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Home advantage in Gaelic football: the eﬀect of divisional status, season and team ability

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ARTICLE HISTORY

ABSTRACT

Evidence suggests that home advantage (HA) is present when home teams win over 50% of home games played. This study investigated the eﬀect of divisional status, season and team ability on HA within Gaelic football. The sample included 1973 matches from 32 teams over a 9-season period. HA was calculated based on the number of points gained at home conveyed as a percentage of total points gained (Pollard and Pollard, 2005). A linear regression analysis was utilised to control for ability by adjusting HA (Pollard and Gómez, 2007). In this study, HA (57.4%) is present and sig- niﬁcantly greater (*P* < 0.001) than the null value of 50%. HA within Gaelic football is comparable to other team-based sports. Despite a decline with the last decade, HA has stabilised and remains above the proposed 50%. Team ability would appear to have a signiﬁcant inﬂuence (*P* < 0.05) on HA, while season and divisional status does not. Future research should investigate further causes of HA (i.e. crowd, travel and familiarity) including their impact (if any) on HA within Gaelic games.

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KEYWORDS

Gaelic football; home advantage; divisional status; ability; season

# Introduction

Gaelic football is an invasion ﬁeld-based contact game where 2 teams of 15 players compete against each other on a football pitch, approximately 145-m long and 90-m wide (Cullen et al., [2017](#_bookmark53)). It is the most prevalent amateur sport in Ireland (Bradley & O’Donoghue, [2011](#_bookmark44)), and is increasing in popularity throughout the world (Brown and Walker, [2014](#_bookmark46)). Gaelic football is best portrayed as a hybrid of Australian Rules football, basketball, rugby and soccer (Carroll, [2013](#_bookmark48); Cullen et al., [2013](#_bookmark52)). Regardless of partici- pant and spectator appeal within Gaelic games, empirical evidence for Gaelic football has been garnered primarily from other team and ﬁeld-based sports (Reilly, Akubat, Lyons, & Collins, [2015](#_bookmark78); Reilly & Collins, [2008](#_bookmark79)). There is a need for further research in Gaelic games to explore the sports science and sports coaching nexus to better support the players and management in their roles and functions (Daly & Donnelly, [2018](#_bookmark54)).

Courneya and Carron ([1992](#_bookmark51), p. 13) described home advantage (HA) as “the con- sistent ﬁnding that home teams in sports competitions win over 50% of the games played under a balanced home and away schedule”. Current research indicates that

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there is a beneﬁt to competing at home when the total points earned at home equates to

>50% of total points earned at both home and away (Leite, [2017a](#_bookmark62)), whereas a value of

≤50% of this ratio would indicate no HA (Leite, [2017b](#_bookmark63)). Current research supports the proposal that home teams win over 50% of their games played at home. Simply put, competing at home increases the likelihood of winning in sport (Jamieson, [2010](#_bookmark58)).

HA can be calculated as the number of games won by teams playing at home, evidenced as a percentage of decided games (Pollard, [1986](#_bookmark67)). HA can also be quantiﬁed as the number of points won by teams playing at home expressed as a percentage of total points earned (Pollard, [1986](#_bookmark67)). This method has been utilised extensively since its inception over three decades ago (Pollard & Gómez, [2015](#_bookmark74)). Yet, this method does not consider team ability, which will aﬀect the calculation of HA (Pollard, Silva, & Medeiros, [2008](#_bookmark77)). However, a linear regression analysis can be utilised when adjusting HA for ability and used to compare the HA of diﬀerent teams in a league (Pollard & Gómez, [2007](#_bookmark70)). With current research suggesting that the relationship between HA and team quality is greater in lower ability teams (teams with a lower league standing) than in higher ability teams (Allen & Jones, [2014](#_bookmark41)).

