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When Fans Travel: Determinants and Effects of Away Support in Football*

Joschka Flintz[†]

July 2025

Abstract

This study examines the determinants of away fan attendance in Germany's top three football divisions over six seasons and assesses its impact on match outcomes. The analysis reveals that, after conditioning on home and away teams, distance and kick-off time are the most important predictors of away fan turnout. Moreover, away support is found to have a statistically significant positive effect on team performance: an additional 1,000 away fans is associated with a 4.6% to 7.5% increase in the probability of the away team winning or drawing the match. These findings suggest that league organizers should consider fan logistics and the potential influence of away fan presence when scheduling fixtures, in order to maintain sporting equity. At the club level, the results underscore the value of fostering fan engagement and indicate that strategies aimed at increasing away attendance may contribute to improved sporting outcomes.

Keywords: Sport economics, Away fan attendance, Team performance, Spatio-temporal analysis

JEL Codes: C23, Z20

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1 Introduction

Almost every weekend, tens of thousands of football fans travel across Germany to follow their favorite clubs and provide vocal support during away fixtures, aiming to contribute to their team’s success. On match day 25 of the 2024/25 season, for example, an estimated 25,000 fans of second-division club *FC Schalke 04* traveled over 500km from the Ruhr area to Berlin to attend their match against *Hertha BSC* (kicker 2025). However, despite the prominent role that away support plays in German football culture, it remains unclear whether these journeys merely offer entertainment for fans or whether the presence of a substantial contingent of away supporters exerts a measurable impact on match outcomes. Moreover, empirical evidence on the determinants of away support is limited, as most prior studies concentrate on the role of home supporters in professional football (e.g., Belchior 2020; Cross and Uhrig 2023; Fischer and Haucap 2021; Ponzo and Scoppa 2018).

This study addresses these gaps by examining the factors that influence the number of away supporters present at football matches and by assessing the extent to which the size of the traveling fan base affects team performance. The analysis reveals that the most significant predictors of away fan turnout are the geographical distance between the competing teams and the timing of the match, particularly the day of the week and kick-off time. In contrast, after conditioning on the home and away teams, recent team performances and competitive balance between the two sides exhibit only marginal effects on the willingness of supporters to travel. Furthermore, the findings indicate a statistically significant impact of away fan attendance on match outcomes. Specifically, an increase of 1,000 away supporters is associated with an approximate 2-percentage-point increase in the likelihood of the away team securing a win. Given an average away win rate of around 30%, this corresponds to a relative improvement of around 6 percent. This effect appears to be mediated by an increase of about 0.036 in the number of goals scored and a reduction of about 0.045 in the number of goals conceded.

Taken together, the findings demonstrate that away support has a considerable influence on match outcomes — and is to a significant extent shaped by factors determined by league organizers, such as the day and time of the fixture. For instance, the results suggest that scheduling an away match on a midweek date can reduce the away team’s probability of winning by up to 2 percentage points, due to a reduction in away supporter turnout. These adverse effects are amplified when teams are required to travel long distances at inconvenient times, such as Friday or Sunday evenings or during the working week. These insights carry important implications for league organizers, that should account for the role of away fan support and the constraints imposed by travel distance and kick-off times when scheduling matches to maintain and improve competitive balance. Moreover, the findings underscore the broader significance of fan support and engagement. They suggest that clubs may benefit from implementing measures aimed at enhancing overall

fan involvement and encouraging away attendance, as such efforts could potentially yield positive returns in terms of sporting performance.

With these findings, this study contributes to the growing literature on the role of crowd support in professional football. Most of the existing research has focused on home supporters and their contribution to the home advantage, documenting a positive impact of fan presence on home team success. For example, Cross and Uhrig (2023), Ferraresi and Gucciardi (2023), Fischer and Haucap (2021), and Scoppa (2021) leverage matches played without spectators due to Covid-19 restrictions and report a substantial reduction in home advantage in the absence of crowd support. Ponzo and Scoppa (2018) find comparable results by examining same-stadium derbies in Italy, which allow them to control for location familiarity and travel fatigue, while Singleton et al. (2023) utilize crowd restrictions in Egypt following a violent stadium riot to reach a similar conclusion. Fans may influence match outcomes by exerting pressure on the referee, leading to more favorable decisions for the home team (Reade et al. 2022; Scoppa 2021), or by affecting player performance through chants and crowd noise (Cross and Uhrig 2023; Ferraresi and Gucciardi 2023). Notably, not all studies unambiguously report positive effects of crowd support on home advantage (Bryson et al. 2021; Reade et al. 2022). For instance, Belchior (2020) use variation in fan attendance linked to randomized kick-off times in Brazil and find no significant impact on home advantage. Such heterogeneity in findings may stem from contextual differences across countries (Benz and Lopez 2023) or divisions (Fischer and Haucap 2021).

In contrast to the extensive body of literature on the effects of home fan attendance, relatively few studies have examined the influence of away supporters on match outcomes. The present analysis is most closely related to Hernández et al. (2023), who identify travel distance and kick-off time as important determinants of away fan turnout in Spain’s first and second divisions during the 2017/18 and 2018/19 seasons, and Humphreys et al. (2024), who incorporate away fan numbers into their analysis of fan attendance and match outcomes in English football, finding a small impact of away fans on match outcomes. Similarly, Fioravanti et al. (2023) exploit the 2013 ban on away supporters in Argentina’s first division and report a positive effect of their absence on the home advantage for the league’s top five teams. Finally, this study extends previous research documenting a negative relationship between travel distance and away team performance (e.g., Oberhofer et al. 2010; Clarke and Norman 1995) by proposing away fan presence as a key mechanism through which geographic distance may influence away win probabilities.

In the following, Sections 2 and 3 describe the data and empirical approach, before Sections 4 and 5 present the results. Section 6 concludes.

2 Data

2.1 Data set

I collect match-level data for the three highest German football divisions, 1. *Bundesliga*, 2. *Bundesliga*, 3. *Liga*, for eight seasons, from the 2017/18 season to the 2024/25 season from *fussballmafia.de*, a website dedicated to German football fan culture.¹ The data contains information on the day and time of each match, its final result, the road network distance between the two clubs, total attendance, the number and share of away fans, and the number of tickets allocated to the away section. To complement the match-level data, I gather club standings after each match day from *kicker*, a German sports magazine, and add information on whether each club was promoted or relegated in the previous season. For the 2024/25 season, I additionally collect data on the stadium capacities and fan membership figures from *fussballmafia.de*.

The dataset comprises a total of 7,936 matches involving 78 different teams. However, 2,276 of these matches were affected by COVID-19-related restrictions that either prohibited or significantly limited attendance for both home and away supporters. The first match day impacted by such measures was the 26th of the 2019/20 season. Thereafter, the entire 2020/21 season was played behind closed doors, with no spectators permitted. Limited attendance was reintroduced at the start of the 2021/22 season, and restrictions were gradually eased throughout the season. By the 28th match day, matches were again played in front of full-capacity crowds. To ensure consistency in fan attendance conditions, I exclude all matches from the 25th match day of the 2019/20 season through to the first match day of the 2022/23 season. This results in a final sample of 5,660 matches involving 75 different teams. Of these, 1,755 games were played in each of the first and second divisions, which both include 18 club, while 2,150 matches took place in the third division, which comprises 20 teams. In each season, teams play every other team twice, once at home and once away.

