Working Paper in Economics

202308

A game of two halves: Determinants of attendance in the FA WSL and male team spillover effects.

Owen Croft[*] and J.D. Tena[†]

[*] Management School, University of Liverpool, Liverpool, United Kingdom. L19 7ZH. Email: O.Croft@liverpool.ac.uk.
[†] Management School, University of Liverpool, Liverpool, United Kingdom. L19 7ZH. Department of Economics, CRENoS and University of Sassari, Sassari, Italy. 07100. Email: J.Tena-Horrillo@liverpool.ac.uk. Corresponding author

https://www.liverpool.ac.uk/economics/

A game of two halves: Determinants of attendance in the FA WSL and male team spillover effects

Owen Croft[a] and J.D. Tena[b] *

[a] Management School, University of Liverpool, Liverpool, United Kingdom. L19 7ZH. Email: O.Croft@liverpool.ac.uk; [b] Management School, University of Liverpool, Liverpool, United Kingdom. L19 7ZH. Department of Economics, CRENoS and University of Sassari, Sassari, Italy. 07100. Email: J.Tena-Horrillo@liverpool.ac.uk

*Corresponding author: J.D. Tena, Ph.D.

Management School, University of Liverpool.

Liverpool, United Kingdom. L19 7ZH.

Phone: +44 7490181331

Email: J.Tena-Horrillo@liverpool.ac.uk

ORCID: 0000-0003-3018-2442

Declarations of interest: None

Funding: The author(s) received no financial support for the research, authorship, and/or publication of this article.

A game of two halves: Determinants of attendance in the FA WSL and male team spillover effects

ABSTRACT

Research question: This paper studies the determinants of stadium attendance at matches in the highest tier of English women's football, the Women's Super League (WSL). The interest of such analysis is twofold. First, it represents an illustrative example to study the impact of brand expansions on consumers' interest since many women's football teams are multiproduct extensions of existing men's teams. Our second contribution is to study the specific drivers of consumer interest in the WSL.

Research methods: This paper models attendance demand for the WSL from the 2011 to the 2022/23 season, using a sample of 777 observations. The specification includes a rich set of controls capturing team and match characteristics as well as performance and economic indicators. We also control for home and away team fixed effects and employ year and seasonal dummies. Using such a framework, we assess the spillover effects of the men's team performance on its women's counterpart.

Results and Findings: It is found that three groups of factors predict WSL consumers' interest: (1) team and game characteristics such as, team performance, weather indicators and team rivalry, (2) success of the national team, and (3) performance and characteristics of the men's team. Our results stand up to several robustness tests, such as controlling for previous attendance, match significance or fixture-specific dummy variables.

Implications: The analysis indicates a spillover effect from the performance of the men's team on attendance at the women's team's matches. It has clear implications for the club's stakeholders, as investment returns may differ if the spillover effects are considered. Our results also highlight the importance of the performance of the women's national team in boosting WSL attendance.

Keywords: Spillover, Attendance Demand, Women's Football, England, Brand Extension

JEL: Z2, L2, M3.

1. Introduction

The creation of new products is an essential determinant of productivity or firm size growth (Lentz and Mortensen, 2005; Klette and Griliches, 2000). However, in practical terms, a multiproduct extension could be positive or negative, improving or harming consumers' brand evaluation (Newmeyer et al., 2014). In this discussion, the success of the spillover effect largely depends on the characteristics of the new product, such as its association with the brand and the degree of consumer involvement. Notwithstanding its relevance, empirical spillover research is limited and mainly based on experimental settings, which causes external validity problems due to the difficulty of reproducing the complexity of this artefact in a laboratory (Rufeisen et al., 2019). However, finding examples of observational studies where brand attributes can be transferred to a new product (and perceived so by consumers) could be challenging.

This paper studies the determinants of stadium attendance at matches in the highest tier of English women's football, the Women's Super League (WSL), from the 2011 to 2022/23 season. The growth of women's football is a top priority for FIFA[1]. In particular, the WSL has experienced a sharp increase in average stadium attendance since the commencement of the league in 2011, from 550 in its inaugural season to 5,387 in 2022/23. However, consumer interest in the WSL is still far from its male counterpart. For example, the average attendance for Chelsea Women in the 2022/23 season, when the side won the league, was around 6,000. In comparison, the men's side saw an average attendance of around 40,000 in the same season despite disappointing performance[2]. Given that most WSL clubs are brand extensions

[1] See https://www.fifa.com/womens-football.

[2] See https://www.economist.com/graphic-detail/2023/08/16/womens-football-is-becoming-bigger-and-better.

of existing Premier League clubs, the paper aims to identify and estimate spillover effects from men's to women's teams.

Our contribution to the economic and marketing literature is twofold. Our most general contribution is providing an example of a multiproduct extension with similar characteristics. A given club's women's and men's football teams could be deemed as similar products. Indeed, the output of the production process is the same: a football game, and they face most of the same rivals in the competition. Thus, it is ideal to study whether consumers perceive that the two products (men's and women's teams) are associated with the same brand concept. Our second contribution is more specific; we study the determinants of consumer interest in the WSL. As discussed in the previous paragraph, the WSL still has much scope for growth. Therefore, understanding how consumer interest could be enhanced or detracted is a question of relevance for stakeholders in the football industry.

To preview, we find that WSL attendance is determined by many traditional variables employed in modelling of attendance at men's football, such as team performance, weather conditions, rivalry, geographical distance between the home and away clubs, and the ex-ante probability of home victory. We also include a measure of outcome uncertainty and, consistently with much of the literature on men's football, find outcome uncertainty does not significantly explain variations in stadium attendance. Second, we find an increase in attendance over the analysis period. Such growth in consumer interest is especially evident after 2022, when the English women's team won the Women's Euro 2022. In line with Meier et al. (2016), this suggests a strong connection between consumer interest and national team performance. Our third result is that the previous performance of the men's team predicts attendance at the women's team even after controlling for home and away team fixed effects. This indicates the existence of an overlap of fans committed to the brand and willing to support the women's team. The main results stand up to different robustness exercises consisting of including match significance indicators, lagged attendance, and fixture-specific dummy variables.

This paper proceeds as follows. The following section describes the main characteristics of the WSL. Section 3 positions the paper in the literature and states its contribution. The dataset employed in the analysis is presented in Section 4. We conduct the empirical analysis and test the robustness of the model to different considerations in Sections 5 and 6 respectively. Finally, Section 7 discusses the results' implications and concludes.

