Comparison of the Home-Court Performances of Successful and Unsuccessful Teams at Euroleague Before and After Covid-19 Pandemic

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Abstract

Home advantage is defined as teams having a higher chance of winning in games played at home and is an often researched topic in team sports and basketball. Some situations, such as fan support, away team travel and environment familiarity, can increase home teams' chances of winning while playing at home. Having a higher winning rate at home games is one of the important determinants of the season-long success of the teams. This study aimed to compare home game performances of Euroleague's successful and unsuccessful home teams, while they play in front of the fans in 2018-2019 season, and they play without fans in 2020-2021 season. Results of our study have similar findings with literature: Higher wins, higher points per game, lower loses and lower turnovers for home teams while they play in front of home crowds in the Euroleague. Our study showed a great impact of fans on home team's performance in Euroleague but further research is needed to understand other dimensions of home advantage in basketball.

Key Words: Home advantage, basketball, fan support

INTRODUCTION

Home court advantage is defined as sports teams being closer to winning when playing on their home courts. The level of comfort that comes with playing in a familiar environment is thought to help increase the home team's chances of winning (28). It has been thought that one of the determining factors of season performances in team sports is the home court advantage and has been widely studied in basketball (7, 10), football (3, 18), baseball (11) and volleyball (2, 17). Some researchers argue that there is a real home advantage in sports (22), although some indicates a need of more studies to prove this assumption (32). However, in some situations, teams can achieve home court advantage in basketball. In competitions like Euroleague, in the playoffs (best of 3, 5, or 7 game series), teams can play more games at home. Teams have to

have a higher regular season ranking than their opponents to gain home court advantage in playoffs.

Schwartz and Barsky (24), noted three primary sources of home advantage in sports: learning factors, travel (fatigue) factors, and crowd factors. They explain that the home team is more accustomed to their own court and arena conditions, (rims, playing surface, lighting, etc.). Traveling of the opposing team before the match can also contribute to the home court advantage. Some factors, such as the duration and type of travel, can increase the opposing team's fatigue level. This can cause performance degradation. Lastly, spectators can influence the outcome of a competition too by influencing the performance and the referees.

Quinn, et al. (21), suggested that playing in a different arena or court may have a negative effect on performance because familiarity is lower for visiting teams. Several studies noted that crowd size and fan attendance also increase the chances of the home team winning (1, 12, 31). Nevill, et al. (16) found a significant correlation between the home team's winning chance and crowd size. Harville and Smith (9) mathematical approach claims an estimated 4,68 ± 0,28 points advantage for home teams. One study has found that players have lower anxiety levels and higher self-confidence levels in home games than in away games (27). It is thought that when players have higher self-confidence, they are more likely to perform at higher levels and thus the team's chances of winning will increase. Yi (32) argued that fan support is a factor that holds a positive psychological effect on players.

The home advantage may also result from the away team traveling before the competition. The away team has probably played the previous game and travelled in the last few days. The assumption that travel, fatigue, and disruption of routines will harm the performance of athletes has been studied by several authors. Frequent air travel can adversely affect hydration, nutritional behaviours, sleep quality and quantity. These types of disorders can cause athletes to not recover properly after training or games (13). When traveling to two or more time zones, symptoms of travel fatigue may persist up to 2-3 days after travel (23). Flying in one or more time zones can also change sleep patterns in athletes (4). A 72-hour recovery window following matches and practice is required for an athlete or team to return to optimal performance levels (15). However, in leagues such as Euroleague and NBA, optimal recovery cannot be achieved because teams play an average of three games in seven days. This can cause decreased performance and an increased risk of injury.

It is also thought that the fans can help the home team to win by putting pressure on the referees. Sutter and Kocher (26) found that the referees made partial decisions in favour of the home teams. They explained that this could be an unintended reaction caused by the influence of the home team's fans on the referees. Price, et al. (19) also presented similar findings proving that NBA referees also tend to decide in favour of the home team.

The COVID-19 pandemic has caused many sports organizations to be suspended, cancelled or continued in different isolated venues in the world. Since basketball is played indoors with thousands of spectators in stands, it has been one of the sports most affected by this pandemic. The remaining games had to be played on neutral venues without any spectators, extra precautions were taken during travels and the players was constantly tested for COVID-19 during this process. It is thought that playing the matches in neutral venues without spectators affects the home advantage. Examining the statistical changes in the games played in the home court before and after the COVID-19 pandemic can be used to examine the effects of the fans on team's performance. Thus, this study aimed to evaluate the home court performances of successful and unsuccessful teams in the Euroleague before and after the COVID-19 pandemic.

METHODS

Study Design

In the 2018/2019 and 2020/2021 regular seasons, the 5 teams that won the most games at home (defined as successful) and the 5 teams that won the least games (defined as unsuccessful) were included in the scope of this research. In Euroleague, teams played a total of 15 home games in the 2018-2019 regular season and total of 17 home games in 2021-2021 regular season. The statistical categories used to compare teams' home success were: Wins (W), loses (L), points scored per game (PTS), two points percentage per game (2PT%), three points percentage per game (3PT%), field goals mad per game (FGM), field goals attempts per game (FGA), field goal percentage per game (FG%), free throw attempts per game (FTA), assists per game (AST), steals per game (ST), turnovers per game (TO) and blocks per game (BLK).