2.2 Descriptive statistics

Table 1 contains descriptive statistics for the entire sample and for the first, second, and third division separately. During the study period, an average of 23,500 spectators attended each match, with approximately 2,000 of them supporting the visiting team. This means that, on average, around 9.4% of the total crowd consisted of away fans. As expected, attendance figures vary considerably across divisions. The 1. *Bundesliga*, home to most of the country’s large clubs and stadiums, attracts the highest numbers.² On average, matches in the top tier were attended by 41,800 spectators, including about 3,400

¹Each season begins in summer and ends in spring in the following year.

²In the 2024/25 season, average stadium capacities stood at 42,000 in the first division, 22,000 in the second, and 15,000 in the third.

Table 1: Descriptive statistics

	Total		1. Bundesliga		2. Bundesliga		3. Liga	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Away win	0.302	0.459	0.310	0.463	0.292	0.455	0.302	0.459
Away no loss	0.569	0.495	0.562	0.496	0.574	0.495	0.570	0.495
Home goals	1.61	1.32	1.74	1.42	1.59	1.29	1.52	1.26
Away goals	1.31	1.21	1.38	1.24	1.30	1.19	1.27	1.19
Total attendance	23,506	19,221	41,737	17,930	23,382	14,718	8,727	6,624
Guest fans	1,997	2,370	3,377	2,568	2,125	2,526	764	1,056
Guest share	9.42	10.92	8.07	6.07	8.99	8.85	10.85	14.70
Guest capacity use	65.18	62.75	82.71	61.18	71.29	65.62	39.88	52.43
Distance (km)	388	182	382	185	387	181	393	181
Kick-off time								
During week evening	0.089	0.285	0.056	0.230	0.072	0.258	0.131	0.338
Friday evening	0.128	0.335	0.099	0.299	0.199	0.400	0.094	0.292
Saturday noon	0.302	0.459	0.000	0.000	0.314	0.464	0.539	0.499
Saturday afternoon	0.172	0.377	0.513	0.500	0.005	0.071	0.030	0.170
Saturday evening	0.049	0.216	0.103	0.304	0.056	0.230	0.000	0.000
Sunday noon	0.151	0.358	0.007	0.086	0.309	0.462	0.140	0.348
Sunday afternoon	0.075	0.263	0.155	0.362	0.044	0.206	0.034	0.181
Sunday evening	0.032	0.176	0.067	0.250	0.000	0.000	0.030	0.170

The dataset comprises 5,660 matches, including 1,755 from both the first and second divisions, and 2,150 from the third division.

away fans — equivalent to 8% of the crowd. In contrast, the *2. Bundesliga* and *3. Liga* reported lower average attendances of 23,400 and 8,800 respectively, with corresponding away fan figures of approximately 2,100 and 800 per match. Although absolute numbers of away fans are highest in the first division, the relative share of guest supporters increases slightly in the lower leagues, rising to 9% in the second division and nearly 11% in the third. Notably, while on average away fan numbers are highest in the first division, several clubs outside the top flight demonstrate very strong traveling support. For instance, *Dynamo Dresden* averaged around 2,400 away fans per game during their *3. Liga* campaigns between 2022 and 2025, exceeding the away fan turnout of a number of first division clubs.

While away fan attendance reflects strong supporter engagement, it is also subject to structural limitations. Most importantly, stadium architecture and ticketing policies restrict the number of traveling fans that can be accommodated. Across all divisions, approximately 12% of a stadium’s capacity is typically reserved for away supporters. Though this allocation is not an absolute ceiling as away fans can in principle purchase tickets in general seating areas, practical and social constraints often limit this possibility. Access to these tickets is typically easier for home supporters, who may benefit from priority booking or club memberships. Moreover, sitting among home fans is less attractive for

many traveling supporters, as it offers a diluted match day experience and potentially uncomfortable “mixed” conditions.

While these factors can limit away attendance, they do not always act as binding constraints as the away sections are not fully utilized in a significant number of matches. On average, guest sector usage stands at 65%, with notable variation across leagues: 83% in the *1. Bundesliga*, 71% in the *2. Bundesliga*, and just 40% in the *3. Liga*. These figures imply that in many cases, more away fans could have attended if desired, as capacity was not the binding constraint. In fact, out of all observed matches, guest fan capacity was not fully utilized in 3,614 games. This was the case in approximately 57% of matches in the top division, and even more frequently, 67% of games, in both the second and third divisions. At the same time, the data reveals that capacity limits can be and are sometimes exceeded. In 1,313 matches, guest capacity usage surpassed 100%, indicating that away fans successfully accessed tickets beyond the designated allocation.

Across all divisions, fans traveling to support their club away from home see their team win in approximately 30% of matches. The probability of a home team victory is notably higher at 43%, resulting in a 57% likelihood that the away team either wins or draws. These outcome probabilities vary only slightly across divisions: the away win rate ranges from 29% to 31%, while the probability of an away team avoiding defeat remains stable at around 56% to 57%. This home advantage is also reflected in goal statistics. Overall, home teams score an average of 1.61 goals per match, compared to 1.31 goals by away teams. This amounts to an average difference of 0.30 goals per match, or roughly 23% more goals in favor of the home team. Breaking the figures down by division reveals that the *1. Bundesliga* sees the highest goal production, with average scores of 1.74 for home teams and 1.38 for away teams. Goal counts are slightly lower in the *2. Bundesliga* (1.59 to 1.30) and lowest in the *3. Liga* (1.52 to 1.27). This also applies to the average goal differential, which declines slightly with each tier: 0.36 in the top division, compared to 0.29 and 0.25 in the second and third divisions, respectively, suggesting slightly more balanced competition in the lower leagues.

The average distance that away fans travel to attend matches is approximately 388km, with only minor variation across divisions, ranging from 382km in the *1. Bundesliga* to 393km in the *3. Liga*. Overall, around 18% of all matches involve travel distances of less than 200km, while approximately 30% require journeys exceeding 500km. Travel distances are strongly influenced by a team’s geographic location within Germany and the regional distribution of other clubs within the same division. For example, centrally located teams such as *Rot-Weiß Erfurt* and *Eintracht Frankfurt* benefit from comparatively short average travel distances, both around 290km. Similarly, clubs based in North Rhine-Westphalia, the most densely populated federal state with numerous professional teams, also enjoy shorter travel distances due to the concentration of nearby opponents. In contrast, teams

located on the geographic periphery of the country face considerably longer journeys. Fans of northern clubs such as *Hansa Rostock* and *VfB Lubeck* travel the furthest, averaging up to 580km per away game. Likewise, teams in the far south or east, including *Bayern Munich* and *Union Berlin*, also face substantial average distances of 500km and 480km, respectively.

