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Football Matches and Policing: Evidence from London

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Football matches and policing: Evidence from London

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Abstract

While the relationship between football matches and crime has been well documented, little is known about whether such events also escalate violent interactions between police officers and civilians. This study addresses that gap by analysing use of force data from the Metropolitan Police Service in London to assess the impact of football matches on police behaviour. We find that on match days, the number of use of force incidents increases by an average of 0.772 in the boroughs where games are held. This effect is geographically concentrated around football stadium and is primarily driven by matches involving popular clubs, or those with violent fan bases. We find no evidence of spatial or temporal displacement of incidents. We also find some suggestive evidence that incidents may be more frequent in the case of unexpected losses. We make the case that despite the long-standing association between football and crime, the effects are considerably smaller compared to other popular mass events.

JEL classification: K42, H11, L83

Keywords: Policing; Football; stop and search; police use of force

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1 Introduction

In October 2025 it was announced that supporters of the Israeli football club Maccabi Tel Aviv would not be allowed to travel to Birmingham in the UK to attend a European competition match in November of that year. In the previous month, fans of German club Eintracht Frankfurt had similarly been banned by Italian authorities from attending a European match in Naples. In both cases, the risk of violence and the strain that would be placed upon local policing resources were cited for the significant restrictions on fan travel.

Mass events have long been associated with the risk of crime and anti-social behaviour and, due to the large numbers of people involved, can put police forces under considerable strain (London Assemply and Police and Crime Committee, 2025). Football games are of particular interest, especially in the UK, where English clubs were banned from competing in European competitions for six years in the 1980s due to frequent episodes of violence culminating in the Heysel Stadium disaster in 1985.

As part of the response to this ban, the UK government began collecting statistics on arrests and behaviour at football matches: During the 2024/25 football season, there were 1,932 football-related arrests in England and Wales (Home Office, 2025a) with 2,157 and 2,167 arrests in the two seasons prior.

There are several explanations behind these dynamics. For instance, routine activity theory (Cohen and Felson, 2010) posits that crime occurs in response to the spatial and temporal convergence of potential offenders and victims, and (lack of) law enforcement. Football games can shift both the concentration of people and the allocation of police resources within a city, affecting when and where crime occurs (Marie 2016; Montolio and Planells-Struse 2016, 2019). At the same time, social identity theory (Turner and Tajfel, 1986) points to group dynamics: a strong sense of group belonging can lead to inter-group hostility. This is particularly relevant in football contexts, where violence may be driven by rivalry between football clubs or directed at police officers (Andres, Fabel, and Rainer, 2023). Furthermore, unexpected adverse outcomes of the game have been linked to an increase in gender-based violence (Rees and Schnepel 2009; Card and Dahl 2011; Dickson, Jennings, and Koop 2016; Lindo, Siminski, and Swensen 2018).

Despite the established link between football games and crime, little is known about whether football games also increase violent interactions between police officers and civilians. In this paper, we aim to fill this gap by investigating the potential impact of football games on police use of force. We use data from English Association Football fixtures in London, jointly with data on the use of force by the Metropolitan Police Service (Metropolitan Police Service, 2023). These are detailed administrative and high-frequency records of police use of force events across all 32 London Boroughs, from April 2017 to the present.

This is an important and timely question. Police-civilian interactions shape public perceptions and trust in law enforcement (Jefferson and Walker 1993; Weitzer and Tuch 2005; Brunson and Miller 2006; Sharp and Atherton 2007; Tankebe 2013; Miller and D'Souza 2016; Slocum and Wiley 2018; Braga, Brunson, and Drakulich 2019; Brunson and Miller 2006), particularly in cases involving excessive or biased use of force (Weitzer 2002). Most of the evidence focuses on the US and killings by the police, e.g. the George Floyd murder in the summer of 2020. Evidence

is mixed. Some studies (Desmond, Papachristos, and Kirk 2016; Wright 2021; Ang, Bencsik, Bruhn, and Derenoncourt 2023) document a reduction in civilian engagement with the police, while others (e.g. Cohen, Gunderson, Jackson, McLachlan, Clark, Glynn, and Owens 2019; Zoorob 2020) find no effect. These occurrences are extremely rare in the UK by comparison. For instance, recent evidence suggest that circa 30,800 people were killed due to police violence between 1980 and 2018 (Collaborators et al. 2021), and that on average 1,000 people fell victims of the police between 2017 and 2022 (Mapping Police Violence, 2023). However, this figure is only 3.5 deaths per year in England and Wales between 1990 and 2023 (INQUEST, 2023).

To date, the only study exploring the link between police violence and trust in law enforcement in the UK is Braakmann (2025a), which finds that crime reporting and clearance rates fell in predominantly Black and Asian neighbourhoods, following the fatal shooting of Chris Kaba in London on 5 September 2022. This effect is stronger in months with more frequent use of force. The findings are driven by actual under-reporting, as opposed to a decrease in criminal activity.

Bridging the literature on the effects of football matches and that on police violence, this study finds that on match days, football matches lead to an increase of 0.772 incidents involving police use of force in the areas where the match took place. The effect is concentrated around stadia. Our results are robust to a series of diagnostics meant to identify the presence of spatial or temporal spillovers. We find that football matches do not simply displace anti-social or criminal behaviour from neighbouring areas due to the inflow of people. Rather, these are criminogenic events, as it is demonstrated by stronger effects for matches involving popular clubs or those with violent fan bases. We also find some suggestive evidence supporting the Frustration-Aggression Hypothesis (see Card and Dahl 2011, among others), whereby the effects are larger in the case of unexpected losses.