Statistical Analyses

The data analysed within the scope of the research were obtained from the Euroleague's official statistics website (www.euroleague.net). Shapiro-Wilk test was applied to check the normality of data and normal distribution has found. Home game statistics of successful and unsuccessful

teams were analysed with Paired Sample t-test. SPSS 22 was used in the analysis of the data. The level of significance in all analyses was accepted as $p<0.05$.

FINDINGS

This research aimed to compare the home game performances of Euroleague teams in 2018-2019 and 2020-2021 seasons. Euroleague teams played 17 home games in 2018-2019 season as they played total of 15 in 2020-2021 season.

Table 1. Teams with most home wins and most home loses in 2018-2019 season

	Team	W	L	PTS	2PT%	3PT%	FGM	FGA	FG%	FTA	AST	ST	TO	BLK
SUCCESSFUL	FC Bayern Munich	13	4	79,2	,49	,40	28,5	61,7	,46	17,4	16,7	8,4	12	2,2
	FC Barcelona	12	5	81,8	,54	,43	29,4	59	,50	18,4	18,2	7,1	14,5	2,7
	Valencia Basket	12	5	82,2	,57	,35	29,5	60,6	,49	18,2	20,2	6,8	13,2	2
	CSKA Moscow	12	5	83,6	,54	,39	30,1	62,5	,49	18,1	15,4	5,7	11,5	2,1
	Anadolu Efes İstanbul	11	6	80,6	,58	,36	29	60,3	,48	16,2	18,1	7	11,9	2,4
UNSUCCESSFUL	Panathinaikos OPAP Athens	8	9	82,8	,54	,38	29,6	62,4	,47	18,9	18	6,6	12,5	3,2
	Olympiacos Piraeus	7	10	78,1	,57	,35	28	59,5	,47	17,8	17,8	7,5	13,3	2,1
	Crvena Zvezda mts Belgrade	6	11	75,8	,48	,38	26,1	59,1	,44	17,6	15,2	7	12,6	1,6
	ALBA Berlin	6	11	76,6	,51	,35	28,4	64,4	,44	11,9	20,5	7,4	14,0	1,7
	Khimki Moscow Region	3	14	79,7	,50	,36	27,7	63,5	,44	16,9	18,8	7	12,7	3,7

Per-home game statistics of the successful and unsuccessful teams in 2018-2019 season are presented in Table 1. FC Bayern Munich was the team with the most wins at home (13 wins), while Khimki Moscow Region was the most unsuccessful home team (14 loses) in 2018-2019 Euroleague season.

Table 2. Teams with most home wins and most home loses in 2020-2021 season

	Team	W	L	PTS	2PT%	3PT%	FGM	FGA	FG%	FTA	AST	ST	TO	BLK
SUCCESSFUL	Fenerbahçe İstanbul	15	0	85,9	,61	,43	31,2	57,6	,54	17,4	19,1	7,0	11,3	2,3
	CSKA Moscow	13	2	86,8	,50	,42	29,2	62,2	,47	24,6	16,3	5,8	11,8	1,8
	Real Madrid	13	2	91,9	,60	,38	33,1	64,4	,52	19	21,6	5,2	10,4	3,1
	Anadolu Efes İstanbul	12	3	87,6	,60	,42	32,8	62,1	,53	14	20,8	6,6	11,6	3,1
	FC Barcelona Lassa	12	3	80,4	,55	,38	29,1	59,6	,49	18,8	17,6	6,6	13,4	3
UNSUCCESSFUL	Zalgiris Kaunas	8	7	81,8	,55	,41	28,8	55,9	,52	21,9	19	5,6	13,4	1,5
	Buducnost Voli Podgorica	6	9	75,8	,49	,41	27,9	60,8	,46	15	15,6	6,1	11,4	2,6
	Herbalife Gran Canaria	6	9	81,6	,53	,36	28,8	62,2	,47	20,4	18,2	6,7	12,4	2,1
	Khimki Moscow Region	6	9	77,6	,54	,34	27,1	60,4	,45	17,6	18,2	7,4	11,9	3,6
	Darüşşafaka İstanbul	5	10	77,7	,51	,33	28,3	63	,45	18,5	17,8	5,8	12,4	3,8

Per-home game statistics of the successful and unsuccessful teams in 2020-2021 season are presented in Table 2. In the 2020-2021 Euroleague season, Fenerbahçe İstanbul did not lose a single game at home during the regular season (15 wins), meanwhile another Turkish team Darüşşafaka İstanbul has only won 33% of their home games (5 wins).