In contrast to travel distances that remain relatively consistent across divisions, match scheduling varies substantially, with kick-off times deliberately staggered to avoid overlap between leagues. Saturday afternoon is traditionally reserved for 1. *Bundesliga* matches, with four to five games played in this time slot, accounting for approximately 50% of all first-division fixtures. The top match of the week typically takes place on early Saturday evening, comprising around 5% of games. The remaining fixtures in the top tier are distributed across Friday evening (10%), which opens the matchday, and Sunday afternoon (16%) and evening (7%), when two to three matches are usually scheduled. In the second division, Saturday and Sunday noon slots are reserved for most fixtures, with roughly 60% of all 2. *Bundesliga* games taking place during these times. Additionally, one match is typically held on Saturday evening after the conclusion of the first division's game (6%), while two games are played on Friday evening (20%). In the 3. *Liga*, the majority of matches are held on Saturday noon, which hosts approximately 54% of all third-tier fixtures. Sunday noon also sees a notable share, with 14% of matches scheduled at this time. As in the higher divisions, Friday evening often marks the start of the matchday, with about 9% of games kicking off then. Notably, some match days are scheduled for Tuesday or Wednesday evenings during the week.³ While only 6% and 7% of matches in the first and second divisions, respectively, are played during the week, the share is significantly higher in the third division at 13%. This difference is primarily due to the larger number of teams and matches in the 3. *Liga*, which leads to a greater reliance on midweek scheduling.

3 Empirical approach

The following analysis is two-fold. First, I investigate the factors that determine the number of fans who support their team away from home by attending matches in opposing stadiums. After that, I analyze the impact of away fan numbers on match outcomes. Both analyses follow a nearly identical empirical approach, which is based on linear fixed effects regressions that allow to account for unobserved heterogeneity across clubs, divisions, seasons, and match days.

³Starting in 2017, some match days included Monday evening games across all divisions to boost TV revenue, a practice that was discontinued in the 1. *Bundesliga* after the 2021/22 season, and in the second and third tiers by the 2020/21 and 2022/23 seasons, respectively. These games are also counted as "During week evening".

In the first step, I am interested in the effect of street network distance, competitive intensity, recent team performance, and scheduling decisions made by league organizers regarding the day and time of each match on away supporter turnout. Competitive intensity is proxied by the point differential between the home and away teams, taking on negative values if the away team is positioned above the home club, as well as the absolute difference in points between both teams. Recent sporting performance is captured by each club's current position in the league table, the number of wins over the past five matches, and whether the team was promoted or relegated in the previous season. I consider both the form of the away team and the performance of the home team, as each may influence the willingness of fans to travel. Monetary factors such as ticket and beer prices are not included in the analysis because no reliable data for the entire study period is available. However, I regard them as secondary influences since prices tend to vary only modestly within each division and thus do not meaningfully affect the overall cost of attending one away match over another. For example, during the 2024/25 season in the *1. Bundesliga*, the price of a half-liter of beer ranged from €4.50 to €5.50, while tickets for standing areas were typically priced between €14 and €18.⁴

To examine the determinants of away fan attendance, I estimate the following fixed effects regression:

$$Z_{ijltd} = \beta_1 \cdot D_{ij} + \beta_2 \cdot C_{ijltd} + \beta_3 \cdot A_{iltld} + \beta_4 \cdot H_{iltld} + \beta_5 \cdot S_{ijltd} + \delta_{il} + \gamma_{jl} + \alpha_s + \mu_d + \epsilon_{ijltd}, \quad (1)$$

where Z_{ijltd} represents the number of guest fans in the match between home team j and away team i in division l and season t on match day d . The number of guest fans depends on the distance to be traveled by the away fans D_{ij} , the match's competitive intensity C_{ijltd} , recent away and home team performances A_{iltld} and H_{iltld} as well as on the day and time S_{ijltd} at which the match is played. δ_{il} and γ_{jl} are away team-division and home team-division fixed effects, which absorb time-invariant differences in team quality, popularity, and stadium and fan base size that may vary by division. Furthermore, α_s is a season fixed effect and μ_d a fixed effect on the match day level to account for temporal dynamics. Standard errors are clustered at the away team level.

To identify the impact of the number of guest fans on match outcomes, I estimate a similar fixed effects regression which is given by

$$Y_{ijltd} = \beta_1 Z_{ijltd} + \beta_2 X_{ijltd} + \delta_{il} + \gamma_{jl} + \alpha_s + \mu_d + \omega_t + \epsilon_{ijltd}, \quad (2)$$

where Y_{ijltd} denotes a match performance measure (e.g. win/loss outcomes or number of goals scored/conceded), and Z_{ijltd} captures the number of guest supporters attending the match. The model includes controls X_{ijltd} for the number of home supporters, travel

⁴Seating tickets are generally more expensive, usually starting at around €30.

distance between the clubs, competitive intensity of the match, and recent form of the away and home teams. Moreover, it incorporates away team-division fixed effects (δ_{il}), home team-division fixed effects (γ_{jl}) as well as season (α_s), match day (μ_d), and kick-off time (ω_t) fixed effects. Standard errors are again clustered at the away team level.

The central challenge in both analyses lies in isolating the effect of interest, the determinants of away support and the impact of away fans on match outcomes, from confounding factors that simultaneously influence both the dependent and explanatory variables. The main threat arises from unobserved differences in club characteristics, such as a team’s historical success, player quality, the size and intensity of its organized supporter base, fan culture, stadium capacity, overall popularity, or the attractiveness of the host city as a travel destination. These attributes are only partially captured by observable indicators such as league standings, membership numbers, or city population. To mitigate this issue, I include fixed effects for both the home and away teams, which control for time-invariant club-specific factors that might otherwise bias the estimation. Moreover, these fixed effects are interacted with division indicators to account for the possibility that a club’s (perceived) attributes vary depending on the division in which it currently competes. Clubs that are promoted or relegated often experience changes in fan engagement, competitiveness, and media attention, which in turn may influence both match outcomes and fan behavior.

In the context of explaining the number of away supporters, the fixed effects adjust for structural advantages or disadvantages across clubs. For instance, *Eintracht Frankfurt* is widely known for its passionate fan culture and benefits from a geographically central location in Germany, resulting in relatively short average travel distances for away matches. Without proper controls, this could upwardly bias the estimated effect of travel distance on away fan attendance. Likewise, high-profile clubs such as *Bayern Munich* or *Borussia Dortmund*, which command large national followings, are frequently scheduled in Saturday evening time slots for television coverage and regularly draw substantial away support. This could confound the effect of kick-off time if not properly accounted for.

In the analysis of match outcomes, the fixed-effects structure accounts for factors that influence both guest attendance and team performance. For example, prominent and successful clubs such as *Bayern Munich* not only travel with large numbers of fans but are also more likely to win matches due to superior squad quality. Failing to control for such characteristics would risk overestimating the impact of away support. To further control for confounding influences, I include a comprehensive set of match-specific variables. These include the geographic distance between clubs and the match’s kick-off time, which not only affect the likelihood of away fan attendance but may also influence player performance via travel-related fatigue or circadian rhythms. I also control for each club’s recent

form and table position to capture variation in momentum and competitive intensity, as well as indicators for promotion and relegation in the previous season, since changes in divisional status may alter both relative team quality and the composition of the fan base. Finally, I include the number of home supporters, as full stadiums may mechanically limit the number of away tickets available and prior studies suggest that a larger home crowd can positively affect team performance (Cross and Uhrig 2023; Fischer and Haucap 2021). By controlling for these factors and applying a rich fixed effects structure, the empirical strategy seeks to isolate the effect of away fan presence and to produce estimates that are robust to latent club-specific or match-specific sources of bias.