Lago-Peñas and Lago-Ballesteros ([2011](#_bookmark61)) have no doubt that HA has a key role to play in inﬂuencing the outcome of a game. Research suggests that HA is a ﬁrmly established occurrence across a variety of sports (Marek & Vávra, [2017](#_bookmark65)), including Australian rules football (Clarke, [2005](#_bookmark50)), individual sports (Jamieson, [2010](#_bookmark58)) and team-based sports (Gómez, Pollard, & Luis-Pascual, [2011](#_bookmark57)) including: baseball, basketball, handball, indoor soccer, roller hockey, rugby, soccer, volleyball and water polo. Current empirical evidence advises that HA is a signiﬁcant issue to consider within competitive sport (Leite, [2017a](#_bookmark62)) which allows us to identify the impact it has (if any), to play at home or away from home, on the result of games (Sampedro and Pietro [2012](#_bookmark80)). With particular reference to HA in Gaelic football, scientiﬁc research has been limited to conference papers and proceedings (Carroll & Collins, [2012](#_bookmark47); Mangan & Collins, [2016](#_bookmark64)). While the inﬂuence of team ability on HA (Pollard & Gómez, [2007](#_bookmark70)) and temporal variation (Pollard & Gómez, [2009](#_bookmark71)) merits further investigation, a more detailed examination of HA in Gaelic Football is warranted. Thus, the aim of the present study was to identify the HA eﬀect in Gaelic Football and to compare this to similar team-based sports, and also investigate the eﬀect of divisional status, season and team ability over a 9-season period (2010–2018).

# Methodology

* 1. *Sample and sources of data*

The sample consisted of 1973 matches contested across 9 seasons (2010–2018) in the National Football League, comprising a total of 32 senior Inter-County Gaelic football teams. One team was omitted from the analysis as they only contested matches (*n* = 24) across 3 seasons (2010–2012). Matches from league semi-ﬁnals and ﬁnals (*n* = 46) were excluded from the analysis as they were played at a neutral venue. The National Football League is split into four divisions of eight teams and each team plays each team once. Over the duration of the league, ﬁxtures included playing either three home matches and four away matches or four home matches and three away matches. These ﬁxtures are rotated on an annual basis, with home ﬁeld advantage alternating from 1 year to the next. This round-robin

format is similar to the system utilised in Rugby Union within the Six Nations Championship (García, Aguilar, Vázquez Lazo, Marques, & Fernández Romero, [2013](#_bookmark55); Thomas, Reeves, & Bell, [2008](#_bookmark81); Vaz, Carreras, & Kraak, [2012](#_bookmark82)). All games were categorised in terms of whether the home or away team won or if the game ended in a draw.

Permission was obtained from both the Gaelic Athletic Association (GAA) and Raidió Teilifís Éireann (RTÉ) to use their data in scientiﬁc research for publication. Archival data of the concluding home and away league tables were obtained from their publicly available websites [http://www.gaa.ie](http://www.gaa.ie/) and [https://www.rte.ie](https://www.rte.ie/). Both sources were utilised to avoid poten- tial errors resulting from the use of a single source. No discrepancies were found between data sources. The data were compiled ina Microsoft Excel 2016 (Microsoft© Corporation, U.S.A.) ﬁle, including the relevant information collected by season, i.e. number of matches, wins, draws and losses both home and away, across each division of competition.

* 1. *Quanti*ﬁ*cation of home advantage*

To calculate the extent of HA for a league over a complete season, HA was quantiﬁed as the number of points won at home (including draws) expressed as a percentage of all points gained at home and away (Pollard, [1986](#_bookmark67)). Current research suggests that a value of ≤50% would indicate no HA, whereas a value >50% would demonstrate that HA exists (Lago-Peñas, Gómez-Ruano, Megías-Navarro, & Pollard, [2016](#_bookmark60); Pollard & Pollard, [2005](#_bookmark75)). The presence of HA was investigated through a one-sample *t*-test comparing the HA with a null value of 50% which indicated no HA (Almeida & Volossovitch, [2017](#_bookmark42)).

* 1. *Adjusting for team ability and temporal variation*

For each season and team, ability is quantiﬁed as the winning percentage of the team at the end of the season, and HA is calculated as described above. Research by Gómez and Pollard ([2014](#_bookmark56)) examined the relationship between HA and team quality and proposed that since stronger teams win the majority of their games (both at home and away), they cannot achieve higher HA values when the quantiﬁcation of HA is based on a comparison of points won at home and away. Thus, in order to compare teams using the above method of calculating HA, it is essential to adjust for team ability (Pollard et al., [2008](#_bookmark77)).

