

Included studies and individual characteristics (sorted by year and authors)

Year / Authors	Journal; Platform / Status	Title	Number of countries	Number of analyzed leagues	Analyzed leagues and (Tiers)	League comparison	Number of analyzed seasons	Analyzed factors	Results evaluation
2020 / Cross J; Uhrig R	SSRN / not peer-reviewed yet	Do Fans Impact Sports Outcomes? A COVID-19 Natural Experiment	4	4	England (1); Germany (1); Italy (1); Spain (1)	Across	11 (2009 - 2019)	Win ratio; Goals; Expected goals	No
2020 / Cueva C	Econstor / not peer-reviewed yet	Animal Spirits in the Beautiful Game	30	41	England (1, 2, 3, 4, 5); Spain (1, 2); Italy (1, 2); France (1, 2); Germany (1, 2); Turkey (1); Portugal (1); Belgium (1); Greece (1); Scotland (1); Brazil (1); USA (1); Mexico (1); Japan (1); Poland (1); Romania (1); Sweden (1); Norway (1); Russia (1); Denmark (1); Finland (1); Ireland (1); China (1); South Korea (1); Austria (1); Switzerland (1); Bulgaria (1); Hungary (1); Netherlands (1); Scotland (1, 2, 3); Argentina (1)	Across	27 (1994 - 2020)	Win ratio; Fouls; Cards	Yes

2020 / Dilger A; Vischer L	Econstor / not peer-reviewed yet	No home bias in ghost games	1	1	Germany (1)	N/A	1 (2019)	Win ratio; points; goals; market value; extra time; shots; distance covered; passes; possession; tackles; fouls; yellow cards; red cards	Yes
2020 / Endrich M; Gesche T	Economics Letters / peer-reviewed	Home-bias in referee decisions: Evidence from "Ghost Matches" during the Covid19-Pandemic	1	2	Germany (1, 2)	N/A	1 (2019)	Fouls; Cards	No
2020 / Ferraresi M; Gucciardi G	Econpapers / not peer-reviewed yet	Team performance and audience: experimental evidence from the football sector	5	5	France (1); Germany (1); Italy (1); Spain (1); England (1)	Across	1 (2019)	Win ratio; Points	No
2020 / Krawczyk M; Strawinski P	Econpapers / not peer-reviewed yet	Home advantage revisited. Did COVID level the playing fields?	4	4	England (1); Germany (1); Italy (1); Spain (1)	Individual	3 (2017 - 2019)	Win ratio; Points, Goals	Yes

2020 / Matos R; Monteiro D; Antunes R; Mendes D; Botas J; Clemente J; Amaro N	International Journal of Environmental Research and Public Health / peer-reviewed	Home-Advantage during COVID-19: An Analysis in Portuguese Football League	1	1	Portugal (1)	N/A	4 (2016 - 2019)	Points	Yes
2020 / Sors F; Grassi M; Agostini T; Murgia M	European Journal of Sport Science / peer-reviewed	The sound of silence in association football: Home advantage and referee bias decrease in matches played without spectators	4	8	Germany (1, 2); England (1, 2); Spain (1, 2); Italy (1, 2)	Across	4 (2016 - 2019)	Win ratio; Points; Goals; Ball possession; Shots; Shots on target; Corner kicks; Fouls; Cards; Penalty kicks; Extra time	Yes
2020 / Tilp M; Thaller S	frontiers in Sports and Active Living / peer-reviewed	Covid-19 Has Turned Home Advantage Into Home Disadvantage in the German Soccer Bundesliga	1	1	Germany (1)	N/A	2 (2018 - 2019)	Win ratio; Fouls; Cards; Penalty kicks	Yes
2021 / Almeida CH; Leite WS	Biology of Sport / peer-reviewed	Professional football in times of COVID-19: did the home advantage effect disappear in European domestic leagues?	5	5	Germany (1); Spain (1); England (1); Portugal (1); Italy (1)	Across & Individual	1 (2019)	Points; Goals; Shots; Possession; Passes; Aerial Duels; Tackles; Cards	No