4 Determinants of away fan attendance

Table 2 presents the results from estimating Equation (1), using the logarithm of the number of guest fans as the dependent variable. Column 1 shows the estimates for the full sample, while columns 2 to 4 report the results separately for the first, second, and third divisions. The findings indicate that geographic distance between the two clubs is the most important determinant of away fan attendance. On average, an additional 100km of travel reduces the number of away fans by nearly 24%. This substantial effect is largely driven by the third division, where away attendance drops by 32% per 100km. The effect is smaller in the second and first divisions, 23% and 15%, respectively, suggesting that fans of higher-tier clubs are more willing to travel longer distances than those supporting lower-tier teams.

To capture potential non-linearities in the relationship between distance and away fan turnout, I re-estimate Equation (1) using a categorical distance variable. Figure 1 plots the estimated effects relative to matches requiring travel of less than 100km. The results show that at shorter distances, away attendance declines steeply with increasing distance. However, beyond around 400km the marginal effect of distance diminishes. In both the first and second divisions, attendance levels remain relatively stable beyond this point, implying that fans willing to travel 400km are largely undeterred by additional distance. A similar pattern holds in the third division, where the decline in away fan numbers slows considerably after the 400km mark. The stark decline in away fan turnout at shorter distances may be partly explained by rivalry matches and local derbies between geographically close clubs, which tend to attract a large number of away fans.

Similar to travel distance, kick-off time plays a crucial role in determining whether fans attend away games. In columns 1 and 2 of Table 2, the effects of different kick-off times are shown relative to Saturday afternoon, when most 1. *Bundesliga* matches take place. In columns 3 and 4, Saturday noon serves as the reference category, reflecting the typical match time in the second and third divisions. Most coefficients are statistically significant and negative, indicating that matches scheduled outside of the standard Saturday slot at-

Table 2: The determinants of away fan attendance

	Total	1. Bundesliga	2. Bundesliga	3. Liga
Distance (100km)	-0.237** (0.019)	-0.153** (0.022)	-0.226** (0.031)	-0.318** (0.021)
<i>Competitive intensity</i>				
Points difference	-0.004 (0.002)	-0.001 (0.003)	-0.003 (0.004)	-0.009** (0.003)
Abs. points difference	-0.002 (0.002)	-0.002 (0.002)	0.004 (0.003)	-0.003 (0.002)
<i>Away team</i>				
Wins in last 5 games	0.020* (0.009)	-0.001 (0.012)	0.025 (0.016)	0.027 (0.015)
Table position	-0.006 (0.003)	-0.013* (0.006)	-0.001 (0.004)	-0.005 (0.004)
Relegated	0.114** (0.032)	- -	0.047 (0.033)	0.183** (0.042)
Promoted	0.194** (0.040)	0.170* (0.078)	0.116 (0.064)	0.286** (0.088)
<i>Home team</i>				
Wins in last 5 games	-0.004 (0.009)	-0.007 (0.012)	0.005 (0.014)	-0.005 (0.015)
Table position	-0.005 (0.003)	-0.002 (0.006)	-0.005 (0.005)	-0.009* (0.004)
Relegated	0.110** (0.034)	- -	0.128* (0.054)	0.081 (0.044)
Promoted	0.154** (0.027)	0.130** (0.039)	0.126* (0.049)	0.203** (0.048)
<i>Kick-off time</i>				
During Week evening	-0.426** (0.050)	-0.491** (0.085)	-0.301** (0.070)	-0.378** (0.064)
Friday evening	-0.234** (0.038)	-0.110* (0.041)	-0.189** (0.033)	-0.175** (0.040)
Saturday noon	-0.084* (0.039)	- -	- -	- -
Saturday afternoon	- -	- -	0.348** (0.098)	0.068 (0.070)
Saturday evening	-0.041 (0.036)	-0.003 (0.030)	0.027 (0.052)	- -
Sunday noon	-0.129** (0.040)	0.088 (0.127)	-0.099** (0.030)	0.051 (0.040)
Sunday afternoon	-0.090* (0.042)	-0.117** (0.041)	0.096 (0.103)	-0.110 (0.065)
Sunday evening	-0.253** (0.055)	-0.184** (0.050)	- -	-0.243* (0.101)
No. Observations	5,611	1,753	1,753	2,105
Adj. R2	0.878	0.768	0.821	0.855

*All regressions include home team-division, away team-division, season, and match day fixed effects. Standard errors are clustered on away team level (in parentheses). ** and * denote statistical significance at the 1% and 5% level, respectively.*

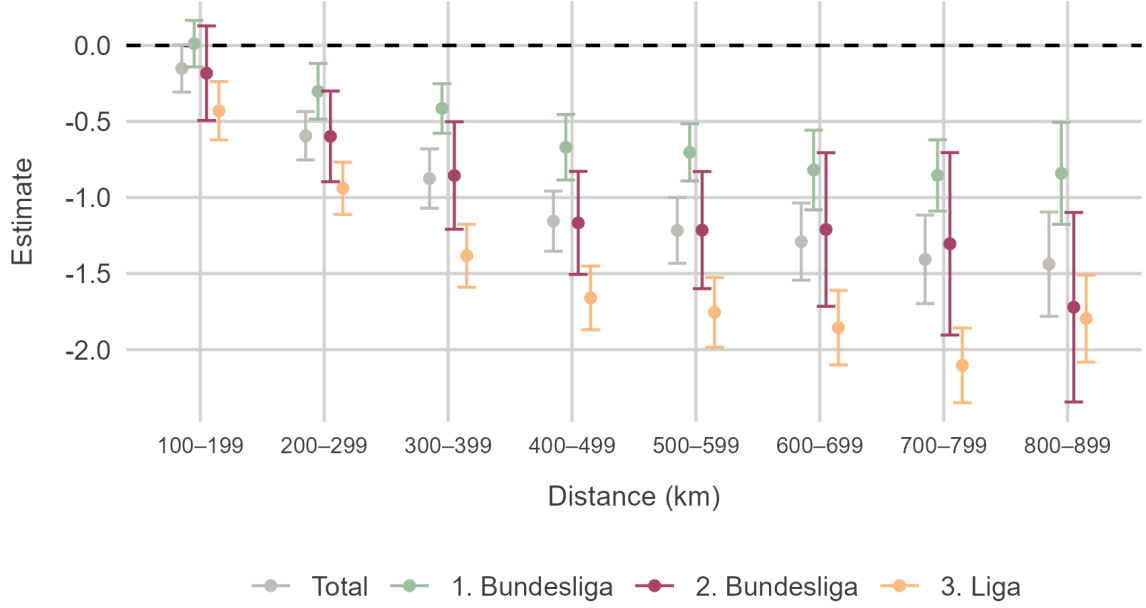


Figure 1: The effect of distance on away fan attendance

The figure displays distance estimates and 95% confidence intervals from Equation (1), using a categorical distance variable in 100km brackets. The reference category is away games requiring less than 100km of travel. The regression includes home team-division, away team-division, season, and match day fixed effects. Standard errors are clustered on away team level.