2. English Women's Football and the Women's Super League

The history of English women's football is storied but stained with controversy. Despite the perception that female participation in football is a recent phenomenon, the history of women's football goes back centuries. It undoubtedly saw a peak following the fallout of the First World War, seeing peak audiences of 53,000 (Leighton, 2008). Despite the popularity, the Football Association (FA) would go on to ban women's football on association pitches in 1921, with the ban remaining for 50 years. Perhaps due to the ban, women's football has since struggled to gain a large foothold in English football, consistently averaging attendances below those of the 4th tier of men's football.

To support the growth of women's football into the 2010s, the FA restructured the Women's Premier League National Division – the previous top tier of English Women's football – into the formation of the WSL. The WSL initially began as a summer league, running from March to October. This format was set with the intention to make the league as attractive as possible from a broadcasting and commercial standpoint, avoiding scheduling conflicts with male football and allowing for the development of a 'niche' product (The Football Association, n.d.). However, this format was scrapped ahead of the 2017/18 season in favour of a winter league for the purpose of increasing player welfare, along with developing the league and attendance (The Football Association, 2016), with this format remaining since.

The WSL began with 8 competing teams, who were granted a place after successful two-year licence applications, allowing for the chance of success during the start-up period, and to provide certainty to football club owners (The Football Association, n.d.). The successful applicants and league founders were Arsenal, Birmingham City, Bristol Academy, Chelsea, Doncaster Belles, Everton, Lincoln Ladies, and Liverpool. Although the initial plan outlined in the Women's Super League brochure was to expand the league to a maximum of 12 teams between 2013 and 2016, any expansion would not occur until 2016, with the main format change coming from the inclusion of relegation for the 2013 season. Going into the 2016 season, two teams were promoted to the WSL with one being relegated, the same process followed into the 2017 spring series, bringing the number of teams up to 10 (BBC, 2014).

In furthering their efforts to expand the popularity of women's football, the FA set out "The Gameplan for Growth" in 2017, with three main goals set for 2020: consistent international team success, double female participation, and double the number of fans, which involved increasing average attendance from 1,047 to 2,020 (The Football Association, 2017). To achieve this, the FA set out several strategies, involving increasing the profile of the England Women's National Team and improving the commercial prospects of women's football in England. Following this, the FA restructured the WSL into a full-time and professional league ahead of the 2018/19 season, setting out new licencing requirements that meant teams must provide a minimum of 16 contact hours a week for players, and an academy. These changes also increased the league's size to 11 (Garry, 2018). The league expanded further the following season, bringing the total number of teams to 12, which has remained at this number since.

The strategy set out by the FA in 2017 proved to be a success, with steady growth seen since the strategy's implementation. As Figure 1 shows, there has been substantial growth in average attendance since the formation of the league following the restructuring in 2018/19. Attendances have since grown to 5,387 for the 2022/23 season. One reason for this may be the continued media and fan attention received by the England women's national team, with the FA's Head of commercial and marketing stating that "the [2019] World Cup provided a backdrop for an unprecedented acceleration of the women's game" (The Football Association, 2020). Despite such growth, however, spectatorship still falls far short of that of male football, with the average attendances of the Premier League (40,236), EFL Championship (18,795), and EFL League One (10,691) proving significantly higher. However, attendance in the WSL for the 2022/23 season was similar to that of EFL League Two in the same season (5,712), showing the increasing foothold the competition has within English football.

[Figure 1 Near Here]

The FA has continued its commitment to the growth of women's football in England, with the 2021 strategy highlighting its ambitious goals to maximise audiences and growth in commercial revenue and financial stability (The Football Association, 2021). Although the FA seem to be on target in meeting its average attendance goal of 6,000 by 2024, financial stability may still present issues for the future of women's football, with WSL clubs seeing an average loss of £1.4 million in 2019, and average debt up by 1,351% from 2011 to 2019, despite an increase in revenue of 590% (Philippou, 2023). Due to this, there is a necessity for spectator demand to be examined for the FA to identify whether growth and viewership in the league can be stimulated further. Results may also be employed by the competing clubs, to view how they can maximise revenues from spectatorship and improve financial stability, along with generating a larger platform so more women and girls are encouraged to participate in the sport. The present research aims to shed light on features that enhance or decrease attendance demand for the WSL.

3. Related Literature

The question of why spectators turn out to the stadium to watch a sports event is of fundamental importance to understanding sports business better. Despite such interest, the statistical or econometric analysis of the determinants of sports attendance only started in the 1970s. Hart et al. (1975) published the first econometric analysis of attendance determinants in English football matches. They studied attendance at four English First Division clubs during three seasons (1969/70, 1970/71 and 1971/72) as a function of distance travelled by away fans, the population of the home and away teams' catchment area, team quality indicators (league positions of the home and away teams before the match) and a linear weekly trend. Since Hart et al. (1975), the econometric analysis of spectator demand for sports has received considerable attention in the literature. Thus, subsequent papers have extended the set of explanatory variables in the model to include, among many other covariates, indicators of economic activity such as per capita GDP, the game's timing, previous sports results, team and/or stadium quality, and media interest. Dobson et al. (2001) provide an excellent explanation of how to conduct spectator demand analyses.

Comprehensive reviews of this literature can be found in Borland and MacDonald (2003), Downward et al. (2009) and, more recently, in Schreyer and Ansari (2022).

Despite the interest in stadium demand studies discussed in the previous paragraph, most focus has remained on men's sports. Such a lack of interest in women's demand studies would be understandable if the consumption of women's and men's sports shared similar characteristics and reacted to the same inputs. However, the former is in an earlier stage of growth, and even the typical characteristics of consumers may differ. For example, Nielsen conducted a recent survey on global interest in women's sports, finding a more gender-balanced audience and different attributes of interest in women's sports compared to men's sports.[3] Three papers that studied the determinants of attendance in female sports are LeFeuvre et al. (2013), Meier et al. (2016) and Valenti et al. (2020). LeFeuvre et al. (2013) studied the impact of the 2011 World Cup and the presence of star players on attendance in the top-level professional women's soccer league in the United States. They found that, *ceteris paribus*, while league attendance decreased during the 2011 World Cup, attendances at matches played immediately after the tournament were roughly twice as high as attendances at matches played before it. Interestingly, they also found a significant increase in attendance in double-header matches with men's Major League Soccer, which suggests a possible spillover effect from men's to women's teams. Meier et al. (2016) estimated the impact of different measures of stadium quality and the international success of the national women's soccer team on crowd size in the top-tier German league. While indicators of stadium-quality are not significant variables in the regression analysis, the performance of the national soccer team seems to be a strong predictor of stadium attendance. Valenti et al. (2020) focus on the

---

[3] More detailed information on the results of this survey can be found at https://www.nielsen.com/insights/2018/global-interest-in-womens-sports-is-on-the-rise/#:~:text=A%20survey%20across%20eight%20key,engage%20a%20gender%2Dbalanced%20audience.