Despite the attention drawn to the link between football and crime, we find that such an effect is limited in magnitude, when considered in terms of the average attendance to these events, i.e. less than one episode per average attendance of 37,000, and compared to other mass events. For instance, in the three years leading up to the Covid-19 pandemic, major UK cultural festivals recorded higher rates of arrests per 10,000 people, i.e. Creamfields, 23.67; Notting Hill Carnival, 3.76; Glastonbury, 3.10; Reading, 1.72 and Ascot, 0.32 (Statista, 2019). For Premier League football games, this is approximately 0.2 incidents per 10,000 people.

This paper is structured as follows. section 2 describes the data, while section 3 presents the econometric framework. Section section 4 discusses the results, and section 5 concludes.

2 Data

Our use of force data is sourced from the Metropolitan Police Service, with records beginning in April 2017. It provides detailed information on each instance of force used by police officers on individual subjects across the 32 boroughs of London.[1] The dataset includes variables such as the date and time of the incident, location type (e.g., sports or event stadium, public transport), subject behaviour (e.g., compliant, aggressive resistance), whether the officer was assaulted or

[1]The 32 London boroughs are the equivalent of local authorities elsewhere in the UK.

injured, the officer's tactics (e.g., non-compliant handcuffing, ground restraint), outcomes (e.g., hospitalisation, injury), and the subject's ethnicity (e.g., Asian, Black, White).

We construct a daily borough-level panel dataset of use of force incidents and merge it with English football match data obtained from englishfootballleaguetables.co.uk and soccerbase.com. Our sample includes league matches from the Premier League (top division) down to National League (the fifth division). For our main analysis, we exclude the period from March 2020 to July 2021 when football matches were affected by COVID-19 lockdowns.[2]

Our main dependent variable is the daily count of use-of-force incidents, measured at the officer–subject level. For example, an incident involving two officers and one subject would be recorded as two separate uses of force. This approach provides a more accurate measure of total force deployment, which is central to our aim of assessing the impact of football matches on violent interactions between civilians and police — a costly public outcome.

Beyond estimating the effect on total use of force, we examine how football matches influence the location of incidents, subject resistance and police injuries, types of force used, subject injuries, and ethnic disparities. Specifically, we construct daily borough-level counts of force incidents by location (e.g., stadiums, public transport, open ground, pubs, and other areas). We also define daily counts for incidents involving different levels of subject resistance (any resistance, heavy resistance), and officer outcomes (assaulted, injured, intentionally injured, severely injured). For the type of force, we track use of compliant and non-compliant handcuffing, unarmed force, and equipment. Lastly, we include outcomes such as subject injuries (any injury, severe injury, hospitalisation), and disaggregate use-of-force incidents by ethnicity (White, Black, and Asian subjects).

Our primary treatment variables are indicators of football match occurrences. Within our sample, 17 London boroughs host football clubs included in the analysis, with some boroughs accommodating multiple clubs. For instance, the Borough of Hammersmith and Fulham is home to Chelsea, Fulham, and Queen's Park Rangers. We categorise matches into three groups: Premier League (top division), Championship (second division), and "other matches," which include third to fifth-tier league fixtures and domestic cup competitions. For each category, we construct a daily, borough-level binary variable denoting whether a football match occurred in that borough on a given day.

According to our data, half of the games occur on Saturday, with nearly half of these being from leagues lower than the second division (Championship). Sunday games, on the other hand, account for about 11% of all football games, with 67% of these being Premier League matches (see Figure A1).

To assess how different match outcomes affect use of force, we define borough-level binary variables for home win and home loss, indicating whether the home team in that borough won or lost on a given day. We also investigate whether the expectedness of these results influences police behaviour. Football league matches can end in a home win, draw, or home loss. In a

[2]The COVID-19 pandemic led to the suspension of the Premier League season on 13 March 2020, with matches resuming behind closed doors on 17 June under strict medical protocols. The 2020/21 season continued mostly without fans, except for brief periods in December 2020 and May 2021 when limited spectators were allowed. In the 2021/22 season, the stadiums reopened completely(Premier League, 2020).

perfectly balanced match, the home win probability would be approximately 33.33%, meaning that home win (loss) are relatively expected (unexpected). To measure this, we calculate the home win probability for each league match using Bet365's pre-match odds for a home win, draw, and away win, adjusted for the bookmaker's over-round. We then classify home wins and losses separately into three probability bands: 0.25 or less, between 0.25 and 0.55, and above 0.55.

In terms of football match exposure, our sample includes 683 borough-days with one Premier League match, 384 borough-days with more than one Championship match (including 39 with exactly two matches), and 995 borough-days with one "other" match.