tract fewer away fans, highlighting a strong preference for Saturday games among traveling supporters. The estimates for Saturday evening are small and statistically insignificant, suggesting that fans are generally willing to travel on Saturday evenings — likely because Sunday is a free day for most people in Germany, allowing for a more relaxed return. In contrast, games scheduled on Sunday lead to substantially lower away attendance. In the *1. Bundesliga*, Sunday afternoon matches see a 12% reduction compared to Saturday afternoon, while in the second division, Sunday noon matches are associated with a 10% decline relative to Saturday noon. The effect is even more pronounced for Sunday evening fixtures, with away attendance dropping by up to 25%, likely due to the inconvenience of late-night travel before the start of the work week. Similarly, games played on Friday evening or during the week are affected by practical constraints. Specifically, Friday night fixtures reduce away attendance by 23% on average, while matches scheduled during the week lead to a 43% decline, likely due to work obligations and other weekday responsibilities that limit fans' ability to travel longer distances in the evening. While fans of *1. Bundesliga* clubs appear somewhat less discouraged by Friday night travel than fans in the *2. Bundesliga* and *3. Liga*, they are particularly sensitive to midweek games, with a 49% drop in away attendance.

Since both geographic distance and kick-off time have been identified as key determinants of away fan turnout, I extend Equation (1) by including interaction terms between distance

and various kick-off times. The corresponding estimates are presented in Table A.2 in the Appendix. The results indicate that the negative effect of distance on away attendance is least pronounced for matches played on Saturday afternoon or noon, highlighting these time slots as the most favorable for traveling fans. For Saturday evening matches, the distance effect becomes slightly more negative, likely due to the inconvenience of returning home late at night. Across all divisions, Sunday matches show significantly stronger distance penalties. Interaction effects range from -6% to -13% per additional 100 km, suggesting that travel becomes more burdensome when matches are scheduled on Sundays, possibly due to work obligations the following day. Distance-related penalties are even more severe for Friday evening and weekday evening matches. On Friday evenings, away fan turnout declines by an additional 5% in the first division, 10% in the second, and 11% in the third division for every 100km traveled, compared to Saturday afternoon/noon. The effect is most pronounced during the week, where each additional 100km leads to a 15–16% larger reduction in away supporter numbers across all divisions, underscoring the compounding impact of long travel and midweek scheduling.

While distance and kick-off time clearly play a central role in determining away fan attendance, competitive intensity and recent sporting performance appear to be of secondary importance after accounting for club-specific and division-level characteristics. Across all divisions, most coefficients related to point differences between teams, the number of wins in the last five matches, and current league standings are statistically insignificant. In contrast, a club’s relegation or promotion in the previous season has a notable and statistically significant impact. On average, away fan turnout increases by approximately 11% following a relegation and by 19% after a promotion. These effects are statistically significant in the first and third divisions. In the second division, while the coefficients remain positive, they are not statistically significant, suggesting that fans in this league are less responsive to changes in league status. The increase in away support following a promotion is intuitive: a successful season often generates renewed excitement and optimism around the club, motivating more fans to travel. The rise in attendance after a relegation, however, is somewhat less expected. One possible explanation is that the adversity of a relegation season may strengthen the sense of community and loyalty among supporters, leading to greater commitment, including at away games. Additionally, away fans seem to respond not only to their own team’s recent history but also to that of the opponent. Matches against recently relegated or promoted home teams attract significantly more traveling supporters — by around 11% and 15%, respectively. This may reflect the appeal of facing a “new” opponent in the division, adding novelty or prestige to the away match experience.

The results remain consistent when alternative measures of away fan engagement are used as dependent variables. Columns 2, 3, and 4 in Table A.1 in the Appendix show the results of Equation (1) using the share of away fans, the away fan capacity usage and the

number of away fans per club member as dependent variable, respectively. Moreover, in column 1, Table A.1 presents the effects of distance, kick-off time, competitive intensity, and recent sporting performance on home fan attendance. The results reveal that after conditioning on home and away teams, home supporter turnout is primarily driven by characteristics of the home team itself. Specifically, attendance is higher when the home team has won more of its recent matches, holds a stronger position in the league table, or was relegated from a higher division in the previous season. Notably, promotion to a higher league does not appear to significantly influence home attendance. In contrast, all coefficients related to the away team’s performance, such as form, league standing, or recent promotion/relegation, are statistically insignificant, suggesting that home fans are generally indifferent to the sporting status of the visiting side. One exception is that matches where the home team is ranked above the away team in the standings see a modest but statistically significant increase in attendance, possibly reflecting higher expectations of a favorable result. Furthermore, while distance is a key factor driving away fan turnout, it also has a modest influence on home fan attendance, albeit to a much lesser extent. The slight negative effect observed may stem from increased interest when geographically close clubs visit, as local rivalries or derby matches tend to generate more excitement and attract larger home crowds. Finally, unlike the substantial impact of kick-off time on away attendance, home supporter turnout appears largely unaffected by scheduling. The statistically insignificant coefficients for alternative time slots, including Friday, Sunday, and midweek evenings, suggest that local fans are more flexible, likely because they face shorter travel distances and less logistical burden in attending matches.

5 Effects of away fan support

Table 3 presents the estimated effects of away fan support on match outcomes: specifically, the probability of winning the away fixture (column 1), avoiding a loss (column 2), and the number of goals scored (column 3) and conceded (column 4) by the away team. The table reports results from three sets of regressions, each using a different measure of away fan support: the total number of away fans (top panel), the share of guest fans in the total crowd (middle panel), and away fan numbers relative to the away section’s capacity (bottom panel). The results suggest that away fan support has a statistically significant and meaningful impact on match performance. Specifically, on average, an additional 1,000 away fans increases the likelihood of winning the match by 2.3 percentage points and the probability of avoiding a loss (win or draw) by 2.6 percentage points. Given an average away win rate of 30%, this corresponds to a 7.5% increase in the probability of winning. Similarly, with an average no-loss rate of 57%, the effect translates into a 4.5% increase in the probability of avoiding defeat.

