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Variations in home advantage in the national basketball leagues of Europe

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VARIATIONS IN HOME ADVANTAGE IN THE NATIONAL BASKETBALL LEAGUES OF EUROPE

KEYWORDS: Home advantage, Basketball, Competitive balance, Regional variations.

ABSTRACT: Home advantage is a well established phenomenon in basketball, but little is known about its variability among different countries. The purpose of the study was to compare the magnitude of the home advantage in the national basketball leagues of Europe. Thirty-five countries were included and the final standings of league tables for the three seasons 2009-10 to 2011-12 analyzed, a total of 17,099 games. The advantage was highest in Bosnia-Herzegovina and Croatia, where over 70% of games were won by the home team, well above the mean for all countries (60.7%). After controlling for variations in the competitive balance of each league, as well as for proxy variables representing crowd size and travel distance, home advantage in the 10 Balkan countries was found to be significantly higher than elsewhere ($p < 0.001$). This Balkan effect added an estimated 5.1 percentage points to the home advantage. The pattern of results was very similar to a prior comparable study for football in Europe (overall average 61%), with a correlation between the football and basketball home advantage values of $r = +.516$. The explanation suggested for football is likely to apply also to basketball. That is, the effect on players, crowds and referees of an increased sense of territorial protection in Balkan countries due to the long history of conflict in the region, deep ethnic and religious rivalries and mistrust of outsiders, all heightened by the mountainous terrain and the isolation of many locations.

There is now a vast literature on the effects of home advantage on performance in sport covering many different aspects of the phenomenon. This paper focuses on an area which has received little attention. This relates specifically to home advantage in basketball leagues in Europe and in particular variations between different countries. Most previous studies of home advantage in basketball in Europe have focused on game-related statistics in competition in Spain (García, Saéz, Ibáñez, Parejo and Cañadas, 2009; Gómez, Lorenzo, Ortega and Olmedilla, 2007; Gómez, Lorenzo, Sampaio, Ibáñez and Ortega, 2008). Only two studies have used data from more than one country. Pollard and Gómez (2007) compared the home advantage in the national leagues of four European countries and the NBA in the United States from 1995 to 2007. Home advantage was highest in Greece and Italy (66%), followed by France (63%) and Spain (61%) and lowest in the United States (60%). Gómez and Pollard (2011) used six seasons from 2003-04 to 2008-09 and seven countries and found that home advantage in Romania and Greece (both 65%) was significantly higher than in both Turkey (58%) and Lithuania (56%), with intermediate values for Bulgaria, Russia and Spain.

In football, two studies have considered regional differences in home advantage between the national leagues of European countries. Pollard (2006) found large differences between 51 countries of the Union of European Football Associations (UEFA) in the six seasons immediately prior to 2004, ranging from a high of 79% in Bosnia to 49% (no home advantage) in Andorra. In general home advantage in the countries of the Balkan region of south-east Europe was significantly higher than elsewhere, on

average over ten percentage points. Countries of northern Europe, especially the three Baltic counties of Estonia, Latvia and Lithuania had below average home advantage values. It was hypothesized that the high Balkan home advantage was due to a heightened sense of territorial protection in those countries. In a comparison of home advantage in the men's and women's domestic football leagues of 26 countries in Europe from 2004 - 2010, Pollard and Gómez (2012) found less variability than in the previous study, but this was partly because all Balkan countries except Serbia were excluded from the analysis as they did not have national women's leagues. In this study the need to control for competitive balance when comparing home advantage in the leagues of different countries was emphasized.

In the present study a comparison of home advantage in domestic basketball leagues throughout Europe was undertaken. It was hypothesized that a similar pattern would emerge as was seen for football. First, home advantage would exist in all leagues. Second, there would, after controlling for competitive balance, be regional variation with the advantage in the Balkans higher than elsewhere since, if territorial protection was a contributing factor, it should apply to basketball in the same way as had been shown for football.