UEFA Women's Champions League Matches, finding that match characteristics, such as outcome uncertainty and match significance, and team reputation are important determinants of match attendance.

Our paper contributes to this literature by studying the spillover effects of male teams on their female counterparts. As discussed in the introduction, this type of analysis provides a unique example in marketing and management of a brand extension of existing men's teams to another product with similar characteristics. We also offer a more specific example to decision-makers of the determinants of attendance in the WSL.

4. Dataset and Variables

Attendance for the home team serves as the dependent variable for the analysis of stadium demand (*Attendance*). Data from the inaugural season of the WSL to the most recently completed (2011 – 2022/23) forms the basis of the analysis, where within this period, 19 different clubs played within the league. We omit the 2020/21 season from our analysis, as almost all matches were played behind closed doors. After we remove the first two rounds of each season, our final dataset consists of 777 observations, with match-level data collected from www.football-lineups.com and www.soccerdonna.de. As attendance data proved to be right-skewed, we take the natural logarithm of the variable.

The dataset includes a rich set of dummy variables to control for unobserved home and away team heterogeneity, along with the season, month, and day. In particular, a set of dummy variables for each season is used to control for trend evolution in attendance. This treatment of season also allows for the discovery of non-linear trends in attendance, along with testing the effect of international competitions and success of the England women's football team on attendance. Note that the inclusion of season specific effects controls for unobserved macroeconomic variables at the country level such as inflation, GDP or unemployment. Similarly, to account for unobserved heterogeneity across teams, we employ a set of dummy variables for the home city, home team, and home and away teams. Such dummy variables account for unobserved fixed differences across teams such as population and team importance. Seasonal dummies such as month and day of the week allow us to control for the unobserved influence of seasonal components of match attendance. These effects will be covered in more detail within the next section.

To capture the economic determinants that may affect attendance at women's football, we employ the gross disposable income per head (*GDHI Per Head*), from the home team's ITL3 region, with data for this variable collected from the Office of National Statistics (ONS, 2022). To account for unreleased datapoints, specifically values for 2022 and 2023, the average growth rate of the region is used to estimate the missing figures. Like attendance, this variable is logarithmised. We further include the number of years each team has played in the WSL to assess the importance of the team's foothold within the market (*Home Years in WSL, Away Years in WSL*).

Like previous papers in the literature studying attendance demand in women's football, we do not include ticket price among the set of covariates; see, for example, Meier et al. (2016) and Valenti et al. (2020). It is noted that clubs within the WSL only charge a small fee for admission (or even allow for free entrance), with the average women's ticket price for the 2023/24 season approximately £8.71 (calculated using prices collected from each team's website), 79% lower than that of the average men's football ticket price in the same season. However, attendance is also affected by a myriad of indirect costs. For example, the *distance*, measured in kilometres, between the competing teams' home stadiums (collected from www.distancefromto.net) is included as a proxy for the travelling costs faced by away fans.

Additionally, opportunity costs were operationalised with a dummy variable for games played past 6pm (*Evening*), along with variables that account for the average temperature in ^{0}C and total rainfall in mm on the matchday (Temperature, Rain). Both weather variables use historical data from the host city's closest meteorological station collected from www.visualcrossing.com. Finally, to account for the opportunity cost of watching the women's team over the men's team, a pair of dummy variables are employed for when the women's team is playing on the same day the associated men's team is playing at home or away (*Men Playing Home, Men Playing Away*).

The quality of the sporting contest is accounted for by the short-, medium-, and long-term performance of the competing teams. The recent performance of the home and away teams is measured by the respective league rankings going into the subject match (*Home Position, Away Position*). To allow for the construction of current season form measures, the first two matches of each team have been excluded. Following Buraimo et al. (2018) we also include dummy variables to account for the potential momentum of the home team winning or drawing the previous game (*Win Previous, Draw Previous*). To control for the medium-term quality of each club, the league positions achieved by the competing teams the prior season are included (*Home Position Previous Season, Away Position Previous Season*). Further, we include a dummy variable that takes the value one if the home team won a trophy the previous season (*Trophy Won Previous Season*). Finally, the total number of trophies won by each team (including pre-WSL) are included as a proxy for the long-term success of the clubs (*Home Trophies Won, Away Trophies Won*). It can be considered that these variables also highlight the potential branding effects for 'super clubs.'

Given the focus of this research, we employ a similar set of variables mentioned in the previous paragraph for the men's teams to understand any potential spillover effects. Thus, we include the number of major trophies won by the home and away teams (*Home Men's Trophies Won, Away Men's Trophies Won*), a dummy variable taking the value one if the home men's team won a trophy the previous season (*Men Trophy Won Previous Season*), along with the male clubs' positions the previous season (*Home Men's Position Previous Season, Away Men's Position Previous Season*).

A dummy variable for matches where there is a historical derby[4] (*Derby*) between the competing teams is included to control for further sporting-related characteristics that may affect attendance. Additionally, a dummy variable for matches being played in the men's home stadium (*Men's Home* Ground) is included to control for the increase in stadium quality and the novelty[5] of women's matches being played at these grounds.

To account for the effect of competitive balance on stadium attendance, the standard procedure for operationalising the outcome uncertainty of the sporting competition is followed, using betting odds to compute the probabilities of each result (Valenti et al., 2020). Using these probabilities, the uncertainty of the match outcome is calculated using the Theil measure (*Theil Index)* for uncertainty (Theil, 1967):

$$Theil = \sum_{i=1}^{3} \frac{p_i}{\sum_{i=1}^{3} p_i} \log\left(\frac{\sum_{i=1}^{3} p_i}{p_i}\right) \quad (1)$$

where p_i represents the probability of a home win, draw or away win in the subject match. Betting odds were collected from 2 main sources: www.oddsportal.com and

[4] The matches we define as historical derbies within the dataset are Arsenal vs Tottenham, Aston Villa vs Birmingham City, Everton vs Liverpool, Liverpool vs Manchester Utd., and Manchester City vs Manchester Utd.

[5] Some of the teams observed within our dataset play all matches that do not clash with the men's team at the club's main stadium. One example is Leicester City W.F.C who play most of their matches at the King Power stadium (Garry, 2021).

www.aiscore.com with each probability calculated as the implied odd of a match outcome divided by the sum of implied odds, to account for over-round. For matches that did not have betting data available, we adopted a Poisson Distribution model to fill the remaining matches[6]. It is noted that this is a rough, but ultimately appropriate, proxy for match probabilities, with 31 observations needing computation. To account for the potential asymmetric relationship between outcome uncertainty and attendance, the home team's win probability is also included within the model (*Prob. Win*). Summary statistics for each of the variables are presented within Table 1.