The rise in the probability to draw or win the away game is mediated by both an increase

Table 3: The effect of away fan support on match outcomes

	Away win	Away no loss	Away goals	Home goals
Guest fans (1,000)	0.0225** (0.0048)	0.0256** (0.0048)	0.0364** (0.0126)	-0.0450** (0.0128)
<i>No. Observation</i>	5,616	5,616	5,616	5,616
<i>Adj. R2</i>	0.067	0.066	0.069	0.088
Share of guest fans	0.0035** (0.0011)	0.0040** (0.0010)	0.0072* (0.0028)	-0.0085** (0.0030)
<i>No. Observation</i>	5,616	5,616	5,616	5,616
<i>Adj. R2</i>	0.069	0.064	0.072	0.091
Guest capacity usage	0.0007** (0.0002)	0.0010** (0.0002)	0.0012* (0.0005)	-0.0021** (0.0004)
<i>No. Observation</i>	5,105	5,105	5,105	5,105
<i>Adj. R2</i>	0.070	0.067	0.068	0.093

*The three panels show the results of three different variants of Equation (2), each using a different measure for away fan support. All regressions include home team-division, away team-division, season, match day, and day-time fixed effects. Standard errors are clustered on away team level (in parentheses). ** and * denote statistical significance at the 1% and 5% level, respectively.*

in the number of goals scored and the number of goals conceded by the away team. Both coefficients are statistically significant and amount to an average increase of 0.036 in the number of goals scored and a simultaneous reduction of 0.045 goals conceded associated with an additional 1,000 guest supporters. Taken together this leads to an improvement of 0.08 in the total score difference between the home and away team. Given an average number of scored and conceded goals of 1.6 and 1.3, respectively, the estimates translate to an increase in the number of scored goals of 2.7% and reduction in the number of goals conceded by 2.8%.

Since the impact of away fan presence may depend not only on their absolute number but also on their strength relative to the home crowd, I estimate Equation (2) using relative measures of away fan support that reflect the balance between visiting and home fan presence. The results indicate a one percentage point increase in the share of guest fans is associated with a 0.33 percentage point increase in the likelihood of an away win, and a 0.39 percentage point increase in the probability of avoiding a loss. Additionally, each percentage point increase in the away fan share is linked to 0.006 more goals scored and 0.009 fewer goals conceded by the visiting team. To put these figures into context, the average match attendance in the sample is approximately 23,500, meaning a one percentage point increase in guest share corresponds to roughly 235 additional away fans.⁵ Scaling

⁵This equality only applies in the case of a sold-out stadium, where an increase in the number of guest supporters necessarily comes at the expense of home attendance. However, in many matches where the stadium is not filled to capacity, a one-percentage-point increase in the share of away fans typically

the effects accordingly, an increase of 1,000 away fans implies a 1.4 percentage point higher probability of winning, a 1.7 percentage point increase in the chance of avoiding a loss, and changes in goals scored and conceded of +0.026 and -0.038, respectively. Similarly, when measuring support by guest fan capacity utilization, a 10 percentage point increase is associated with a 0.7 percentage point increase in the likelihood of an away win, and a 1.0 percentage point increase in the probability of avoiding a loss. The corresponding effects on goals scored and conceded are +0.012 and -0.021. Given that the average away fan section holds 3,200 spectators, this change represents an increase of 320 fans. Scaling the effects to 1,000 additional away fans, the results imply an increase in win and non-loss probabilities of 2.2 and 3.1 percentage points, respectively, along with an improvement in goal difference through +0.038 goals scored and -0.066 goals conceded.

Table A.3 in the Appendix presents the estimates for the remaining variables of Equation (2). The results indicate that the number of home supporters negatively affects the away team's chances. Specifically, on average, an additional 1,000 home fans increase the probability of a home win by 0.76 percentage points and raise the number of goals scored by the home team by 0.017. However, the magnitude of the estimated effects is substantially smaller than those associated with away fan numbers. One possible explanation is self-selection: fans who choose to travel to away matches may be more committed and vocal, providing more intense support than the average home attendee, who faces fewer logistical and financial barriers to attend. In addition, the coefficients for distance are positive, suggesting that away team performance improves with greater travel distance, even though only the effect on the likelihood of not losing the game reaches statistical significance. Finally, the coefficients for recent team form, point differentials, and league standings are generally insignificant, implying that, once general differences between the home and away teams are accounted for, these factors do not meaningfully predict match outcomes.

The results remain consistent when alternative model specifications are employed. Specifically, Table A.4 presents estimates from a logit model for match outcomes and a Poisson regression for goal counts. Using the logit model, an additional 1,000 away fans is associated with a 2.1 percentage point increase in the probability of an away win and a 2.9 percentage point decrease in the probability of a home win. The Poisson regression suggests that 1,000 additional away supporters lead to an increase of approximately 0.33 goals scored and a reduction of 0.045 goals conceded by the visiting team. Furthermore, the main findings hold when varying the fixed effects structure or controlling only for variables that were found to have a significant impact on away fan numbers, as shown in Table A.5.

requires a more than proportional increase in the absolute number of guest supporters, since it also raises total attendance. As a result, interpreting estimated effects of an increase in the away fan share in terms of changes in fan numbers tends to yield upward-biased results.

Table 4: The effect of away fan numbers on match outcomes by division

	Away win	Away no loss	Away goals	Home goals
<i>1. Bundesliga</i>				
Guest fans (1,000)	0.023** (0.008)	0.028** (0.007)	0.049** (0.016)	-0.064** (0.020)
<i>No. Observation</i>	1,753	1,753	1,753	1,753
<i>Adj. R2</i>	0.138	0.127	0.126	0.156
<i>2. Bundesliga</i>				
Guest fans (1,000)	0.016* (0.006)	0.019** (0.006)	0.003 (0.015)	-0.037* (0.018)
<i>No. Observation</i>	1,754	1,754	1,754	1,754
<i>Adj. R2</i>	0.048	0.042	0.039	0.058
<i>3. Liga</i>				
Guest fans (1,000)	0.048** (0.018)	0.049** (0.013)	0.126** (0.036)	-0.026 (0.031)
<i>No. Observation</i>	2,109	2,109	2,109	2,109
<i>Adj. R2</i>	0.041	0.047	0.057	0.034

*The top panel shows the results of Equation (2) for the first division, the middle panel for the second division, and the bottom panel for the third division. All regressions include home team-division, away team-division, season, match day, and day-time fixed effects. Standard errors are clustered on away team level (in parentheses). ** and * denote statistical significance at the 1% and 5% level, respectively.*

Finally, I examine whether the effect of away fan support on match outcomes differs across divisions. The results, presented in Table 4, show substantial heterogeneity. The impact of away supporters is strongest in the third division, where an increase of 1,000 away fans raises the likelihood of an away win by approximately 4.8 percentage points. This relatively large effect likely reflects the generally smaller away crowds at this level, making such an increase a more significant proportional change compared to the higher divisions. In contrast, the effect is smallest in the second division, where the same increase in away fan numbers is associated with only a 1.6 percentage point rise in the probability of an away win. In the first division, the estimated impact is closely aligned with the overall results presented in Table 3, suggesting a 2.3 percentage point increase in the chance of an away victory for each additional 1,000 away supporters. Notably, while in the first division, away support appears to influence both the number home and away goals, in the second division away fans seem to primarily enhance the team's defensive stability, reflected in fewer goals conceded, and in the third division, fan support predominantly provides an offensive boost, increasing the number of goals scored.