3 Methodology

We want to estimate the effect of football matches on police use of force. Our main specification is:

$$F_{it} = \alpha_0 + \beta_1 P_{it} + \beta_2 C_{it} + \beta_3 Cup_{it} + \beta_4 O_{it} + \gamma_i + \delta_t + \varepsilon_{it} \tag{1}$$

where F_{it} denotes the number of police use of force incidents in borough i on day t, which serves as the dependent variable. The variables P_{it}, C_{it}, Cup_{it} and O_{it} are binary indicators for whether at least one Premier League, Championship, Cup (FA Cup or League Cup) or other football matches, respectively, occurred in borough i on day t. The term γ_i captures borough fixed effects, i.e. time-invariant local characteristics which may drive anti-social behavior, while δ_t accounts for day fixed effects (e.g., January 1st 2018, December 25th 2017), i.e. day-specific factor which are likely to drive anti-social behaviour and police deployment. For instance, a large body of evidence documents a link between temperatures and an increase in crime (see, e.g. Jacob, Lefgren, and Moretti 2007). Recent evidence from the UK shows that variation in temperature also affects police behaviour (Braakmann 2025b). Day fixed effects δ_t capture time-varying confounders, including temperature and weather conditions, as these exhibit virtually no variation across London Boroughs on a given day (Braakmann 2025b). Finally, ε_{it} is the error term.

Our identification strategy compares areas where at least one football game takes place to areas with no football games on the same day. We envision one main threat to the correct identification of βs, that is, the presence of spatial spillovers onto other areas in the city. For instance, negative spillovers onto no-match areas (e.g., in the form of higher inflows into match areas) may lead to overestimating the true effect of football matches on use of force. Conversely, positive spillovers may lead to underestimated βs, if football matches increase footfall also in contiguous boroughs. We deal with this by estimating a "donut" version of Equation 1 which uses boroughs bordering match-boroughs as treated units, while excluding the latter from the sample. Results and further description are in subsection 4.1. Temporal spillovers are a source of concern too, if football matches merely displaces social interaction (and antisocial beheviour) from other times of the year. We deal with this by running a placebo test where "match areas" are compared to non-match areas on weekends when leagues are interrupted.

4 Results

Table 1 presents the estimates from Equation 1. Column (1) presents the results for overall use of force, whereas columns from (2) to (6) focus on episodes occurring in (or in proximity of) specific locations.

We can see from column (1) that the effect is concentrated within Premier League matches. Our specification indicates that Premier League matches are associated with 0.772 additional use of force incidents. This coefficient is statistically significant at the 5% level. On the other hand, Championship, Cup or Other matches are not linked to an increase in incidents.

Table 1: Matches and places where force is used

	(1)	(2)	(3)	(4)	(5)	(6)
	All UoF	Stadium	Publ. Trans	Outside	Pubs/Bars	Elsewhere
Premier League match	0.772**	0.614***	0.000	-0.036	0.003	0.192
	(0.311)	(0.106)	(0.010)	(0.023)	(0.013)	(0.350)
Championship match	0.307	0.364***	0.010	-0.025*	-0.021	-0.021
	(0.581)	(0.065)	(0.014)	(0.014)	(0.031)	(0.522)
Cup match	0.463	0.320***	0.034*	-0.044	-0.021	0.174
	(0.351)	(0.102)	(0.020)	(0.035)	(0.015)	(0.307)
Other match	-0.348	0.072***	-0.028***	0.003	-0.030*	-0.364
	(0.287)	(0.020)	(0.007)	(0.019)	(0.017)	(0.264)
Observations	75936	75936	75936	75936	75936	75936
Mean Dep. Var.	10.189	0.034	0.107	0.317	0.075	9.657
Borough FE	Yes	Yes	Yes	Yes	Yes	Yes
Daily date FE	Yes	Yes	Yes	Yes	Yes	Yes

*Standard errors adjusted for clustering at the borough level in parentheses. */**/*** denote statistical significance on the 10%, 5% and 1% level respectively.* [1] *Observations are effective observations numbers excluding any singleton combinations of fixed effects.*

To investigate where incidents take place, we leverage information on incident location provided in our data. Column (2) focuses on incidents occurring in the vicinity of stadia, column (3) only includes episodes recorded on public transport, and column (4) instead focuses on incidents recorded outside. Finally, column (5) runs the same exercises but for incidents recorded in bars or pubs, while column (6) focuses on a residual category of locations.

The effect is almost entirely driven by occurrences in the vicinity of stadia. For Premier League games, this amounts to about 0.61 additional incidents, which accounts for circa 80% (0.61/0.772) of the overall effect. Furthermore, places like public transport, open ground, or pubs and bars do not record significant changes in incidents on match day. Finally, boroughs hosting a Premier League match also experience a 0.192 increase in use of force incidents in locations other than those mentioned above, but this effect is not statistically significant at any conventional level.

Similarly, the null effect for Championship, Cup and Other matches in column (1) masks large heterogeneity in the location where the incidents happened. For instance, while no overall change in incidents was detected following Championship matches (column (1)), on average, 0.364 additional incidents occurred around stadia, while fewer incidents were recorded on open grounds, pubs and elsewhere. These reductions, however, are not statistically significant at any conventional level. Furthermore, Cup matches lead to 0.320 more incidents around stadia. Finally, Other matches are associated on average with an additional 0.072 incidents in proximity of stadia hosting them, alongside a reduction in incidents on public transport (0.028), pubs and elsewhere. However, only the reduction around public transport is statistically significant at the 5% level, but this is not large enough to be economically meaningful. Taken together, the results suggest that most of the effect is concentrated around stadia, which is evidence of football matches actually driving the increase in incidents.