[Table 1 near here]

5. Empirical Analysis

Our empirical strategy is similar to previous attendance studies using match-level data (LeFeuvre et al., 2013; Buraimo et al., 2018). Our preferred specification takes the following form:

$$Ln\left(Attendance_{g,t}\right) = \beta_0 + \beta_1 X_{g,t} + \tau_t + \Omega_d + \Omega_m + \pi_h + \varphi_a + \varepsilon_{g,t} \qquad (2)$$

where the dependent variable is the natural log of attendance for a fixture g in season *t*. $X_{g,t}$ is a vector of covariates described in the previous section. τ_t denotes the season fixed effects and Ω_d and Ω_m are dummy variables indicating the day of the week and month when the match is played. The terms π_h and φ_a are home and away team fixed effects. Finally, $\varepsilon_{g,t}$ represents the stochastic error term.

[6] The model we use follows Chalikias et al. (2020). We compute the probability of the match result up to 8-8 and sum the probabilities of the home team winning, drawing, or losing to get the estimated probabilities of each outcome.

Table 2 presents the estimation results of the model shown in (2). We employ different specifications to appraise the role of the different sets of dummy variables and the robustness of the estimated coefficients. Thus, while season dummies and day/month dummies are included in all the specifications to capture the trend and seasonal attendance dynamic, we show how the presence of city, home team and away team dummies affect the estimation results. The table presents robust standard errors as the Breusch-Pagen test revealed heteroscedasticity within the dataset (BP = 168.23, $p < 0.001$).

[Table 2 near here]

It is notable that conclusions about the significance of most variables are consistent across the different specifications. However, an exception to this is, for example, per capita income, which is only significant at the 0.05 level in model 2. Moreover, performance indicators of previous years, home and away trophies won, are no longer significant at the 0.05 level once we control for the unobserved heterogeneity of the home and away teams. While it is challenging to find an explanation for these changes, team and home dummies are correlated with team and city characteristics. Thus, although most estimated coefficients are robust to the chosen model, model 4 is our preferred specification as it disentangles the effects of each variable whilst controlling for the heterogeneity of the home and away teams.

We find that consistent with our expectations, current performance indicators are significant predictors of attendance, especially for the home team. In our preferred specification, a one-place movement up the current league table by a team is concomitant with a 6.7% and 3.8% increase in attendance, for home and visiting clubs respectively. Indicators of historical performance are also significant predictors of attendance, only for the home team. Therefore, regardless of model specification, a better position for the home team in the season prior leads to an expected improvement in attendance. The number of trophies won by each team are also significant predictors of attendance. However, they are only significant at conventional levels in models that do not control for home or away team heterogeneity, perhaps due to multicollinearity. The momentum effect from winning or drawing the previous match is insignificant across all model specifications.

The sporting characteristic, *Derby* matches significantly impacts attendance across all model specifications. Given it is a binary dummy variable, the coefficient must be adjusted to indicate the percentage increase in attendance (Halvorsen and Palmquist, 1980). After the adjustments, calculated as 100 *{exp(coefficient) – 1}, derby matches increased expected attendance by 105% in our preferred specification.

We also find that an increase in distance and rain, along with a decrease in temperature, significantly reduces match attendance, consistent with the results by Meier, Konjer & Leinwather (2016). These variables are expressed in natural logarithms, so the estimated coefficients can be interpreted as elasticities. Thus, while attendance is inelastic (i.e., elasticity lower than 1) to distance and weather, it is still notable that a 1% increase in distance and rain decreases attendance by 0.08% and 0.05%, respectively. Furthermore, a 1% increase in Celsius temperature gives a 0.168% expected increase in attendance. However, these effects are relatively small compared to Meier et al. (2016), who find women's football fans to be highly sensitive (elasticity greater than 1) to temperature changes. In our preferred specification, matches with scheduling conflicts with that of the men's team (captured with 'men playing home' and 'away playing home') do not significantly influence WSL attendance.

Per capita income negatively impacts attendance in the models with city and team dummies.[7] Moreover, attendance is highly inelastic (albeit only significant at the 0.10 level) in the specifications with team dummies, suggesting that female football is an inferior good in England like it may be in Germany (Meier et al., 2016) and in the early stages of English men football (Bird, 1982).

Finally, similar to the results presented by Valenti et al. (2020), the increased probability of a home win is a significant indicator of attendance across all model specifications. However, when controlling for city and team heterogeneity, no support is found in favour of a positive impact from match outcome uncertainty, adding to the literature that does not support the outcome uncertainty hypothesis (Baydina et al., 2017; Valenti et al., 2020).

We turn our attention to the study of any potential effects that related male teams have on the women's team. With this analysis, it is essential to emphasise that the econometric framework already controls for the home and away team heterogeneity and the performance of the female team. Therefore, the coefficients associated with the performance of the men's team could be deemed to be directly attributable to the men's team (the other product of the company) rather than the club's brand name. Table 2 shows that attendance is significantly affected at the conventional levels by the number of trophies the male home team has won, and if the men's home team won a trophy the previous season. Similarly, matches played in the men's stadium is correlated with an attendance increase of 152.7%, after applying the adjustments proposed by Halvorsen & Palmquist (1980). All these results suggest that

[7] It should be noted that because the models include season fixed effects, per capita income must be interpreted as deviations of this variable with respect to its year mean.

consumer interest in the women's team is positively influenced by the performance of its respective male teams.

Like LeFeuvre et al. (2013) and Meier et al. (2016), we appraise the importance of international tournaments on domestic league attendance. Note that the estimated parameters associated with the season specific dummies in the models are not informative for such a purpose as they can only be interpreted in comparison with a reference season (2011). Thus, using the regression results in Table 2, we test the null hypothesis that match attendance is similar in the year before and after an international competition by means of F-statistics[8].

The results of such tests are presented in Table 3. Interestingly, and consistently across all econometric specifications, the elasticity of match attendance is not constant through time. It is especially notable that, compared to other tournaments reviewed, the 2022 UEFA Women's European Championship has a formidable impact on attendance. This result suggests that future international tournaments may affect spectatorship for WSL matches, especially in the case of future international victories for the England Women's National Team.

[Table 3 near here]

6. Robustness Analysis

In this section, we test the sensibility of our results to three different considerations. First, some papers control for the persistence of consumption habits in attendance demand models

[8] For competitions that run during a league season, the F-test is performed on that season and the season following. For example, the 2015 Women's World Cup ran during the 2015 WSL season. Thus, the test was performed between the 2015 and 2016 seasons.

by including attendance in the previous match of the home team in its stadium among the covariates. For example, Buraimo et al. (2018) and Meier et al. (2016) find a significant inertial component in attendance at men's and women's football, respectively. With this variable, it should be noted that including attendance in the previous match in the set of covariates affects the interpretation of the other model coefficients. This is because any variable effect on current attendance may indirectly affect future attendance levels through the effect on the lagged dependent variable. Due to this phenomenon, we follow Dobson et al. (2001, Chapter 7) and compute steady-state coefficients for the set of covariates. Thus, we augment our preferred specification in the previous section by including home attendance in the previous match. We show estimation results for the dynamic and static specifications in Models 1 & 2 respectively.