6 Conclusion

This study analyzes the determinants of away fan attendance in German professional football over six seasons and three division and assesses the impact of away support on match outcomes. The findings show that the number of traveling fans is primarily shaped by the geographic distance to the away venue and the scheduled kick-off time. Importantly, there are strong interaction effects, as fans respond more sensitively to distance when matches are held at less favorable times, such as during the week, on Friday evenings, or on Sundays. In turn, the results reveal that away fan turnout, measured in both absolute and relative terms, has a significant impact on match outcomes. Specifically, an additional 1,000 away fans increases the likelihood of winning the match by approximately 1.4 to 2.3 percentage points and reduces the probability of a home victory by 1.7 to 3.1 percentage points. Given average away and home win rates of 30% and 57%, respectively, these effects correspond to an approximate 6.5 percent increase in the probability of an away win and a 4.5 percent reduction in the likelihood of a home victory.

These findings imply a comparative advantage for clubs with large and engaged fan bases, as they are able to attract more support at away fixtures, thereby improving their performance. Moreover, the results suggest that traveling fans may exert a particularly strong influence compared to home fans, possibly because those who invest time and money to attend away matches are on average more vocal, coordinated, and supportive. This underscores the potential benefits of fostering fan engagement, and suggests that measures aimed at boosting away attendance, such as subsidized transportation or charter trains for long-distance matches, may translate into improved sporting performance. However, as data on such interventions were not available, their specific impact remains unclear.

These insights also have direct implications for league organizers, who are responsible for match scheduling. The evidence highlights that the timing and location of fixtures can systematically influence team performance by affecting away fan support. Ensuring a more equitable distribution of favorable time slots and minimizing long-distance travel during the week would contribute to fairer competition. For example, while twelve teams in the 2024/25 1. *Bundesliga* season played eleven or more away matches on Saturdays, the most accessible time slot, *FSV Mainz 05* had only seven Saturday fixtures, alongside six Sunday games, three Friday evening matches, and one midweek away trip to Leverkusen. Several of these matches required travel over long distances, including fixtures in Kiel (630km), Berlin (600km), and Bremen (490km).

While the scheduling of matches is complex and must balance multiple factors, including international competitions, safety considerations, and broadcasting demands, the findings of this study underscore the need to consider fan logistics systematically. Overall, the results suggest that the organization of match days can have unintended yet significant consequences for sporting fairness, and that more thoughtful scheduling could enhance

both sportive equity and fan engagement across the league.

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Appendix

Table A.1: Determinants of fan presence using alternative outcomes

	Log home fans	Log guest fan share	Log guest fan quota usage	Log guest fans per member
Distance (100km)	-0.013** (0.003)	-0.203** (0.017)	-0.223** (0.019)	-0.221** (0.020)
<i>Competitive intensity</i>				
Points difference	0.002** (0.001)	-0.005* (0.002)	-0.004 (0.002)	-0.003 (0.002)
Abs. points difference	-0.001 (0.000)	-0.001 (0.002)	-0.002 (0.002)	0.000 (0.002)
<i>Away team</i>				
Wins in last 5 games	0.005 (0.003)	0.005 (0.008)	0.019* (0.009)	0.018 (0.010)
Table position	0.000 (0.001)	-0.009** (0.003)	-0.006* (0.003)	-0.008* (0.003)
Relegated	0.009 (0.016)	0.097** (0.032)	0.107** (0.036)	0.112** (0.033)
Promoted	0.007 (0.011)	0.159** (0.044)	0.190** (0.044)	0.204** (0.045)
<i>Home team</i>				
Wins in last 5 games	0.006* (0.003)	-0.004 (0.009)	-0.009 (0.009)	-0.004 (0.009)
Table position	-0.008** (0.001)	0.002 (0.003)	-0.005 (0.004)	-0.004 (0.004)
Relegated	0.091** (0.011)	0.051 (0.035)	0.142** (0.038)	0.106** (0.035)
Promoted	0.001 (0.008)	0.146** (0.026)	0.152** (0.032)	0.138** (0.029)
<i>Kick-off time</i>				
During Week evening	-0.033 (0.017)	-0.302** (0.048)	-0.422** (0.052)	-0.438** (0.048)
Friday evening	-0.014 (0.011)	-0.161** (0.037)	-0.236** (0.037)	-0.215** (0.038)
Saturday noon	-0.047** (0.013)	0.002 (0.040)	-0.089* (0.040)	-0.081* (0.040)
Saturday evening	-0.011 (0.010)	0.004 (0.037)	-0.044 (0.037)	-0.033 (0.035)
Sunday noon	-0.003 (0.015)	-0.071 (0.041)	-0.158** (0.042)	-0.142** (0.041)
Sunday afternoon	0.018 (0.011)	-0.068 (0.040)	-0.098* (0.043)	-0.086* (0.042)
Sunday evening	-0.014 (0.013)	-0.234** (0.053)	-0.215** (0.053)	-0.216** (0.051)
No. Observations	5,612	5,096	5,086	4,763
Adj. R2	0.963	0.765	0.838	0.846

*All regressions include home team-division, away team-division, season, and match day fixed effects. Standard errors are clustered on away team level (in parentheses). ** and * denote statistical significance at the 1% and 5% level, respectively.*

Table A.2: Differential effects of distance an away fan numbers across kick-off times

	Total	1. Bundesliga	2. Bundesliga	3. Liga
During Week evening x Distance (100km)	-0.252** (0.020)	-0.153** (0.018)	-0.162** (0.023)	-0.163** (0.018)
Friday evening x Distance (100km)	-0.188** (0.018)	-0.053** (0.010)	-0.111** (0.012)	-0.102** (0.010)
Saturday noon x Distance (100km)	-0.179** (0.016)	-	-	-
Saturday afternoon x Distance (100km)	-	-	-0.035 (0.025)	-0.065** (0.017)
Saturday evening x Distance (100km)	-0.095** (0.015)	-0.022** (0.007)	-0.053** (0.013)	-
Sunday noon x Distance (100km)	-0.187** (0.017)	-0.040 (0.039)	-0.089** (0.010)	-0.067** (0.011)
Sunday afternoon x Distance (100km)	-0.110** (0.014)	-0.060** (0.012)	-0.085** (0.030)	-0.094** (0.018)
Sunday evening x Distance (100km)	-0.166** (0.021)	-0.072** (0.013)	-	-0.130** (0.020)
No. Observations	5,611	1,753	1,753	2,105
Adj. R2	0.861	0.719	0.758	0.760

*This table reports the interaction effects between travel distance and kick-off time on away fan attendance, estimated using Equation (1), which includes a distance-by-kick-off time interaction term. All regressions include home team-division, away team-division, season, and match day fixed effects as well as the all other covariates. Standard errors are clustered on away team level (in parentheses). ** and * denote statistical significance at the 1% and 5% level, respectively.*