4.1 Validating the identification strategy

Table 2 reports a number of robustness and falsification tests to validate our identification strategy. Column 1, the baseline estimates, corresponds to column 1 from Table 1. In all of our specifications, we exclude the period between March 2020 and July 2021, when games were mostly played behind closed doors. In column 2, we estimate the effect of football matches during the COVID-19-induced lockdown, therefore restricting the focus to the seasons between March 2020 and July 2021. We find no evidence of an increase in use of force in this period. If anything, we find some evidence of a symmetric decrease in use of force episodes in Premier League match areas. This is reassuring, as the effects are likely crowd-generated, and unlikely to be picking up something else.

As discussed in section 3, spatial and temporal spillovers are potential threats to our identification strategy. Spatial spillovers, whether positive or negative, onto neighbouring areas, may lead to underestimating or overestimating the true effect of football matches on use of force. First, it could be that large crowds move from non-match-boroughs to match-boroughs on game day, thus increasing the chances of social interactions, anti-social behaviour and interaction with the police in the former, relative to the latter. If that were the case, then our model would overestimate the real effect that football matches have on police-civilian interactions. At the same time, football

matches are likely to increase social interaction in areas other than those with stadia, due to match viewership and related attendance of bars and other public spaces. In that case, these positive spillovers onto neighbouring areas may lead to underestimating the true effect. Finally, temporal spillovers may occur if football matches affect the timing of social interactions, and the increase we observe on game days is offset by reductions when there are no games. After all, most games are played at the weekend, which is when social interaction peak, and so does crime (see Andresen and Malleson 2015 among others).

Table 2: Robsustness and falsification tests

	(1) Baseline	(2) Lockdown	(3) Neighbourhing areas	(4) Off-Season
Premier League match	0.772**	-0.723*		
	(0.311)	(0.367)		
Championship match	0.307	0.686		
	(0.581)	(0.536)		
Cup match	0.463	0.470		
	(0.351)	(0.653)		
Other match	-0.348	-0.260		
	(0.287)	(0.390)		
Premier League match neighbour			-0.160	
			(0.556)	
Championship match neighbour			-0.787	
			(0.638)	
Cup match neighbour			-0.336	
			(0.365)	
Other match neighbour			-0.978	
			(0.810)	
Weekend * Premier League borough				-1.009
				(0.631)
Weekend * Championship borough				-0.579
				(0.434)
Weekend * Other match borough				-0.264
				(0.437)
Observations	75936	16576	35595	47296
Mean of Dep. Var.	10.189	14.495	10.804	10.084
Borough FE	Yes	Yes	Yes	Yes
Daily date FE	Yes	Yes	Yes	Yes

*Standard errors adjusted for clustering at the borough level in parentheses. */**/*** denote statistical significance on the 10%, 5% and 1% level respectively.* [1] *Observations are effective observations numbers excluding any singleton combinations of fixed effects.*

We follow Lindo et al. (2018) in addressing these two issues. For spatial spillovers, we test whether areas that are contiguous to those hosting games experience a change in use of force. We ran the same specification as Equation 1, but for boroughs that border those hosting a game - we also drop the latter from the sample.[3] In other words, we estimate whether boroughs that are close to those with stadia experience any change in use of force on game days, relative to boroughs that are further away. We present the results in column 3 of Table 2. We find that the

[3]In particular, we drop boroughs that hosted at least one game, across all divisions, within the period of analysis.

coefficients are negative and not statistically significant at any conventional level. For Premier League matches, where our main results suggest an increase in use of force, the coefficient is -.160, therefore very small. While small in magnitude and non statistically significant, the negative sign of these coefficients may hint at a displacement effect from non-match to match areas.

We address the issue of temporal spillovers, in column 4 where we use as treatments the interactions between a weekend indicator and three indicators for boroughs that hosted at least one Premier League, Championship or other match, respectively, in the period of our sample.[4] We focus only on days when no matches are played in London, across all divisions. Hence, this is a combination of off-season, i.e. June and July, international breaks, and on-season days where no game is scheduled. The results suggest that boroughs hosting Premier League matches experience a decrease in use of force by 1 episode during weekends when all leagues stop. However, this result is not statistically significant at any conventional level, suggesting that we cannot reject the null hypothesis of no temporal displacement in police-civilian interactions.

4.2 Match outcomes

To investigate how specific match outcomes affect use of force, we re-estimate the regressions from Table 1, replacing the coarse division-level indicators with a set of outcome-specific indicators at the division-outcome level. Specifically, we include indicators for: (i) Premier League (PL) match & home win, (ii) PL match & draw, (iii) PL match & home loss, (iv) Championship or other match & home win, (v) Championship or other match & draw, and (vi) Championship or other match & home loss. The results are presented in Table 3.[5] Column 1 reports effects on overall use of force. Home losses in PL matches are associated with increases in use of force by almost 1 incident. The latter is strongly statistically significant. This suggests that the positive association between PL matches and use of force observed in Table 1 may be driven by home losses. Columns 2 to 6 present location-specific results. Column 2 shows that, unlike the overall pattern, use of force at stadiums is positively associated with all match outcomes —across both divisions— with particularly large coefficients for PL matches. This implies that force at stadiums is not driven solely by one or two specific outcomes. In contrast, Columns 3 to 6 indicate that only certain outcomes are linked to use of force in other locations. For instance, PL home wins and draws are associated with reductions in force used in outside areas, while home wins in Championship or other matches are linked to lower use of force in pubs and on public transport. Importantly, we find no evidence that match outcomes are positively associated with use of force in locations other than stadia.