The second robustness test involves employing indicators of match significance. A discussion of the use of such variables within previous literature can be found in Buraimo et al. (2022). Jennet (1984) was the first paper employing proxies of match significance, in his case to explain Scottish football attendances. However, he proposed an ex-post measure based on the final points total at the end of the season. Other approaches to estimate match significance focus on the distance the competing team is from a final points target, which does not explicitly account for the expectations of future match outcomes. For example, in Goddard and Asimakopoulos (2004) and Buraimo and Simmons (2015), a match is significant if a club can still win the title by securing victories in all remaining fixtures while all other clubs only get one point per game. Similarly, Forrest et al. (2005) regard a match as significant if at least one of the clubs is close to the relevant positions in the table. However, such variables did not play an important role in explaining television audiences. As such, Tainsky and Winfree (2010) and Buraimo et al. (2022) employ an index of match significance based on forecasting future outcomes to explain baseball stadium attendance and TV audiences for the English Premier League, respectively. Thus, we follow Buraimo et al. (2022) in the estimation of match significance based on the difference between the final league positions if the home or away team win the upcoming match, compared to losing it. To compute the final league table, they simulate match results using match forecasting models. Following similar arguments, we estimate the match significance for winning the WSL championship, qualifying for European competitions, and relegation in each game using the expected probabilities for future matches to compute league standings.[9] We include such variables in our preferred specification to examine how this consideration affects estimation results in Model 3.

Our final robustness analysis substitutes home and away dummies with fixture-specific dummies included in Model 4. Whilst fixture dummies are not usually employed in the attendance demand literature, due to the important reduction they impose on the number of degrees of freedom, it is plausible to assume that these variables may capture many unobserved match attendance predictors, such as match significance or team rivalries.

Table 4 reports the results of these experiments. Importantly, the main results concerning the importance of a specific group of match characteristics and male team spillover effects are not affected by the model augmentations. More specifically, performance indicators for the women's teams such as the current home and away positions, along with the probability of the home team winning the coming match are significant across all model specifications. Moreover, in all models, at least one indicator of indirect costs (*Distance, Temperature,* and *Rain*) significantly predicts attendance. Regarding spillover effects, the number of trophies

[9] Although not incorrect, a simulation of the league is unnecessary. While in knock-out tournaments, fixtures depend on previous match results (and each simulation provides a different set of matches), fixtures are fixed in league competitions. As such, it is possible to use the probabilities of different match outcomes independently, rather than approximate them using simulations.

won by the home men's team and matches played in the men's home stadium are significant across all model specifications.

[Table 4 near here]

Focusing on the specific components of Models 1 & 2, we see habit persistence is a significant component in WSL attendance. It is notable that this effect is relatively small (0.117), which makes the short- and long-term coefficients between each model relatively similar. When viewing Model 3, match significance indicators do not play a main role in explaining attendance apart from when the home team is in contention for relegation (which has a negative effect) and the away team is in contention for the championship. At first glance, this may seem in contradiction with Buraimo et al. (2022), who find that match significance is an important predictor of English Premier League TV audiences. However, this could be explained as attendance in female football could be more insensitive to match significance than watching men's football on television. Finally, despite such a large number of additional variables (267), including fixture dummies does not have a qualitative impact on coefficients in the model, apart from the *derby* variable being dropped due to multi-collinearity.

7. Discussion remarks and future research

The present paper studies the determinants of stadium attendance in WSL games from 2011 to 2022/23. We found that team performance, the probability of the home team winning the match, derbies, and indirect costs, such as the distance between the home and the away teams, are essential determinants of stadium attendance. The analysis also enhances the importance of controlling for unobserved home and away team heterogeneity, as some variables are no longer significant or change their signs once we include these controls. This is the case, for example, with trophies won in previous years.

Overall, some of the results of this paper are similar to previous analyses of men's sports. Many of these papers also find that performance (Dobson and Goddard, 2001, Chapter 11), derbies (Wooten, 2018), and home win probabilities (Buraimo et al., 2018) are significant predictors of stadium attendance. Our study also shows that, consistent with previous analyses for men's football, outcome uncertainty is not an important predictor of attendance (Brandes and Franck, 2007). Instead, fans who are predominantly home team supporters are more attracted by the probability of home win (Buraimo and Simmons, 2008). Another finding from our analysis is the spillover effect of the men's team on attendance at women's matches. In particular, the previous performance of the home men's team significantly affected attendance even after controlling for home and away club dummies, indicating a spillover effect from men's to women's teams. Accordingly, most Premier League and WSL teams could be conceived as part of multiproduct companies that share a proportion of their fans. This result has clear implications for the economic analysis of the club, as investment returns could be different if the spillover effects are considered.

Finally, our study highlights the importance of the international success of the women national team to boost league attendance. More specifically, compared to any of the previous years, the victory of the English women's team in the UEFA Women's Championship had an exceptional effect in boosting attendance. This result aligns with Meier et al. (2016), who also found an important impact from winning the Women's World Cup in 2011 for women's league soccer in Germany.

We hope this paper incentivises future research on factors that enhance consumer interest in women's football. In particular, we can mention at least two possible research avenues. The first one should explore whether a similar effect can be found for television audiences as spectators are a different type of consumer potentially interested in other characteristics of the game; see Buraimo et al. (2020) and Buraimo et al. (2022) for examples of this type of analysis in men's football. In the case of female football is interesting to study both the factors that drive television audience and how television can stimulate attendance across WSL. A second line of research concerns the size of gains to sports clubs from widening their product portfolio. For example, here we have considered whether co-branding between men's and women's football impacts the popularity of the add-on product. Many Greek and Spanish football clubs have teams competing not only in female as well as male competitions but also across sports, for example in basketball and handball as well as football. Moreover, in England leading clubs have expanded into e-sports. Our paper suggests that an adequate analysis should consider the presence of spillovers across the different teams of a professional club.

Acknowledgements: We thank David Forrest, Babatunde Buraimo, and Kaori Narita for helpful comments on an earlier draft of the paper.

References

Baydina, K., Parshakov, P., & Zavertiaeva, M. (2021). Uncertainty of outcome and attendance: Evidence from Russian football. *International Journal of Sport Finance*, 16(1), 33-44. Available at SSRN 2947613.