Table 3. Comparison of successful teams' home game statistics in 2018-2019 and 2020-2021 seasons

	Mean	Std. D.	df	t	p
Wins	1,000	,707	4	3,162	**,034***
Loses	-3,000	,707	4	-9,487	**,001***
Points	5,018	3,617	4	3,103	**,036***
2PT%	,028	,066	4	,947	,397
3PT%	,020	,017	4	2,582	,061
FGM	1,768	1,717	4	2,302	,083
FGA	,346	3,233	4	,239	,823
FG%	,026	,040	4	1,440	,223
FTA	1,214	3,773	4	,719	,512
AST	1,380	2,820	4	1,094	,335
ST	-,766	1,061	4	-1,615	,182
TO	-,934	1,866	4	-1,119	,326
BLK	,376	,826	4	1,017	,367

Table 3 contains the changes in the per-game statistics of the successful home teams in the 2018-2019 and 2020-2021 seasons. Analyses have shown that, in 2020-2021 Euroleague season, successful teams won less game (p<0,05). and scored less points per game at home compared to the pre-COVID-19 pandemic (p<0,05). Also, successful home teams lost more games at home in the season played after the COVID-19 outbreak (p<0,01).

Table 4. Comparison of unsuccessful teams' home game statistics in 2018-2019 and 2020-2021 seasons

	Mean	Std. D.	df	t	p
Wins	,200	1,095	4	,408	,704
Loses	-2,200	1,095	4	-4,491	**,011***
Points	,274	3,333	4	,184	,863
2PT%	,004	,050	4	,180	,866
3PT%	-,914	1,708	4	-1,197	,298
FGM	,006	,038	4	,355	,741
FGA	,202	1,563	4	,289	,787
FG%	-1,342	3,891	4	-,771	,484
FTA	,018	,023	4	1,765	,152
AST	2,036	3,140	4	1,450	,221
ST	-,328	2,314	4	-,317	,767
TO	-,786	,610	4	-2,883	**,045***
BLK	-,762	1,249	4	-1,364	,244

Changes in the per-game statistics of the unsuccessful home teams in the 2018-2019 and 2020-2021 seasons are presented in Table 4. Unsuccessful teams lost more games at home in 2020-2021 season compared to 2018-2019 ($p < 0.05$). Also, there was a significant increase in turnovers per game, which means less possession for the teams in offense ($p < 0.05$).

DISCUSSION

This research aimed to compare home performance in the Euroleague in the pre- and post-COVID-19 seasons. Home statistics of Euroleague teams in 2018-2019 and 2020-2021 seasons were compared. Changes in home court performances were compared by analysing the home statistics of Euroleague teams in the 2018-2019 and 2020-2021 seasons.

Home advantage in basketball is an often researched and commented topic. Home teams can increase their chances of winning by taking advantage of the conditions such as the crowd support, familiar playing environment and the travel of the opposing team. In a study investigating home advantage, Courneya and Carron (5) stated that basketball teams won 64.4% of home games. The COVID-19 pandemic has greatly affected all sports organizations. While some organizations were suspended, some were cancelled, while others were restarted by creating neutral conditions. The 2019-2020 season in the Euroleague could not be completed due to the COVID-19 outbreak. In the new season, all games were played without spectators.

In our research, it was concluded that the successful home teams in the Euroleague won fewer games than the season before the COVID-19 outbreak. However, successful teams have lost more games at home. Researchers think that the decrease in the number of wins is due to the

lack of support from the spectators of the home teams. On the other hand, Leota et al. (1994) stated that the chances of the home teams to win the game increase in the games played with the support of the audience in the NBA. Leota, et al. (14) noted that in gems played with spectators, the probability of winning the home team increased by 15.91%. Kotecki (12) also stated that FG%, FT%, and points scored by home team increased in teams' home games.

The 2020 NBA playoffs were played on an isolated campus, with no travel and no spectators. In this environment, it was seen that the so-called home teams lost 12% more matches in the home field (20). It is thought that this is due to away teams not traveling, not encountering spectator pressure and not playing in unfamiliar venues. Stefani (25) emphasized that the home advantage in the playoffs is stronger than the games played in the regular season. Another finding of our research is that the home teams scored less in the games played without spectators. van Bommel, et al. (29) stated that all game related statistics of NCAA basketball teams increased in home games. Researchers have noted that the audience has an influence on the decision of the referees in favour of the home team. Referees may want to appease the spectators and respond to the noise and reactions of the spectators in favour of the home team (6).

The results of our research show that the number of losses of the unsuccessful teams increased in the season when the games were played without spectators. Studies have emphasized that the number of spectators and spectator support are important for teams. On the other hand, others reported that the intensity of spectator support rather than the number of spectators determines the home advantage. Another result is that unsuccessful teams make more turnovers in matches without spectators. Previous studies (8, 30) stated that spectator support affects the efforts of the teams and increases the number of rebounds. It can be thought that the presence of the audience increases the game concentration of the teams.

CONCLUSION

Home court performance is one of the important factors affecting the season-long success of the teams in basketball, especially in the Euroleague. In this research, the performances of the home teams were compared in the games played with and without spectators, taking advantage of the observation opportunity created by the COVID-19 pandemic.

Home advantage depends on many factors, notably fan support, travel and familiarity. However, the absence of spectator support and away teams' reduced travel fatigue reduces the

advantage of the home teams. Therefore, this research states fan support as an important determinant of home game performance for successful or unsuccessful teams in Euroleague basketball. Future research may focus on different variables of the game to explain the home advantage.

ACKNOWLEDGMENTS

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