Method

Home and away final league tables were obtained from the websites (www.betexplorer.com and www.eurobasket.com). The inclusion of the most recent three seasons (2009-2010, 2010-2011 and 2011-2012) allowed 35 countries to be included. In most

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countries a perfectly balanced playing schedule was used; that is, each team played each other team the same number of times at home and away. There were a few exceptions leading to slight imbalance, but likely to have had a minimal effect when considering the home advantage present in the entire league. For some countries in some seasons each team played the other three times and thus not the same number at home and away. Albania, England, Israel, Russia, Switzerland and Ukraine were the countries involved. On three occasions a single game was left unplayed at the end of a season, in Belgium (2011-2012), Italy (2010-2011) and Serbia (2010-2011). The countries used in the basketball analysis were the same as for the comparable football study (Pollard, 2006) with two exceptions, the United Kingdom and Serbia. In football, England, Scotland, Wales and Northern Ireland each have their own league. For basketball the British national league covers all of the United Kingdom. However there are currently no teams from Wales and Northern Island and only one from Scotland. Thus for the purpose of comparison with football, United Kingdom basketball was matched with English football. At the time of the football study, the Serbian league incorporated what are now the separate countries of Serbia, Montenegro and Kosovo, all of which now have their own basketball leagues. Thus Serbia for football is slightly different from Serbia for basketball.

In accordance with previous studies, home advantage was quantified as 'home winning percentage', defined as the number of games won at home expressed as a percentage of all games played.

Competitive balance within a league was quantified using the method of Trandel and Maxcy (2011) developed for sport in North America. The method has been adapted and used for European league tables by Pollard and Gómez (2012) the higher the value, the more the competitive imbalance, a measure quantifying the amount that teams within a league differ in ability. Competitive balance is incorporated into the analysis because the more similar are the teams in ability in a league; the greater is likely to be the influence on home advantage in determining the result of a game. Conversely when teams of greatly different ability play each other, the stronger team is likely to win regardless of the effect of home advantage. For each country competitive balance was calculated for each of the three seasons and the mean value was used in the subsequent analysis.

Two other variables were used for each country. The current International Basketball Association (FIBA) ranking of each team was included as an estimate for the strength of each country's league. The ranking was done excluding non-European nations and the eleven unranked teams were all assigned an equal lowest ranking. Average crowd size was not available for all leagues. However, if it is assumed that the stronger the league, the larger the attendance, then the ranking could be considered as a proxy for crowd size. Travel distance, another variable with a suggested influence on home advantage could also not be measured directly. However the area of each country could be used as a proxy, with the ranking of areas used in the analysis, because the distribution of areas was highly skewed.

For the statistical analysis, the average home advantage over the three seasons was used as the dependent variable for each country. A multiple regression analysis was then used with the following explanatory variables: competitive balance, FIBA ranking, area rank and whether or not the country was located in the Balkans, together with all possible interactions.

Results

Table 1 shows the basic data, with the countries arranged in descending order of home advantage. Home advantage was present in all countries. It was highest in Bosnia-Herzegovina (72.75%), just as it was in the comparable study of European football leagues (Pollard, 2006). The average home advantage was 60.7%, again very similar to football which was reported as 61%. Bosnia's neighbour, Croatia, another Balkan country, had the second highest advantage, also above 70%.

In the multiple regression analysis, an initial investigation established that none of the interactions were significant (all $p > .30$). The subsequent analysis of the individual predictor variables is shown in Table 2, the model having a value of $R^2 = .509$. The proxies for crowd size and travel did not have a significant effect on home advantage (both $p > .10$), but competitive balance was clearly important ($p < .001$). After controlling for this effect, being a Balkan country was also a significant predictor of home advantage ($p = .001$), adding an average 5.1 percentage points to the advantage. The similarity between these results and those obtained for football (Pollard, 2006) was striking and was quantified by calculating the correlation coefficient between the home advantage values for the 33 countries common to both studies. The value was $+0.516$ ($p = .002$) indicating a highly significant relationship between the two sports.