BBC (2014, Dec 2) Women's Super League to be expanded from 2015. BBC Sport. https://www.bbc.co.uk/sport/football/30298483.

Bird, P. J. W. N. (1982), The demand for League Football, *Applied Economics*, *14*(6), 637-649

Borland, J., & MacDonald, R. (2003). Demand for sport. *Oxford Review of Economic Policy*, *19*(4), 478-502.

Brandes, L., & Franck, E. (2007). Who made who? An empirical analysis of competitive balance in European soccer leagues. *Eastern Economic Journal*, 33(3), 379-403.

Buraimo, B., & Simmons, R. (2008). Do sports fans really value uncertainty of outcome? Evidence from the English Premier League. *International Journal of Sport Finance*, 3(3).

Buraimo, B., & Simmons, R. (2015). Uncertainty of outcome or star quality? Television audience demand for English Premier League football. *International Journal of the Economics of Business*, 22(3), 449-469. https://doi.org/10.1080/13571516.2015.1010282

Buraimo, B., Forrest, D., & Simmons, R. (2007). Freedom of entry, market size, and competitive outcome: Evidence from English soccer. *Southern Economic Journal*, 74(1), 204-213. https://doi.org/10.1002/j.2325-8012.2007.tb00834.x

Buraimo, B., Forrest, D., McHale, I. G., & Tena, J. D. (2020). Unscripted drama: Soccer audience response to suspense, surprise, and shock. *Economic Inquiry*, 58(2), 881-896. https://doi.org/10.1111/ecin.12874

Buraimo, B., Forrest, D., McHale, I. G., & Tena, J. D. D. (2022). Armchair fans: Modelling audience size for televised football matches. *European Journal of Operational Researc*h, 298(2), 644-655. https://doi.org/10.1016/j.ejor.2021.06.046

Buraimo, B., Tena, J. D., & de la Piedra, J. D. (2018). Attendance demand in a developing football market: The case of the Peruvian first division. *European Sport Management Quarterly*, 18(5), 671-686.

Chalikias, M., Kossieri, E., & Lalou, P. (2020). Football matches: Decision making in betting. *Teaching Statistics*, 42(1), 4-9.

Chelsea Football Club. (2022, July 17). Chelsea Women ticketing update for the 2022/23 season. Available at: https://www.chelseafc.com/en/news/article/chelsea-women-ticketing-update-for-the-2022-23-season (Accessed: 15/09/2023)

Dobson, S., & Goddard, J. A. (2001). The Economics of Football. Cambridge: Cambridge University Press.

Downward, P., Dawson, A., & Dejonghe, T. (2009). *Sports Economics*. Routledge.

Forrest, D., Simmons, R., & Buraimo, B. (2005). Outcome uncertainty and the couch potato audience. *Scottish Journal of Political Economy*, 52(4), 641-661. https://doi.org/10.1111/j.1467-9485.2005.00360.x

Garry, T (2018, Sep 9) Women's Super League: New full-time, professional era – all you need to know. BBC Sport. https://www.bbc.co.uk/sport/football/45355268

Garry, T. (2021). Leicester City Women to play eight matches at King Power Stadium in debut WSL campaign. The Telegraph. https://www.telegraph.co.uk/football/2021/08/25/leicester-city-women-play-eight-matches-king-power-stadium-debut/

Goddard, J., & Asimakopoulos, I. (2004). Forecasting football results and the efficiency of fixed-odds betting. *Journal of Forecasting*, 23(1), 51-66. https://doi.org/10.1002/for.877

Halvorsen, R. and Palmquist, R., 1980. The interpretation of dummy variables in semilogarithmic equations. *American Economic Review*, 70(3), 474-75.

Hart, R. A., Hutton, J., & Sharot, T. (1975). A statistical analysis of association football attendances. *Journal of the Royal Statistical Society: Series C* (Applied Statistics), 24(1), 17-27.

Jennett, N., 1984. Attendances, uncertainty of outcome and policy in Scottish league football. *Scottish Journal of Political Economy*, 31(2), 176-198.

Klette, T. J., & Griliches, Z. (2000). Empirical patterns of firm growth and R&D investment: a quality ladder model interpretation. *The Economic Journal*, 110(463), 363-387.

LeFeuvre, A. D., Stephenson, E. F., & Walcott, S. M. (2013). Football frenzy: The effect of the 2011 world cup on women's professional soccer league attendance. *Journal of Sports Economics*, 14(4), 440-448. https://doi.org/10.1177/1527002513496012

Leighton, T. (2008, Feb 11). FA apologies for 1921 ban. The Guardian. https://www.theguardian.com/football/2008/feb/11/newsstory.womensfootball

Lentz, R., & Mortensen, D. T. (2005). Productivity growth and worker reallocation. *International Economic Review*, 46(3), 731-749.

Meier, H. E., Konjer, M., & Leinwather, M. (2016). The demand for women's league soccer in Germany. *European Sport Management Quarterly*, 16(1), 1-19.

Newmeyer, C. E., Venkatesh, R., & Chatterjee, R. (2014). Cobranding arrangements and partner selection: A conceptual framework and managerial guidelines. *Journal of the Academy of Marketing Science*, 42, 103-118.

Office for National Statistics. (2022). Regional gross disposable household income, UK. Office for National Statistics. https://www.ons.gov.uk/economy/regionalaccounts/grossdisposablehouseholdincome/bulletins/regionalgrossdisposablehouseholdincomegdhi/1997to2020

Philippou, C. (2023, Aug 29). The Lionesses had a terrific World Cup, but women's football in England is on shaky economic ground – new research. The Conversation. https://theconversation.com/the-lionesses-had-a-terrific-world-cup-but-womens-football-in-england-is-on-shaky-economic-ground-new-research-211767

Raufeisen, X., Wulf, L., Köcher, S., Faupel, U., & Holzmüller, H. H. (2019). Spillover effects in marketing: integrating core research domains. *AMS Review*, 9, 249-267. https://doi.org/10.1007/s13162-019-00143-x

Schreyer, D., & Ansari, P. (2022). Stadium attendance demand research: A scoping review. *Journal of Sports Economics*, 23(6), 749-788. https://doi.org/10.1177/15270025211000404

Tainsky, S., & Winfree, J. A. (2010). Short-run demand and uncertainty of outcome in Major League Baseball. *Review of Industrial Organization*, 37, 197-214. https://doi.org/10.1007/s11151-010-9267-3.