2021 / Benz LS; Lopez MJ	AstA Advances in Statistical Analysis / peer-reviewed	Estimating the change in soccer's home advantage during the Covid-19 pandemic using bivariate Poisson regression	13	17	Germany (1, 2); Denmark (1); Austria (1); Portugal (1); Greece (1); Spain (1, 2); Turkey (1); Sweden (1); Norway (1); England (1, 2); Italy (1, 2); Switzerland (1); Russia (1)	Individual	5 (2015 - 2019)	Goals; Cards	No
2021 / Bryson A; Dolton P; Reade JJ; Schreyer D; Singleton C	Economics Letters / peer-reviewed	Causal effects of an absent crowd on performances and refereeing decisions during Covid-19	17	23	Albania (1); Australia (1); Austria (1, 2); Costa Rica (1); Denmark (1); England (1, 2); Germany (1, 2, 3); Greece (1); Hungary (1); Italy (1, 2); Poland (1); Portugal (1); Romania (1); Serbia (1); Slovenia (1); Spain (1, 2); Ukraine (1)	Across & Individual	1 (2019)	Win ratio; Attendance; Goals, Cards	No
2021 / Correia-Oliveira; Andrade-Souza	International Journal of Sport and Exercise Psychology / peer-reviewed	Home advantage in soccer after the break due to COVID-19 pandemic: does crowd support matter?	4	7	Germany (1, 2); Spain (1, 2); England (1, 2); Italy (1)	Individual	4 (2016 - 2019)	Win ratio; Points; Goals; Attendance	Yes

2021 / Ferraresi M; Gucciardi G	Economics Letters / peer-reviewed	Who chokes on a penalty kick? Social environment and individual performance during Covid-19 times	5	5	France (1); Germany (1); Italy (1); Spain (1); England (1)	Across	1 (2019)	Scored and unscored penalties	No
2021 / Fischer K; Haucap J	Journal of Sports Economics / peer- reviewed	Does Crowd Support Drive the Home Advantage in Professional Soccer? Evidence from German Ghost Games during the COVID-19 Pandemic	1	3	Germany (1, 2, 3)	Individual	4 (2017 - 2019)	Win ratio; points; player value; table position; pause (from last match); shape (points earned in last three matches); travel distance; altitude; new coach; matchday; daytime; derby; stadium track, share standing places, capacity; yellow cards, fouls; shots; corners	Yes
2021 / Hill Y; Yperen N	frontiers in Psychology / peer- reviewed	Losing the Home Field Advantage When Playing Behind Closed Doors During COVID-19: Change or Chance?	4	4	Germany (1); Spain (1); England (1); Italy (1)	Across & Individual	5 (2015 - 2019)	Points; goals; shots; possession; fouls; cards	No

2021 / Konaka E	arXiv / not peer-reviewed yet	Home advantage of European major football leagues under COVID-19 pandemic	4	4	England (1); Germany (1); Italy (1); Spain (1)	Across & Individual	10 (2010 - 2019)	Win ratio; Goals	No
2021 / Leitner MC; Richlan F	frontiers in Sports and Active Living / peer-reviewed	No Fans - No Pressure: Referees in Professional Football During the COVID-19 Pandemic	8	8	Spain (1); England (1); Germany (1); Italy (1); Russia (1); Turkey (1); Austria (1); Czech Republic (1)	Across	3 (2018 - 2019)	Win ratio; Fouls; Cards; Cards in the course of the game	Yes
2021 / Link; D; Anzer G	International Journal of Sports Medicine / peer-reviewed	How the COVID-19 Pandemic has Changed the Game of Soccer	1	2	Germany (1, 2)	N/A	3 (2017 - 2019)	Win ratio; Goals; Cards; Fouls; Shots; Expected Goals; Ball Possession; Passes; Outplayed Opponents; Pressure; Duels; Running Activity; Contact times	No