In the present study, the methodology adopted was based on that utilised in similar research for basketball (Pollard & Gómez, [2007](#_bookmark70)), and later adapted for football in Brazil (Pollard et al., [2008](#_bookmark77)) and South-West Europe (Pollard & Gómez, [2009](#_bookmark71)). To control for ability, the ability of a team ina given season was ﬁrst quantiﬁed as the percentage of games the team won during the season, incorporating drawn games by counting them as half a win each (Pollard & Gómez, [2009](#_bookmark71)). Next, a linear regression analysis of HA as the dependent variable and ability as the explanatory variable was performed producing a least squares regression equation (HA = a + b), where “b” is ability (Pollard & Gómez, [2007](#_bookmark70)). A residual value for each team each season was then calculated and this represented the amount by which its HA diﬀered from what would have been expected from a team of that ability (Pollard & Gómez, [2009](#_bookmark71)). The teams adjusted home advantage (AHA) was then estimated by adding or sub- tracting this amount from the overall HA (Pollard et al., [2008](#_bookmark77)). As a result, measures of HA were all adjusted to control for team ability, as well as for annual ﬂuctuations in HA This AHA value was used for subsequent analysis of the team’s quality. A multifactor analysis of variance

(ANOVA) was utilised (O’Donoghue, [2013](#_bookmark66); Vaz et al., [2012](#_bookmark82)) to explore the diﬀerences amongst HA and season, divisional status and team quality/ranking. The Bonferroni method was selected as *post hoc* test to compare main eﬀects (Almeida & Volossovitch, [2017](#_bookmark42)).

* 1. *Statistical analysis*

A linear regression analysis was utilised to control for ability and is used to compare the AHA for diﬀerent teams. Descriptive analysis for each division, season and team quality was calculated. The existence of HA was examined by comparing the AHA with a null value of 50% (no HA) through a one-sample *t*-test. A multifactor ANOVA was employed to assess the eﬀect of season, divisional status and team quality/ranking on HA. The level of signiﬁcance was set at *P* ≤ 0.05 for all statistical procedures. The statistical package SPSS 24® (IBM, SPSS Statistics, NY, USA) was used to perform the statistical analyses.

# Results

After adjusting for HA, a one-sample *t*-test established that the mean value of HA (57.4 ± 26.0%) was signiﬁcantly greater than the null value of 50%, thereby conﬁrming a highly signiﬁcant HA eﬀect (*P* ≤ 0.001). Consequently, the ﬁndings established that HA was present within men’s senior Inter-County Gaelic football across 9 seasons (2010– 2018) in the National Football League (*n* = 1973). Notably, results have indicated that HA in Gaelic football is comparable with similar team-based sports, including Australian rules football, futsal, soccer, rugby and basketball (see [Figure 1](#_bookmark29)).

[Table 1](#_bookmark30) demonstrates the comparison of the HA across the four divisions over the 9-season period (2010–2018), using 3-year time periods. These ﬁndings advocate that HA has declined from 2010, although not signiﬁcantly and HA has steadied for each of the respective divisions and remains above the proposed null value of 50% (no HA) during this time period.

Results from the multifactor ANOVA reported that both year (*P* = 0.86) and division (*P* = 0.07) do not appear to have a signiﬁcant inﬂuence on HA. However, ﬁndings do suggest that season describes around 2% of the variance in HA, while divisional status explains close to 4% of the variance in HA.



Figure 1. Home Advantage by Sport.

Table 1. Home advantage by division and time period.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 2010–2012 | 2013–2015 | 2016–2018 | Mean (±SD) |
| Division 1Division 2Division 3Division 4 | 59.4 (±25.1)59.7 (±32.4)63.5 (±30.2)54.7 (±27.3) | 59.6 (±26.0)53.6 (±22.6)65.1 (±25.9)55.6 (±19.7) | 50.0 (±30.4)51.2 (±17.5)63.1 (±20.0)53.4 (±31.2) | 56.3 (±26.6)54.8 (±25.0)63.9 (±25.2)54.6 (±26.6) |



Figure 2. Home Advantage by Team Quality and Season.