We also examine how the unexpectedness of match outcomes influences use of force. In this analysis, we replace the outcome-specific indicators at the division-outcome level used in Table 3 with a new set of indicators that capture both the outcome and the pre-match home win probability band, again defined at the division-outcome level. For example, the "home win in PL match" category in Table 4 is now split into three indicators based on the home win probability

[4] Cup matches are played by the same clubs playing in professional league, therefore it is not necessary to specify "Cupa areas" as these will be the same as for the other competitions. We also include boroughs of Brent, where Wembley stadium is located and where FA and EFL cup final stages are played. In addition, nearly 60% of cup games are played at the weekend.

[5] We have no data on bookmakers pre-match odds for Cup games, therefore we do not consider these for this part of the analysis

Table 3: Match outcomes and force used

	(1) All UoF	(2) Stadium	(3) Publ. Trans	(4) Outside	(5) Pubs/Bars	(6) Elsewhere
PL Home win	0.770*	0.615***	0.002	-0.056***	0.005	0.204
	(0.385)	(0.133)	(0.021)	(0.020)	(0.020)	(0.383)
PL draw	0.544	0.596***	0.006	-0.087**	-0.028	0.057
	(0.330)	(0.124)	(0.014)	(0.037)	(0.041)	(0.423)
PL Home loss	0.985***	0.630***	-0.006	0.042	0.024	0.295
	(0.310)	(0.128)	(0.021)	(0.043)	(0.034)	(0.386)
Cham'ship or other Home win	-0.058	0.207**	-0.004	-0.007	-0.039***	-0.216
	(0.402)	(0.080)	(0.018)	(0.026)	(0.014)	(0.341)
Cham'ship or other draw	-0.158	0.090***	-0.035**	0.021	-0.018	-0.217
	(0.317)	(0.029)	(0.016)	(0.026)	(0.025)	(0.272)
Cham'ship or other Home loss	-0.344	0.104***	-0.020	-0.023	-0.016	-0.389
	(0.295)	(0.027)	(0.017)	(0.033)	(0.026)	(0.280)
Borough FE	Yes	Yes	Yes	Yes	Yes	Yes
Daily date FE	Yes	Yes	Yes	Yes	Yes	Yes

*Standard errors adjusted for clustering at the borough level in parentheses. */**/*** denote statistical significance at the 10%, 5% and 1% level respectively.* [1] *Observations are effective observation numbers excluding any singleton combinations of fixed effects.*

before the match: 25% or less, between 25% and 55%, and above 55%. For ease of discussion, we will refer to each of these scenarios as "home team outsider", "close match" and "home team favourites", respectively. In a perfectly balanced match, the home win probability would be approximately 33.33%, meaning that home win (loss) falling within the "above 55%" band are relatively expected (unexpected). At the same time, home wins in the 25-55% band are relatively close (see Figure A2 for a distribution of pre-match predicted home win). The results are presented in Table 4.

Column 1 reports the overall effects on use of force. For Premier League games, a home loss in a close game is associated with an overall increase in incidents by 1.57. Such an increase is even larger following unexpected home wins for Championship or other games (3 more incidents on average). When looking at incidents that occurred in the proximity of stadia, we see an increase in incidents across the board, i.e. no matter the level of pre-match home win probability. However, in the case of home loss for "home team favourites", the coefficient is slightly larger (0.9). This is consistent with the Frustation-Aggression Hypothesis (see Card and Dahl 2011; Lindo et al. 2018; Rees and Schnepel 2009, among others). One caveat is that a many of these categories are based on small counts. For instance, there are only 23 instances of Premier League "home team outsider" wins, and only 36 cases of "home team favourite" loss.

Even when we sum the results across divisions, we only total 44 observations for "home team outsider" wins, and 84 "home team favourite" losses. The results are roughly consistent with those in Table 4, and are reported in Table A2.