Table A.3: The effects of all variables on match outcomes

	Away win	Away no loss	Away goals	Home goals
Guest fans (1,000)	0.0225** (0.0048)	0.0256** (0.0048)	0.0364** (0.0126)	-0.0450** (0.0128)
Home fans (1,000)	-0.0027 (0.0019)	-0.0076** (0.0024)	-0.0053 (0.0049)	0.0172** (0.0060)
Distance (100km)	0.0068 (0.0035)	0.0093* (0.0044)	0.0107 (0.0094)	-0.0006 (0.0116)
<i>Competitive intensity</i>				
Points difference	0.0004 (0.0011)	-0.0007 (0.0011)	-0.0026 (0.0027)	0.0036 (0.0034)
Abs. points difference	0.0018 (0.0009)	-0.0014 (0.0010)	0.0022 (0.0025)	0.0011 (0.0025)
<i>Away team</i>				
Wins in last 5 games	0.0094 (0.0077)	0.0132 (0.0070)	0.0287 (0.0175)	-0.0157 (0.0199)
Table position	0.0018 (0.0020)	0.0008 (0.0024)	0.0106 (0.0055)	0.0011 (0.0061)
Relegated	-0.0195 (0.0306)	-0.0156 (0.0231)	-0.0640 (0.0579)	0.0232 (0.0661)
Promoted	-0.0181 (0.0273)	-0.0278 (0.0293)	-0.0060 (0.0754)	0.1424 (0.0883)
<i>Home team</i>				
Wins in last 5 games	-0.0044 (0.0075)	0.0062 (0.0077)	-0.0052 (0.0200)	-0.0360 (0.0222)
Table position	0.0021 (0.0021)	-0.0010 (0.0023)	0.0010 (0.0061)	-0.0007 (0.0062)
Relegated	0.0088 (0.0214)	0.0665* (0.0296)	0.0338 (0.0636)	-0.1187 (0.0776)
Promoted	-0.0351 (0.0290)	-0.0223 (0.0330)	-0.0196 (0.0707)	0.0441 (0.0727)
No. Observations	5,616	5,616	5,616	5,616
Adj. R2	0.071	0.066	0.072	0.091

All regressions include home team-division, away team-division, season, match day, and day-time fixed effects. Standard errors are clustered on away team level (in parentheses). ** and * denote statistical significance at the 1% and 5% level, respectively.

Table A.4: The effects of away fan numbers on match outcomes, using logit models and Poisson regressions

	Away win	Away no loss	Away goals	Home goals
Guest fans (1,000)	0.1150** (0.0251)	0.1343** (0.0316)	0.0244** (0.0079)	-0.0286** (0.0089)
Home fans (1,000)	-0.0151 (0.0111)	-0.0348** (0.0112)	-0.0042 (0.0037)	0.0096** (0.0036)
Distance (100km)	0.0355 (0.0191)	0.0476* (0.0214)	0.0066 (0.0069)	-0.0006 (0.0075)
<i>Competitive intensity</i>				
Points difference	0.0035 (0.0064)	-0.0027 (0.0058)	-0.0020 (0.0021)	0.0024 (0.0021)
Abs. points difference	0.0070 (0.0051)	-0.0054 (0.0050)	0.0005 (0.0019)	-0.0013 (0.0016)
<i>Away team</i>				
Wins in last 5 games	0.0511 (0.0405)	0.0600 (0.0322)	0.0235 (0.0131)	-0.0086 (0.0127)
Table position	0.0094 (0.0110)	0.0038 (0.0110)	0.0084* (0.0042)	0.0007 (0.0038)
Relegated	-0.0908 (0.1505)	-0.0771 (0.1045)	-0.0474 (0.0426)	0.0201 (0.0450)
Promoted	-0.1061 (0.1538)	-0.1234 (0.1303)	-0.0070 (0.0601)	0.0799 (0.0504)
<i>Home team</i>				
Wins in last 5 games	-0.0223 (0.0407)	0.0258 (0.0356)	-0.0036 (0.0155)	-0.0207 (0.0136)
Table position	0.0113 (0.0110)	-0.0044 (0.0109)	0.0007 (0.0046)	-0.0004 (0.0040)
Relegated	0.0575 (0.1151)	0.2927* (0.1323)	0.0308 (0.0507)	-0.0741 (0.0485)
Promoted	-0.1683 (0.1450)	-0.1068 (0.1499)	-0.0121 (0.0506)	0.0289 (0.0482)
No. Observations	5,595	5,614	5,616	5,616
Adj. R2	0.019	0.016	0.009	0.014

*All regressions include home team-division, away team-division, season, match day, and day-time fixed effects. Standard errors are clustered on away team level (in parentheses). Columns 1 and 2 are estimated using a logit model, columns 3 and 4 present estimates from Poisson regressions. ** and * denote statistical significance at the 1% and 5% level, respectively.*

Table A.5: The effects of away fan numbers on match outcomes, using alternative fixed effects

	(1)		(2)		(3)	
	Away win	Away no loss	Away win	Away no loss	Away win	Away no loss
Guest fans (1,000)	0.023** (0.005)	0.026** (0.005)	0.018** (0.004)	0.020** (0.004)	0.022** (0.005)	0.024** (0.005)
Home fans (1,000)	-0.002 (0.002)	-0.008** (0.002)	-0.001 (0.003)	-0.005 (0.003)	- (0.003)	- (0.004)
Distance (100km)	0.008* (0.003)	0.010* (0.004)	0.007* (0.003)	0.010* (0.004)	0.007* (0.003)	0.010* (0.004)
<i>Competitive intensity</i>						
Points difference	0.000 (0.001)	-0.001 (0.001)	0.008** (0.001)	0.007** (0.001)	- (0.001)	- (0.001)
Abs. points difference	0.002** (0.001)	-0.001 (0.001)	0.002 (0.001)	-0.001 (0.001)	- (0.001)	- (0.001)
<i>Away team</i>						
Wins in last 5 games	0.009 (0.008)	0.012 (0.007)	0.015 (0.008)	0.032** (0.008)	0.005 (0.007)	0.013 (0.007)
Table position	0.000 (0.002)	-0.001 (0.003)	0.018** (0.003)	0.018** (0.003)	- (0.003)	- (0.003)
Relegated	-0.011 (0.030)	-0.010 (0.023)	- (0.030)	- (0.023)	-0.015 (0.031)	-0.015 (0.023)
Promoted	-0.030 (0.024)	-0.031 (0.024)	- (0.024)	- (0.024)	-0.020 (0.026)	-0.025 (0.029)
<i>Home team</i>						
Wins in last 5 games	-0.006 (0.008)	0.003 (0.008)	-0.016 (0.008)	0.000 (0.008)	- (0.008)	- (0.008)
Table position	0.003 (0.002)	-0.001 (0.002)	-0.005 (0.003)	-0.015** (0.003)	- (0.003)	- (0.003)
Relegated	0.028 (0.023)	0.066* (0.030)	- (0.023)	- (0.030)	0.012 (0.021)	0.064* (0.029)
Promoted	-0.009 (0.024)	0.004 (0.027)	- (0.024)	- (0.027)	-0.038 (0.029)	-0.024 (0.033)
No. Observations	5,616	5,616	5,616	5,616	5,616	5,616
Adj. R2	0.068	0.067	0.117	0.106	0.070	0.065
Home team	✓	✓				
Away team	✓	✓				
Home team-league					✓	✓
Away team-league					✓	✓
Home team-season			✓	✓		
Away team-season			✓	✓		
Season					✓	✓
Season-match day	✓	✓				
League	✓	✓				
Match day			✓	✓	✓	✓
Day-time	✓	✓	✓	✓	✓	✓

Standard errors are clustered on away team level (in parentheses). ** and * denote statistical significance at the 1% and 5% level, respectively.