over time due to teams getting accustomed to the circumstances.

# Data and Sample

All results from the 2019/2020 season where games were played without supporters for the remainder of the season. This was the case in the following European Football leagues: Table X provides an overview of the leagues, together with the dates when matches were stopped due to the pandemic and resumed later on. The data was assembled from football-API, fivethirtyeight.com, soccerstats.com and transfermarkt.de

# Identification Strategy

Treatment: Games played without supporters (y/n)

# Variables

Match Result Home win, draw, away win

Goals scored

Goal Difference - Home vs. Away Team

Team's Market value

Expected Goals (xG) Reducing the chance factor in estimating outcome and performance.

Expected Goal Difference - Home vs. Away Team

Travel Distance

Stadium Size

Mean Attendance

Match level variables

Performance trend home/away team

Points taken from the previous five games.

Net difference in league position

Net difference in market value

Yellow/red cards

Possession

Controls for league, matchday

#### Models

Multinomial logit model with match result as outcome

Linear regression models with net difference of (expected) goals scored as dependent variable.

#### Robustness Checks

Reasons why this is not a perfect experiment: Ghost games not play for a whole season, only roughly the last quarter of the season during spring/early summer. Random trends tend to fade out towards the end of the season (regression to the mean). It might be that by pure coincidence, travelling opponents were stronger during the last quarter than the remainder of the season. One way of dealing with this: Controlling for play quality and form. Dummy regressions – break at another matchday, same matchday previous season

## Results

a report of results or analysis of findings,

#### Discussion

a discussion that emphasizes new and important observations of the study

Comparison to previous research

#### Conclusion

a conclusion that considers the study's limitations and implications for future research.

## The article header information

The heading for any file using sagej.cls is shown in Figure ??. You must select options for the trim/text area and the reference style of the journal you are submitting to. The choice of options are listed in Table 1.

Table 1. The choice of options.

Option	Trim and font size	Columns
shortAfour	210 × 280 mm, 10pt	Double column
Afour	$210 \times 297$ mm, $10pt$	Double column
MCfour	$189 \times 246$ mm, $10pt$	Double column
PCfour	$170 \times 242$ mm, $10pt$	Double column
Royal	$156 \times 234$ mm, $10pt$	Single column
Crown	$7.25 \times 9.5$ in, 10pt	Single column
Review	$156 \times 234$ mm, $12pt$	Single column

Option	Reference style
sageh	SAGE Harvard style (author-year)
sagev	SAGE Vancouver style (superscript numbers)
sageapa	APA style (author-year)

## Figures and tables

sagej.cls includes the graphicx package for handling figures. Figures are called in as follows:

\begin{figure}
\centering
\includegraphics{<figure name>}
\caption{<Figure caption>}
\end{figure}

For further details on how to size figures, etc., with the graphicx package see, for example, Kopka and Daly (2003) or Mittelbach and Goossens (2004).

The standard coding for a table is shown in Figure ??.

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# Cross-referencing

The use of the LATEX cross-reference system for figures, tables, equations, etc., is encouraged (using \ref{<name>} and \label{<name>}).

# End of paper special sections

Depending on the requirements of the journal that you are submitting to, there are macros defined to typeset various special sections.

The commands available are:

```
\begin{acks}
To typeset an
  "Acknowledgements" section.
\end{acks}
\begin{biog}
To typeset an
  "Author biography" section.
\end{biog}
\begin{biogs}
To typeset an
  "Author Biographies" section.
\end{biogs}
\begin{dci}
To typeset a "Declaration of
  conflicting interests" section.
\end{dci}
\begin{funding}
To typeset a "Funding" section.
\end{funding}
\begin{sm}
To typeset a
  "Supplemental material" section.
\end{sm}
```

### References

Please note that the files SageH.bst and SageV.bst are included with the class file for those authors using BiBTEX. The files work in a completely standard way, and you just need to uncomment one of the lines in the below example depending on what style you require:

```
%%Harvard (name/date)
%\bibliographystyle{SageH}
%%Vancouver (numbered)
%\bibliographystyle{SageV}
\bibliography{<YourBibfile.bib>}
and remember to add the relevant option to the
\documentclass[]{sagej} line as listed in Table 1.
```

#### Acknowledgements

This class file was developed by Sunrise Setting Ltd, Brixham, Devon, UK.

Website: http://www.sunrise-setting.co.uk

#### References

Kopka H and Daly PW (2003) A Guide to ETeX, 4th edn. Addison-Wesley.

Lamport L (1994) ETeX: a Document Preparation System, 2nd edn. Addison-Wesley.

Mittelbach F and Goossens M (2004) *The ET<sub>E</sub>X Companion*, 2nd edn. Addison-Wesley.