Discussion

Home advantage was, as expected, found to exist in all of the 35 European national basketball leagues included in the study. There were, however, considerable variations between countries, from under 52% in Estonia and Georgia to over 70% in Bosnia-Herzegovina and Croatia. The finding from an earlier study involving home advantage in football had shown that the phenomenon was highest in the Balkan countries of south-east Europe (Pollard, 2006). This was also shown to be the case for basketball, suggesting that whatever factor had been at work for football also applied to basketball. In the football study, Pollard (2006) hypothesized that because of the long history of conflict in the Balkans and because of the mountainous terrain and isolation of some areas, a heightened sense of territorial protection was a major cause affecting both the players and their supporters. This in turn might be an influence on the manner in which referees made key decisions in the game, all these factors contributing to the greater home advantage seen in the region. If this was the case then there seems no reason to suppose that it might not apply equally to basketball. The fact that this has now been shown to be so lends further support to the concept of territorial protection as being a factor in the high home advantage seen in the Balkans. Bosnia-Herzegovina saw some of the worst ethnic conflict during the break-up of Yugoslavia and the country is still divided along ethnic lines into two autonomous entities, the Federation of Bosnia and Herzegovina (mainly Bosniak Muslims) and Republika Srpska (mainly Serb Orthodox Christians). This, together with the mountainous terrain and the region's deep-rooted history of distrust and violent discord, are the classic circumstances for territorial protection to be seen as a factor. The fact that teams in the Bosnian basketball league are split evenly between the two regions only serves to magnify the effects of the situation on home advantage. Croatia, too, is

recovering from the consequences of an ethnically triggered civil war, again a recipe for the same sort of feelings to spill over onto the arenas of competitive sport.

As in the football study, home advantage in the two Baltic countries for which basketball data was available (Estonia and Lithuania) both were well below the average. There is no obvious reason as to why home advantage should be low in the Baltic region, but it is interesting that for basketball it still occurred in Lithuania despite being the third ranked country in Europe and hence containing teams likely to be enjoying enthusiastic local crowd support.

The results also confirmed the importance of taking competitive balance into consideration when comparing the home advantage of national leagues. Not only were there considerable variations in this balance between the countries, but the variation was shown to be having an influence on home advantage when measured as winning percentage. The multiple regression analysis ensured that competitive balance was controlled for when investigating the significance of the Balkan factor and thus was not a contributing cause.

Finally the close relationship between basketball and football in both the magnitude and variation of home advantage among the countries of Europe suggested the likelihood of common causes, territorial protection being one of them.

Country	HW	AW	HA (%)	BALKAN	FR	AR	CB
BOSNIA-HERZEGOVINA	323	121	72.75	1	20	24	2.05
CROATIA	204	86	70.34	1	11	23	1.67
SLOVAKIA	375	169	68.93	0	30	25	2.04
BELGIUM	283	148	65.66	0	23,5	29	2.19
GREECE	341	179	65.58	1	2	14	2.51
SPAIN	600	318	65.36	0	1	5	2.19
ITALY	466	255	64.63	0	5	10	1.73
SERBIA	347	198	63.67	1	6	20	2.19
MONTENEGRO	170	100	62.96	1	23,5	34	1.91
GERMANY	576	342	62.75	0	9	7	2.37
ROMANIA	429	261	62.17	1	30	11	2.60
FYR MACEDONIA	145	89	61.97	1	13	31	2.28
HUNGARY	337	209	61.72	0	30	16	2.56
SWEDEN	356	224	61.38	0	30	6	2.42
FINLAND	459	289	61.36	0	18	8	2.50
FRANCE	439	281	60.97	0	8	4	1.90
UNITED KINGDOM	363	234	60.80	0	16	12	2.61
BULGARIA	203	133	60.42	1	14	15	2.82
UKRAINE	463	304	60.37	0	20	3	2.52
ALBANIA	90	60	60.00	1	30	30	2.62
PORTUGAL	237	159	59.85	0	17	17	2.22
KOSOVO	200	136	59.52	1	30	35	3.21
SWITZERLAND	240	168	58.82	0	30	28	2.83
TURKEY	423	297	58.75	0	4	2	2.33
POLAND	276	194	58.72	0	15	9	1.99
CZECH REPUBLIC	325	231	58.45	0	22	19	2.92
LITHUANIA	257	187	57.88	0	3	22	2.43
RUSSIA	171	126	57.58	0	7	1	2.09
ISRAEL	217	160	57.56	0	12	32	2.02
AUSTRIA	211	163	56.42	0	30	18	2.34
SLOVENIA	165	129	56.12	0	10	33	2.23
NETHERLANDS	259	213	54.87	0	30	26	2.91
BELARUS	166	142	53.90	0	30	13	3.22
ESTONIA	190	178	51.63	0	30	26	3.15
GEORGIA	157	153	50.65	0	20	21	2.45

HA (%) = home advantage (percentage); HW = Home wins; AW = away wins; BALKAN = (1) Balkan countries, (0) no Balkan countries; FR = FIBA rank; AR = area rank; CB = competitive balance.