Table 4: Match outcomes and force used by home win probability

	(1)	(2)	(3)	(4)	(5)	(6)
	All UoF	Stadium	Publ. Trans	Outside	Pubs/Bars	Elsewhere
PL Home win, ≤0.25 victory	-1.064*	0.396**	-0.065	0.095	-0.049	-1.440***
	(0.621)	(0.181)	(0.045)	(0.174)	(0.050)	(0.469)
PL Home win, >0.25, but ≤0.55 victory	1.369	0.702***	0.034	-0.048	0.023	0.659
	(0.996)	(0.174)	(0.039)	(0.041)	(0.052)	(0.932)
PL Home win, >0.55 victory	0.166	0.498***	-0.005	-0.061**	0.002	-0.269
	(0.312)	(0.145)	(0.020)	(0.024)	(0.025)	(0.405)
PL Home draw, ≤0.25 victory	0.518	0.690***	-0.014	-0.139	-0.054	0.035
	(1.317)	(0.213)	(0.062)	(0.083)	(0.052)	(1.315)
PL Home draw, >0.25, but ≤0.55 victory	0.552	0.656***	0.010	-0.136**	-0.046	0.068
	(0.571)	(0.158)	(0.038)	(0.058)	(0.040)	(0.575)
PL Home draw, >0.55 victory	0.393	0.493***	-0.024	-0.013	-0.008	-0.055
	(1.018)	(0.129)	(0.033)	(0.080)	(0.028)	(0.991)
PL Home loss, ≤0.25 victory	0.693	0.648***	-0.036	-0.025	0.062	0.044
	(0.505)	(0.180)	(0.045)	(0.093)	(0.038)	(0.559)
PL Home loss, >0.25, but ≤0.55 victory	1.567**	0.557***	0.012	0.053	-0.001	0.945
	(0.611)	(0.158)	(0.047)	(0.095)	(0.080)	(0.691)
PL Home loss, >0.55 victory	1.467	0.906***	0.034	-0.142*	-0.048	0.717
	(1.415)	(0.329)	(0.046)	(0.076)	(0.040)	(1.113)
Championship or other Home win, ≤0.25 victory	3.076**	0.605	-0.113***	0.232	-0.033	2.384**
	(1.436)	(0.443)	(0.036)	(0.310)	(0.054)	(1.168)
Championship or other Home win, >0.25, but ≤0.55 victory	-0.228	0.179***	-0.009	-0.024	-0.038**	-0.336
	(0.423)	(0.058)	(0.020)	(0.026)	(0.015)	(0.389)
Championship or other Home win, >0.55 victory	-0.257	0.251*	0.027	0.012	-0.070***	-0.478
	(0.768)	(0.126)	(0.058)	(0.083)	(0.018)	(0.685)
Championship or other Home draw, ≤0.25 victory	-0.842	0.334**	-0.082***	0.171	0.038	-1.305
	(1.062)	(0.122)	(0.021)	(0.196)	(0.075)	(1.089)
Championship or other Home draw, >0.25, but ≤0.55 victory	-0.104	0.088**	-0.033*	-0.039**	-0.016	-0.103
	(0.326)	(0.038)	(0.016)	(0.019)	(0.026)	(0.295)
Championship or other Home draw, >0.55 victory	-0.388	0.053	-0.052	0.222*	-0.058	-0.554
	(0.617)	(0.057)	(0.062)	(0.111)	(0.034)	(0.547)
Championship or other Home loss, ≤0.25 victory	0.858	0.244	0.034	0.006	-0.040	0.614
	(0.732)	(0.254)	(0.055)	(0.059)	(0.046)	(0.699)
Championship or other Home loss, >0.25, but ≤0.55 victory	-0.453	0.075**	-0.034*	-0.023	-0.022	-0.448
	(0.338)	(0.033)	(0.017)	(0.038)	(0.021)	(0.309)
Championship or other Home loss, >0.55 victory	-0.609	0.002	0.007	0.008	-0.027	-0.599
	(1.163)	(0.025)	(0.048)	(0.116)	(0.047)	(1.126)
Mean of dep. var.	10.189	0.034	0.107	0.317	0.075	9.657
Observations[1]	75936	75936	75936	75936	75936	75936
Borough FE	Yes	Yes	Yes	Yes	Yes	Yes
Daily date FE	Yes	Yes	Yes	Yes	Yes	Yes

*Standard errors adjusted for clustering at the borough level in parentheses. */**/*** denote statistical significance on the 10%, 5% and 1% level respectively.* [1] *Observations are effective observations numbers excluding any singleton combinations of fixed effects.*

4.3 Is use of force more prevalent at high-stakes matches or those with larger or more violent fan bases?

In this subsection, we look at heterogeneity by type of match. It is plausible that some type of matches have a stronger effect than others. For instance, derbies, matches between popular clubs, or high-stakes matches such as final stages of a season or cups. The results are presented in Table 5. In column 1 we interact an indicator for "Any match" with a indicator for London derbies; in column 2 we use an indicator for whether a match is played by two "big clubs", i.e. ranking top 10 in popularity based on social media followers (BBC, 2025b); whether both clubs fan bases have totaled a number banning orders in the top 25%, from season 2014/15 (earliest data available); and whether a game had at least one incident. This refers to football-related incidents (in stadia or surrounding areas) for a specific match.[6][7] For the last two, we use Home Office data on football-related arrests and banning orders (Home Office, 2025b). Furthermore, in column 5 we control for whether a match is part of the final stages of either FA or EFL cup, i.e. from quarter finals to the final. Finally, in column 6 we benchmark our results against increases in use of force for a different large event in London: Notting Hill Carnival. The Notting Hill Carnival is an annual Caribbean cultural festival held in the Royal Borough of Kensington and Chelsea during the August Bank Holiday weekend (precisely on August's last Sunday and Monday). It is one of Europe's largest street festivals, showcasing music, dance, and elaborate costumes while reflecting the history and identity of the UK's Afro-Caribbean community. Unfortunately, this has for a long time been associated with anti-social behaviour and crime (BBC 2025a).

[6] Given that a London derby, a "big match" or a match with incidents can only occur when and where there is a match in the first place, this is equivalent to simply controlling for the derby, big match, and incident indicators. For the same reason, the "independent" effect of a derby or an incident, i.e. when no match is happening, cannot be identified.

[7] Top 10 clubs based on popularity, from the most to least popular, are Manchester United, Manchester City, Liverpool, Chelsea, Arsenal, Tottenham Hotspur, Leicester City, West Ham United, Aston Villa and Newcastle.