The Football Association (2016) FA Women's Super League To Move To New Calendar In 2017. https://www.thefa.com/news/2016/jul/12/fa-wsl-season-change-2017-spring-series

The Football Association (2017) The Gameplan for Growth https://www.thefa.com/-/media/thefacom-new/files/womens/fawomensstrategydocfinal-13317.ashx?la=en

The Football Association (2020) The Gameplan for Growth – Journey to Double the Fanbase https://www.thefa.com/-/media/thefacom-new/files/womens/2019-20/the-gameplan-for-growth---journey-to-double-the-fanbase.ashx

The Football Association (n.d.) Be part of footballs future. https://www.thefa.com/~/media/809201FB3DA547428AFD08EDD25A786F.ashx/Super%20League%20brochure

The Football Association. (2021, November 9). New three-year strategy launched for growing the women's professional game in England.

https://www.thefa.com/news/2021/nov/09/womens-professional-game-strategy-2021-2024-20210911

Theil, H. (1967) Economics and Information Theory. North-Holland Publishing Company, Amsterdam.

Valenti, M., Scelles, N., & Morrow, S. (2020). The determinants of stadium attendance in elite women's football: Evidence from the UEFA Women's Champions League. *Sport Management Review, 23*(3), 509-520. https://doi.org/10.1016/j.smr.2019.04.005

Wooten, JJ (2018). Rivalries in US Professional Soccer. *International Journal of Sport Finance*, 13(2). http://dx.doi.org/10.2139/ssrn.2394631

Tables

Table 1

Descriptive Statistics

Name	Definition	Min	Max	Mean	SD
Attendance	Stadium Attendance.	95	47367	1859.05	4368.70
Distance	Distance between competing team's stadiums in km.	1.06	449.01	171.82	96.01
Temperature	Average temperature on match day in ^{0}C.	-3.20	22.10	10.53	4.50
Rain	Total rainfall on match day in mm.	0.00	29.86	1.78	3.80
GDHI Per Head	Gross disposable household income per head for the host city in 10k.	1.21	4.88	2.16	0.91
Home Position	League position of the home team.	1.00	12.00	5.71	2.99
Away Position	League position of the away team.	1.00	12.00	5.69	2.98
Home Position Previous Season	Final league position of the home team the previous season.	1.00	27.00	6.21	4.02
Away Position Previous Season	Final league position of the away team the previous season.	1.00	27.00	6.18	4.02
Home Trophies Won	No. of major trophies won by the home team.	0.00	35.00	4.54	9.49
Away Trophies Won	No. of major trophies won by the away team.	0.00	35.00	4.60	9.56
Trophy Won Previous Season	Dummy variable for trophies won the season prior.	0.00	1.00	0.18	0.38
Win Previous	Dummy variable for winning the prior match.	0.00	1.00	0.38	0.48
Draw Previous	Dummy variable for drawing the prior mach.	0.00	1.00	0.22	0.41
Derby	Dummy variable for derby matches.	0.00	1.00	0.04	0.19
Evening	Dummy variable for matches played past 6 pm.	0.00	1.00	0.30	0.46
Home Seasons in WSL	No. seasons played in the WSL for the home team.	1.00	13.00	5.23	3.44
Away Seasons in WSL	No. seasons played in the WSL for the away team.	1.00	13.00	5.25	3.44
Prob. Win	Probability the home team wins.	0.01	0.96	0.43	0.26
Theil Index	Theil index for match outcome uncertainty.	0.18	1.10	0.86	0.23
Home Men's Trophies Won	No. trophies won by the home men's team.	0.00	45.00	14.56	14.06
Away Men's Trophies Won	No. trophies won by the away men's team.	0.00	45.00	14.70	14.09
Men Trophy Won Previous Season	Dummy for the home men's team winning a trophy the prior season	0.00	1.00	0.20	0.40

Men Playing Home	Dummy variable for matches where the men’s team is playing at home the same day.	0.00	1.00	0.07	0.26
Men Playing Away	Dummy variable for matches where the men’s team is playing away the same day.	0.00	1.00	0.11	0.31
Men's Home Ground	Dummy variable for matches played at the men’s main stadium.	0.00	1.00	0.12	0.33
Home Men's Position Previous Season	Final league position of the home men’s team the previous season.	1.00	109.00	19.24	22.45
Away Men's Position Previous Season	Final league position of the away men’s team the previous season.	1.00	109.00	18.96	22.28

Table 2

Determinants of Stadium Attendance in the WSL

	Model 1			Model 2			Model 3			Model 4		
Independent Variable	*β*		SE	*β*		SE	*β*		SE	*β*		SE
Ln Distance	-0.083	***	0.025	-0.090	***	0.023	-0.086	***	0.022	-0.083	***	0.022
Ln Temperature	0.145	*	0.076	0.184	***	0.070	0.168	**	0.065	0.168	***	0.065
Ln Rain	-0.050	**	0.024	-0.047	**	0.022	-0.046	**	0.021	-0.046	**	0.021
Ln GDHI Per Head	0.031		0.048	-0.466	***	0.158	-1.467	*	0.846	-1.543	*	0.844
Home Position	-0.081	***	0.011	-0.076	***	0.010	-0.074	***	0.010	-0.067	***	0.010
Away Position	-0.047	***	0.010	-0.052	***	0.010	-0.045	***	0.010	-0.038	***	0.010
Home Position Previous Season	-0.016	**	0.007	-0.015	**	0.006	-0.017	**	0.007	-0.015	**	0.007
Away Position Previous Season	-0.007		0.007	-0.009		0.006	-0.008		0.006	-0.007		0.006
Home Trophies Won	0.008	***	0.002	-0.007	*	0.004	-0.032		0.020	-0.029		0.021
Away Trophies Won	0.004	*	0.002	0.004	**	0.002	0.003	*	0.002	0.020		0.017
Trophy Won Previous Season	-0.034		0.055	-0.047		0.054	-0.073		0.056	-0.072		0.054
Win Previous	0.028		0.045	0.020		0.042	0.004		0.041	-0.003		0.041
Draw Previous	-0.008		0.051	0.007		0.046	0.010		0.046	0.002		0.045
Derby	0.717	***	0.179	0.674	***	0.167	0.655	***	0.160	0.719	***	0.161
Evening	0.032		0.061	-0.042		0.057	-0.072		0.058	-0.080		0.058
Home Seasons in WSL	-0.045	***	0.008	-0.001		0.013	0.110	**	0.051	0.102	**	0.050
Away Seasons in WSL	-0.003		0.008	-0.002		0.007	-0.002		0.007	-0.003		0.045
Prob. Win	0.465	***	0.155	0.592	***	0.157	0.372	**	0.158	0.689	***	0.182
Theil Index	-0.260	***	0.093	-0.105		0.087	-0.106		0.085	-0.031		0.088
Home Men's Trophies Won	0.000		0.002	0.012	***	0.003	0.125	***	0.024	0.107	***	0.025
Away Men's Trophies Won	0.009	***	0.002	0.009	***	0.002	0.008	***	0.002	-0.034		0.022
Men Trophy Won Previous Season	0.289	***	0.051	0.235	***	0.056	0.093		0.068	0.134	*	0.069
Men Playing Home	-0.103		0.072	-0.053		0.068	-0.020		0.067	-0.022		0.066
Men Playing Away	-0.127	*	0.070	-0.112	*	0.062	-0.117	*	0.062	-0.116	*	0.063
Men's Home Ground	0.680	***	0.090	0.884	***	0.103	0.929	***	0.109	0.927	***	0.107