2021 / McCarrick D; Bilalic M; Neave N; Wolfson S	Psychology of Sport & Exercise / peer-reviewed	Home advantage during the Covid-19 pandemic: Analyses of European football leagues	11	15	England (1, 2); Germany (1, 2); Spain (1, 2); Italy (1, 2); Portugal (1); Greece (1); Turkey (1); Austria (1); Denmark (1); Russia (1); Switzerland (1)	Across	2 (2019)	Points; Goals, Corners, Shots, Shots on Target, Fouls, Cards	Yes
2021 / Ramchandani G; Millar R	Journal of Global Sport Management / peer-reviewed	Investigating the "Twelfth Man" Effect in Five European Domestic Football Leagues: A COVID-19 Induced Natural Experiment	5	5	England (1); Germany (1); Italy (1); Portugal (1); Spain (1)	Across & Individual	2 (2018 - 2019)	Win ratio; Points	No
2021 / Rovetta A; Abate A	Cureus / peer- reviewed	The Impact of Cheering on Sports Performance: Comparison of Serie A Statistics Before and During COVID-19	1	1	Italy (1)	N/A	8 (2013 - 2020)	Points; Passes; Fouls, Penalties, Cards	Yes

2021 / Sánchez AJ; Lavín JM	Soccer & Society / peer-reviewed	Home advantage in European soccer without crowd	5	8	Germany (1, 2); Spain (1, 2); Italy (1, 2); England (1); Austria (1)	Across & Individual	1 (2019)	Points; Goals; Table position; Stadium performance; Number of foreigners; Players' experience; Cards; Budget; Average attendance	Yes
2021 / Santana H; Bettega O; Dellagrana R	Science and Medicine in Football / peer- reviewed	An analysis of Bundesliga matches before and after social distancing by COVID-19	1	1	Germany (1)	N/A	1 (2019)	Win ratio; Goals; Goal attempts; Possession; Passes; Passes accuracy; Tackles; Corners; Offside; Fouls; Team distance covered; Number of sprints	No
2021 / Scoppa V	Journal of Economic Psychology / peer- reviewed	Social pressure in the stadiums: Do agents change behavior without crowd support?	5	9	Germany (1, 2); England (1, 2); Spain (1, 2); Italy (1, 2); Portugal (1)	Across	10 (2010 - 2019)	Points; Goals; Shots; Shots on target; Corners; Fouls; Cards; Penalties; Rest	No

2021 / Wunderlich F; Weigelt M; Rein R; Memmert D	PLOS ONE / peer- reviewed	How does spectator presence affect football? Home advantage remains in European top-class football matches played without spectators during the COVID-19 pandemic	6	11	Spain (1, 2); England (1, 2); Italy (1, 2); Germany (1, 2, 9); Portugal (1); Turkey (1)	Across	10 (2010 - 2019)	Fouls; Cards; Shots; Shots on target; Goals; Betting odds; Points	Yes
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Country coefficient: League weighting AFC