Table 5: Heterogeneous effects by derby and violent fan bases

	(1)	(2)	(3)	(4)	(5)	(6)
Any match	0.062	0.036	-0.012	-0.169	0.177	0.212
	(0.270)	(0.275)	(0.283)	(0.244)	(0.286)	(0.280)
Match * London Derby	0.861*					
	(0.422)					
Match * Big Match		1.551***				
		(0.529)				
Match * Top 25% Banning orders			1.149***			
			(0.349)			
Match * Incidents				1.042***		
				(0.206)		
Cup Final Stages					1.559	
					(0.995)	
NHC						205.904***
						(1.882)
Observations	75936	75936	75936	75936	75936	75936
Mean of Dep. Var.	10.189	10.189	10.189	10.189	10.189	10.189
Borough FE	Yes	Yes	Yes	Yes	Yes	Yes
Daily date FE	Yes	Yes	Yes	Yes	Yes	Yes

*Standard errors adjusted for clustering at the borough level in parentheses. */**/*** denote statistical significance on the 10%, 5% and 1% level respectively.* [1] *Observations are effective observations numbers excluding any singleton combinations of fixed effects.*

We do not find evidence that derbies are associated with an increase in use of force. However, we do find that both "big matches", those with fan bases with a large number of banning orders and those with at least one reported incident, are associated with an extra 1-1.5 episodes of use of force. These are all statistically significant at the 1% level. We find no evidence that final stages of Cups are driving the results. While the coefficient is roughly in the ballpark as the previous estimates, it is not statistically significant at any conventional level. Overall, this suggests that the increase in use of force observed previously is likely to be driven by "popular", or "dangerous" games - this confirms that the change in the number of incidents is indeed football-related. Finally, in column 6, we include an indicator switching to one for the Borough and days on which the Notting Hill Carnival is held. The estimate suggests an increase by 205 incidents. While this result should be interpreted cautiously due to the small number of observations it is based on (n=12), it is consistent with the average number of arrests recorded across all editions since 2017 (300) (BBC 2025a; London Assembly 2024).

4.4 Additional results

We examine the nature of police-civilian interactions triggered by football matches. Specifically, we investigate whether such events influence: (i) resistance to arrest by the subject; (ii) the use of specific types of police equipment; and (iii) the occurrence of injuries to either the subject or the police officers. To measure these changes, we create variables identifying compliant and non-compliant handcuffing, the use of unarmed tactics and the use of equipment.[8] We also create several variables capturing injuries to the subject (injured, injured severely, hospitalised)

[8] Most police officers in the UK do not carry firearms; therefore, such events are rare.

and the subject's ethnicity. Each variable is a daily count of the incidents falling within each of the categories listed above. These variables capture whether the use of force and its severity change. However, given that each event unfolds based on the interaction between police officers' and civilians' behaviour, we cannot ascertain whose behaviour is the driving force. It could be the case that policing becomes more aggressive around football matches, or aggressive policing could be the result of increased civilian aggressiveness, or any combination of these. The results are reported in Table A3, Table A4 and Table A5. The rise in incidents is largely attributable to more severe forms of force, such as unarmed physical techniques (e.g., restraining holds, strikes or the use of pressure points) and the deployment of police equipment (batons, CS gas, taser, dogs or firearms). We do not find evidence that these interventions are more likely to result in injuries to civilians. Finally, we find that the effect is primarily driven by the use of force against White individuals — aligning with the demographic composition of the typical football fan base.

5 Conclusion

This paper investigates how football matches affect police use of force in London. Using detailed data from the Metropolitan Police Service combined with football fixture information, we show that football matches, particularly Premier League ones, are associated with an increase in police-civilian interactions. On average, match days bring about 0.77 additional incidents in host boroughs, with effects concentrated around stadia. These patterns suggest that the phenomenon is highly localised and event-specific.

The findings reveal that emotional intensity and social identity play key roles: unexpected losses and matches involving popular or historically violent fan bases lead to more confrontations. Although the increase is measurable, it is small relative to the scale of attendance. Indeed, despite the longstanding focus on football and crime, the number of police use of force incidents per 10,000 attendees is far lower than that observed at comparable mass events such as music festivals or cultural gatherings like the Notting Hill Carnival. In short, football matches are criminogenic in a narrow but observable sense — they create conditions under which police–civilian interactions become more frequent and occasionally more forceful, but not to a disproportionate degree.

The findings have clear implications for public order management and policing strategy. They suggest that targeted deployment of resources around stadia on match days — particularly for high-risk fixtures or those where an unexpected loss is likely — could help mitigate spikes in police–civilian confrontations. Importantly, the relatively small number of incidents per 10,000 attendees indicates that, while match-day policing remains essential, football does not pose an exceptional public-order threat compared to other mass events. From a cost–benefit perspective, it would be inefficient to allocate disproportionate resources to football policing at the expense of other large-scale gatherings that exhibit higher risk profiles.

The results also underline the importance of transparency and accountability in police operations around emotionally charged events. The fact that most affected individuals are White reflects fan demographics rather than bias, but sustained public trust depends on consistent professional standards and communication between police, clubs, and communities.