Home Men's Position Previous Season	-0.002	*	0.001	0.000		0.003	0.001		0.003	0.001		0.003
Away Men's Position Previous Season	0.000		0.001	0.000		0.001	0.000		0.001	0.001		0.003
Constant	6.925	***	0.295	7.172	***	0.334	5.684	***	0.881	6.563	***	1.045
Season Dummies		Yes			Yes			Yes			Yes	
Day/Month Dummies		Yes			Yes			Yes			Yes	
Home City Dummies		No			Yes			No			No	
Home Team Dummies		No			No			Yes			Yes	
Away Team Dummies		No			No			No			Yes	
Adjust. R^2		0.696			0.746			0.759			0.764	
N		777			777			777			777	

Notes:

'***' $p < .01$; '**' $p < .05$; '*' $p < 0.1$

Note: Robust Standard Errors

References: Season - 2011, Day - Sunday, Month - May, City - London, Home/Away Team - Arsenal

Table 3

F-Test for differences in season-specific effects for two consecutive seasons (Models estimated from Table 2)

	Model 1			Model 2			Model 3			Model 4		
	F – Stat		P - Value	*F - Stat*		P - Value	*F - Stat*		P - Value	*F - Stat*		P - Value
2013 Euros	5.725	***	0.003	4.690	***	0.009	3.367	**	0.035	2.736	*	0.066
2015 World Cup	27.447	***	0.000	23.826	***	0.000	2.024		0.133	1.814		0.164
2017 Euros	27.023	***	0.000	25.367	***	0.000	17.961	***	0.000	16.808	***	0.000
2019 World Cup	49.545	***	0.000	35.435	***	0.000	6.923	***	0.001	5.874	***	0.003
2022 Euros	121.090	***	0.000	101.700	***	0.000	55.250	***	0.000	58.794	***	0.000

Notes:

'***' $p < .01$; '**' $p < .05$; '*' $p < 0.1$

Table 4

Robustness analysis on the preferred WSL attendance demand model specification

	Model 1			Model 2			Model 3			Model 4		
Independent Variable	*β*		SE	*β*		SE	*β*		SE	*β*		SE
Ln Attendance $_{t-1}$	0.117	***	0.030									
Ln Distance	-0.075	***	0.023	-0.085	***	0.026	-0.086	***	0.022	0.673	**	2.221
Ln Temperature	0.176	**	0.071	0.199	**	0.080	0.179	***	0.063	0.077	*	0.391
Ln Rain	-0.049	**	0.022	-0.055	**	0.025	-0.039	*	0.021	-0.060		0.067
Ln GDHI Per Head	-1.745	**	0.889	-1.977	**	1.000	-2.174	**	0.863	-1.529	***	0.021
Home Position	-0.059	***	0.011	-0.066	***	0.012	-0.054	***	0.011	-0.055	*	0.880
Away Position	-0.037	***	0.011	-0.042	***	0.012	-0.029	***	0.011	-0.047	***	0.010
Home Position Previous Season	-0.015	**	0.007	-0.017	**	0.008	-0.013	*	0.007	-0.010	***	0.010
Away Position Previous Season	-0.006		0.007	-0.007		0.007	-0.007		0.006	-0.010		0.006
Home Trophies Won	-0.020		0.022	-0.023		0.024	-0.034	*	0.020	-0.058		0.007
Away Trophies Won	0.021		0.018	0.024		0.021	0.025		0.017	0.013	***	0.021
Trophy Won Previous Season	-0.087		0.057	-0.098		0.064	-0.064		0.055	-0.074		0.020
Win Previous	0.013		0.043	0.015		0.049	0.006		0.041	0.016		0.055
Draw Previous	0.013		0.048	0.015		0.055	0.011		0.045	0.029		0.043
Derby	0.725	***	0.168	0.821	***	0.195	0.668	***	0.161			
Evening	-0.078		0.061	-0.088		0.069	-0.094	*	0.057	-0.074		0.059
Home Seasons in WSL	0.074		0.053	0.083		0.059	0.154	***	0.051	0.114	*	0.058
Away Seasons in WSL	-0.009		0.045	-0.011		0.051	-0.013		0.048	-0.036		0.060
Prob. Win	0.669	***	0.192	0.758	***	0.218	0.651	***	0.183	0.940	***	0.179
Theil Index	-0.018		0.092	-0.020		0.104	0.003		0.088	0.123		0.152
Home Men's Trophies Won	0.100	***	0.026	0.113	***	0.029	0.101	***	0.025	0.124	***	0.025
Away Men's Trophies Won	-0.038		0.024	-0.043		0.027	-0.032		0.021	-0.002		0.022
Men Trophy Won Previous Season	0.116		0.074	0.132		0.084	0.165	**	0.067	0.109	*	0.064
Men Playing Home	-0.032		0.067	-0.037		0.075	-0.021		0.066	0.044		0.073
Men Playing Away	-0.098		0.066	-0.110		0.074	-0.122	**	0.061	-0.100	*	0.061
Men's Home Ground	0.953	***	0.114	1.079	***	0.133	0.921	***	0.108	0.965	***	0.119

Home Men's Position Previous Season	-0.001		0.003	-0.001		0.004	0.001		0.003	0.000		0.003
Away Men's Position Previous Season	0.002		0.003	0.002		0.004	0.001		0.003	0.000		0.003
Home Team Championship Contention							0.044		0.069			
Home Team Europe Contention							0.115		0.075			
Home Team Relegation Contention							-0.170	**	0.081			
Away Team Championship Contention							0.203	***	0.068			
Away Team Europe Contention							-0.020		0.070			
Away Team Relegation Contention							0.085		0.071			
Constant	111.288	***	30.194	6.818	***	1.227	108.99	***	29.320	113.40	***	30.334
Season Dummies		Yes			Yes			Yes			Yes	
Day/Month Dummies		Yes			Yes			Yes			Yes	
Home and Away Team Dummies		Yes			Yes			Yes			No	
Match Specific Dummies		No			No			No			Yes	

Notes:

‘***’ p < .01; ‘**’ p < .05; ‘*’ p <0.1

References: Season - 2011, Day - Sunday, Month - May, Team - Arsenal, Match - Arsenal Chelsea

Figures

Figure 1

Average attendance per season in the WSL