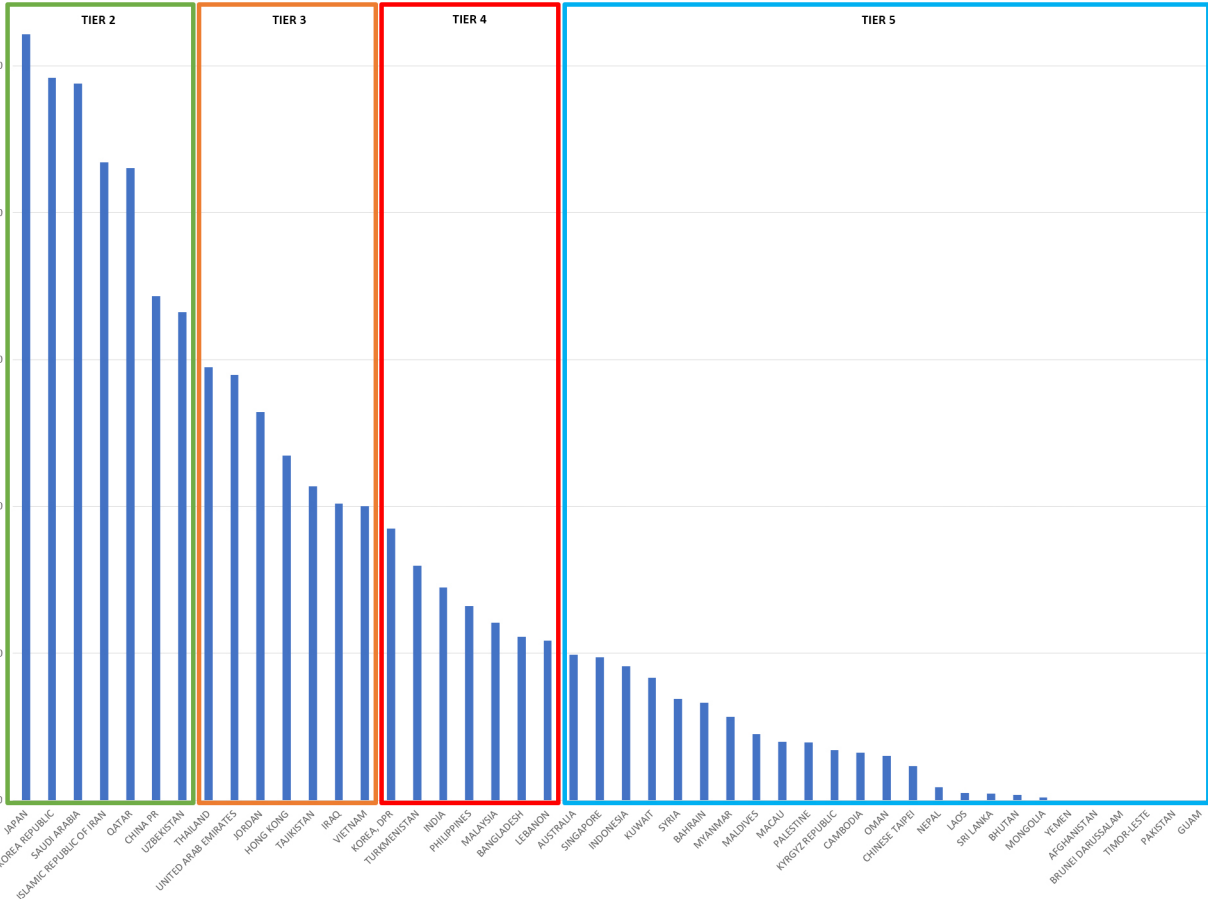
60,000

$(1st) \times 0.5 / (2nd) \times 0.25 / (< 2nd) \times 0.1$

$(1st) \times 0.25 / (< 1st) \times 0.1$

$(1st) \times 0.1 / (< 1st) \times 0.05$

$(1st) \times 0.05 / (< 1st) \times 0.025$



Country coefficient: League weighting CONCACAF

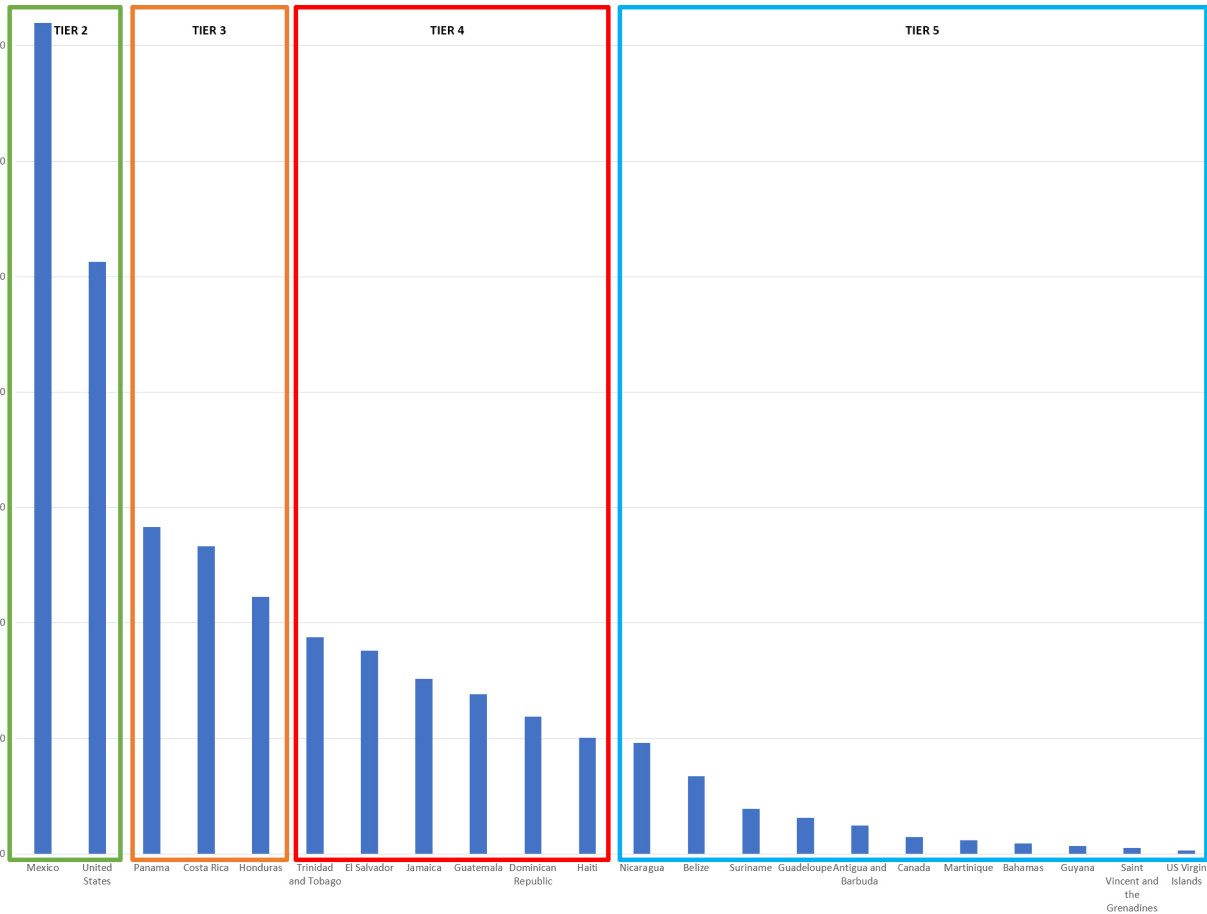
80,000

$(1st) \times 0.5 / (2nd) \times 0.25 / (< 2nd) \times 0.1$

$(1st) \times 0.25 / (< 1st) \times 0.1$

$(1st) \times 0.1 / (< 1st) \times 0.05$

$(1st) \times 0.05 / (< 1st) \times 0.025$



Country coefficient: League weighting CONMEBOL

60,000

$(1st) \times 0.5 / (2nd) \times 0.25 / (< 2nd) \times 0.1$

$(1st) \times 0.25 / (< 1st) \times 0.1$

$(1st) \times 0.1 / (< 1st) \times 0.05$

$(1st) \times 0.05 / (< 1st) \times 0.025$

TIER 2

TIER 3

TIER 4

TIER 5

Brazil

Argentina

Colombia

Paraguay

Ecuador

Uruguay

Chile

Bolivia

Venezuela

Peru

0.000

10,000

20,000

30,000

40,000

50,000

Country coefficient: League weighting UEFA

100,000

$(1st) \times 0.75 / (2nd) \times 0.5$
 $/ (3rd) \times 0.25 / (< 3rd) \times 0.1$
 + 5 Bonus Points

$(1st) \times 0.5 / (2nd) \times 0.25 /$
 $(< 2nd) \times 0.1$

$(1st) \times 0.25 / (< 1st) \times 0.1$

$(1st) \times 0.1 / (< 1st) \times 0.05$

$(1st) \times 0.05 / (< 1st) \times 0.025$