Table 1. Home advantage and descriptive variables in European basketball leagues in Europe, 2009-2012.

Predictor variable	Coefficient	Standard error of coefficient	t	p
CONSTANT	76.495	3.983	19.21	<.001
BALKAN COUNTRY	5.114	1.436	3.56	.001
FIBA RANK	.075	.076	.99	.329
AREA RANK	-.091	.069	-1.31	.199
COMPETITIVE BALANCE	-7.073	1.798	-3.93	<.001

Table 2. Multiple regression coefficients used to predict home advantage.

VARIACIONES DE LA VENTAJA DE JUGAR EN CASA EN LAS LIGAS EUROPEAS DE BALONCESTO

PALABRAS CLAVE: Ventaja de jugar en casa, Baloncesto, Equilibrio competitivo, Variaciones regionales.

RESUMEN: La ventaja de jugar en casa es un fenómeno estudiado en baloncesto, pero el análisis de las variaciones de este efecto por países es reducido. El objetivo del presente estudio consistió en comparar el efecto de jugar en casa en las ligas nacionales de Europa. Se analizaron 35 países registrando los partidos correspondientes a las temporadas de 2009-10 a 2011-12, la muestra total fue de 17.099 partidos. Los valores más elevados se encontraron en las ligas de Bosnia-Herzegovina y Croacia, donde más del 70% de los partidos fueron ganados por los equipos locales, la media de la ventaja de jugar en casa fue de 60.7%. El análisis tras controlar el equilibrio de la competición, así como las variables de distancia y población, los 10 países Balcánicos mostraron una ventaja de jugar en casa muy superior al resto de países ($p < .001$). Este efecto de los países Balcánicos añade un porcentaje estimado del 5.1 porcentaje a la ventaja de jugar en casa. El patrón encontrado muestra gran similitud con los valores encontrados en las ligas europeas de fútbol (media total del 61%), con unos valores de correlación positivos entre las ligas de fútbol y baloncesto en la ventaja de jugar en casa $r = +.516$. Las explicaciones de dichos resultados en fútbol son aplicables al baloncesto, donde el efecto sobre jugadores, árbitros y público incrementa el sentimiento de protección del territorio en los Balcanes debido a una larga tradición en conflictos étnicos y religiosos, así como por las localizaciones de equipos en zonas montañosas y alejadas de los núcleos poblacionales, haciendo mayor el efecto de la territorialidad.

VARIACÕES DA VANTAGEM DE JOGAR EM CASA NAS LIGAS EUROPEIAS DE BASQUEBOL

PALAVRAS-CHAVE: Vantagem de jogar em casa, Basquetebol, Equilíbrio competitivo, Variações regionais.

RESUMO: A vantagem de jogar em casa é um fenómeno estudado no basquetebol, mas a análise deste efeito por país é pequena. O objetivo deste estudo foi comparar o efeito de jogar em casa nas ligas nacionais da Europa. Foram analisados 35 países registrando-se os jogos correspondentes às temporadas de 2009-10 a 2011-12, sendo a amostra total de 17.099 jogos. Os valores mais elevados foram encontrados nas ligas da Bósnia-Herzegovina e da Croácia, onde mais de 70% dos foram vencidas por equipas locais, a média da vantagem de jogar em casa foi de 60.7%. A análise após se controlar o equilíbrio da competição, bem como as variáveis distância e população, os 10 países dos Balcãs mostraram uma vantagem de jogar em casa muito superior ao resto dos países ($p < .001$). Este efeito dos países Balcánicos acresce uma percentagem de 5.1% à vantagem de jogar em casa. O padrão encontrado mostra grande semelhança com os valores encontrados nos campeonatos europeus de futebol (média total de 61%), com valor de correlação positiva entre as ligas de futebol e basquetebol na vantagem de jogar em casa ($r = +.516$). As explicações para esses resultados no futebol são aplicáveis ao basquetebol, onde o efeito sobre os jogadores, árbitros e público aumenta o sentimento de protecção do território nos Balcãs devido a uma longa tradição de conflitos étnicos e religiosos, assim como devido às localizações das equipas em zonas montanhosas e distantes dos centros populacionais, tornando maior o efeito da territorialidade.

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