[Figure 2](#_bookmark31) compares HA and team quality over the 9-season period (2010–2018). The measure of team quality was taken as each team’s ﬁnishing league position, with higher ranking teams possessing a mean value of 52.7% (±14.3%) for HA, while medium- ranking and lower ranking teams recorded a mean value of 61.4% (±22.7%) and 57.4% (±38.3%) for HA, respectively. Findings from the multifactor ANOVA propose that team quality (*P* = 0.04) has a signiﬁcant inﬂuence on HA, and that team quality accounts for 3% of the variance in HA. Overall, an interaction eﬀect does not appear to exist (*P* = 0.82) between division, season and team quality despite that the combined eﬀect of these factors account for 17.5% of the proposed variance in HA.

# Discussion

The purpose of this present study was to examine the HA eﬀect in Gaelic Football and to substantiate whether it is comparable with similar team-based sports, and also investigate the eﬀect of the season, divisional status and team quality/ranking on HA over a 9-season period (2010–2018).

As expected, after adjusting for HA, we found a highly signiﬁcant HA eﬀect across all four divisions over the 9-season period (*P* ≤ 0.001). The mean percentage reported in this study for HA was 57.4 ± 26.0%. These ﬁndings are similar to those previously reported for Gaelic Football by Carroll and Collins (56.6% in 2012) and Mangan and Collins (57.1% in 2016). With reference to the National Football League, it would appear that HA within senior Inter-County Gaelic football has remained steady between 56% and 58% since 2001. The mean HA for this study (57.4%) illustrates

that HA in Gaelic football is comparable with similar team-based sports. With HA in Australian Rules football being reported as 59.9% by Clarke ([2005](#_bookmark50)). Two recent studies by Leite ([2017a](#_bookmark62) and [2017b](#_bookmark63)) found that the mean percentage of HA in professional futsal was 56.2%, while HA in soccer was 58.3%. Similarly, in the study of Rugby García et al. ([2013](#_bookmark55)) reported the existence of HA was established at 61.0%, while the average HA for Basketball was reported as 60.7% by Pollard and Gómez in [2013](#_bookmark72).

When comparing HA across each of the divisions over the 9-season period (2010–2018), the mean HA for each of the respective divisions appears to have declined and steadied over the 9-season period, which aligns with the ﬁndings of Allen and Jones ([2014](#_bookmark41)) study on HA in the English Premier League over a 20-season period. With all teams participating in the National Football League over an extended period of time (2010–2018), this minimises the eﬀect of temporal variation where HA may be remarkably high or low for whatever reason, i.e. promotion/relegation or change of home venue (Pollard & Gómez, [2009](#_bookmark71)). Almeida and Volossovitch ([2017](#_bookmark42)) also propose that the declining eﬀect of HA might be explained by the reduction in the physiological impact of playing and travelling as trips have become more comfortable and less fatiguing, while recovery strategies have improved. Equally, Pollard and Gómez ([2009](#_bookmark71)) argue that a more professional approach allows coaches and teams to analyse their opposition and therefore better prepare for upcoming ﬁxtures and competitions. Together, these factors may help to explain the nominal impact that season had on HA (2%) and the initial decline in HA and that HA appears to have stabilised within Gaelic football throughout the last decade. Additionally, the current results demonstrated that divisional status appears to inﬂuence the magnitude of HA with Gaelic football similar to the ﬁndings of Almeida and Volossovitch’s ([2017](#_bookmark42)) recent research on the eﬀect of the level of competition on HA in Portuguese football.

After controlling for team ability, the ﬁndings from this study reported that team quality signiﬁcantly impacts (*P* ≤ 0.05) on HA within Gaelic football. With medium-ranking teams reporting a more superior mean HA of 61.4% than both higher ranking teams (52.7%) and lower ranking teams (57.4%), respectively. As expected, lower ranking teams reported a greater mean HA than higher ranking teams, which is comparable to the ﬁndings in current research which advocates that HA is greater in lower ability teams (based on lower league positions) than in higher ability teams (Allen & Jones, [2014](#_bookmark41)). Thereby, supporting the conclusion that stronger teams win most of their games, both at home and away will be unable to attain a higher percentage for HA, as proposed by Pollard and Gómez ([2009](#_bookmark71)). Whereas lower quality teams win infrequently, therefore, the home environment is likely a formidable factor in their ability to win any games at all (Bray, [1999](#_bookmark45)).

This study should be considered a preliminary attempt to unravel HA in Gaelic football, including the impact of the season, divisional status and team quality/ranking. The methodological approach and sample size of 1973 matches across 9 seasons (2010– 2018) and encompassing 32 senior Inter-County men’s Gaelic football teams is a strength of this study. The lack of inclusion of factors such a crowd size and distance travelled may highlight some key limitations of the study.

There is a myriad of details that may explain HA and how they also relate to the main factors associated with the existence of HA (Pollard, Prieto, & Gómez, [2017](#_bookmark76)). The key probable causes for HA can be reviewed under the headings of crowd eﬀects, travel, familiarity, territoriality, referee bias, psychological factors and tactics (Pollard et al., [2008](#_bookmark77)). However, the exact causes and their impact on performance are still vague and

there is a need for further research to truly understand the multifaceted aspects that inﬂuence HA. One of the main and most obvious reasons understood to be responsible for HA in football is crowd support (Pollard and Armata, [2017](#_bookmark69)). It has been shown that fans, players, coaches, referees and the media certainly believe this to be the case (Anderson, Wolfson, Neave, & Moss, [2012](#_bookmark43)). It has yet to be established whether the primary eﬀect of the crowd, if it really does exist, is to beneﬁt the home team or to hinder to the away team and whether this is openly conveyed to the players or inﬂuences referee decisions (Pollard, 2008). Familiarity with the home playing facility or even with the local climatic conditions and altitude are also plausible contributing causes of HA (Pollard & Armatas, [2017](#_bookmark69)). The HA eﬀect is a unique facet that can impact matches and in turn teams adapt and change their tactics and styles of play (Pollard, 2008; Pollard & Gómez, [2014](#_bookmark73)). Research proposes that home teams adopt more oﬀensive tactics, (Lago-Peñas, Gomez, & Pollard, [2017](#_bookmark59)), whilst away teams frequently adopt a more defensive tactic that might add to the eﬀect of HA (Pollard, [2006](#_bookmark68)). HA is a signiﬁcant issue to consider within sport (at all levels) as it develops our understanding of the eﬀect of playing at home or away and the impact it may have on the outcome the competition (Leite, [2017b](#_bookmark63)). This information may help anticipate game scenarios in a particular league or competition and could be used by coaches in their match preparation and training process (Almeida & Volossovitch, [2017](#_bookmark42)).

# Conclusion

This paper provides new insights into HA in Gaelic Football, conﬁrming HA was signiﬁcantly greater (*P* ≤ 0.001) than the null value of 50% (57.4 ± 26.0%). HA in Gaelic football is comparable with similar team-based sports (i.e. AFL, futsal, soccer, rugby and basketball). HA appears to have initially declined and steadied over the 9- season period, while season and divisional status does not appear to be signiﬁcant; however, team quality/ranking would appear to have a signiﬁcant inﬂuence (*P* ≤ 0.05) on the variance in HA. Although HA is established in many sports (Pollard et al., [2017](#_bookmark76)), possible causes including: crowd eﬀects, travel, familiarity, territoriality, referee bias, psychological factors and tactics (Carron, Loughhead, & Bray, [2005](#_bookmark49) and Pollard, 2008), that have been proposed are still not well understood (Gómez et al., [2011](#_bookmark57)). Further research may wish to consider conducting similar investigations on ladies Gaelic foot- ball, hurling and camogie to establish a more accurate representation of HA within Gaelic games. Speciﬁcally, future research should investigate the impact of crowd size, the distance travelled, familiarity and tactics with reference to their proposed bearing (if any) on HA within Gaelic games.

# Disclosure statement

No potential conﬂict of interest was reported by the authors.

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