Future research could strengthen and extend these findings in several ways. Finer-grained spatial data, such as geocoded incident locations within boroughs, would enable a clearer understanding of where and when tensions arise. Qualitative insights from officers and supporters could also shed light on the behavioural dynamics behind the quantitative results. Replicating the analysis in other UK cities or abroad would enhance external validity and reveal whether different institutional or cultural settings produce similar effects. Finally, further research might examine the long-term consequences of repeated force deployment at public events for trust in law enforcement, crime reporting, and perceptions of police legitimacy.

In summary, this paper has demonstrated that football matches modestly but consistently influence police–civilian interactions in London. Recognising this relationship allows policymakers and practitioners to design proportionate, evidence-based approaches to public order management that safeguard both safety and public confidence.

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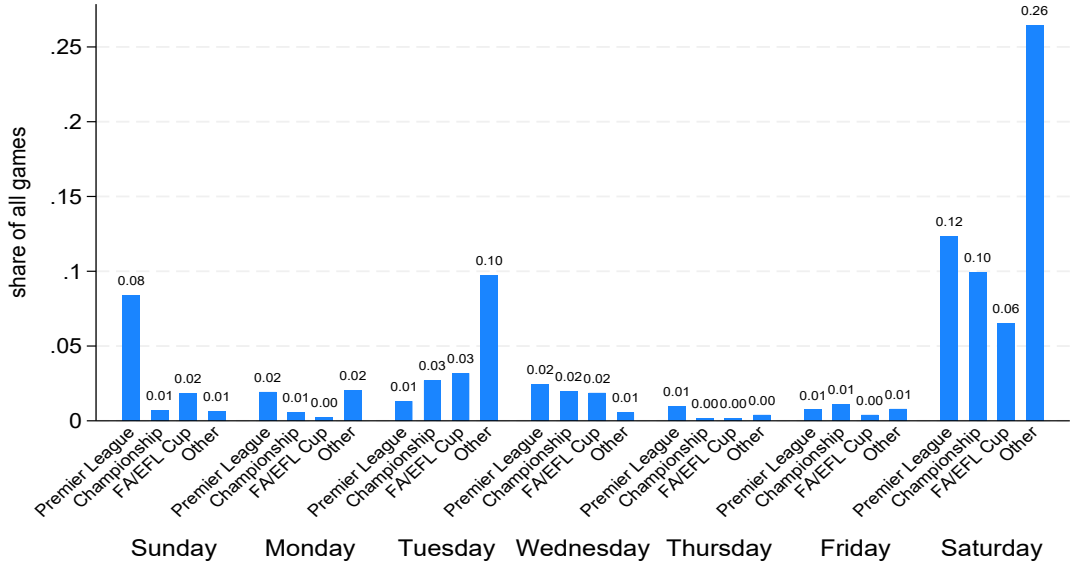
Online Appendices

Figure A1: Games distribution by day of the week and competition



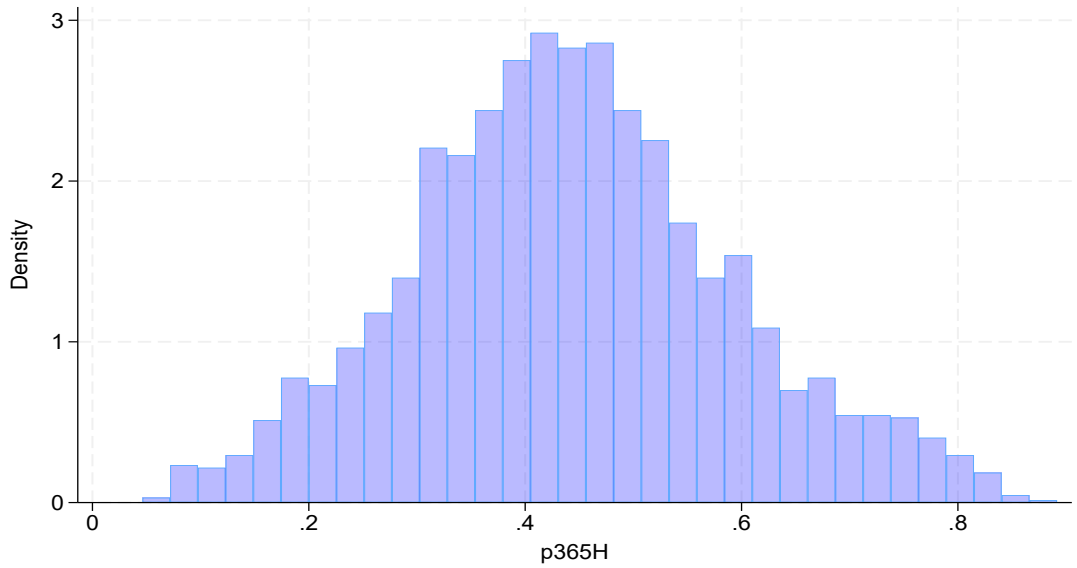
Notes: Games distribution by day of the week and competition. This pertains to the overall count of professional games (Premier League, Championship, League One, League Two, FA/EFL Cup and National League) taking place in London between April 1, 2017 and February 28, 2025

Table A1: Descriptive Statistics: Use of Force and Match Indicators

	N	Mean	St. Dev.	Min	Max
Use of Force	75936	10.190	8.430	0	380
Use of Force (stadium)	75936	0.030	0.380	0	29
Use of Force (public transport)	75936	0.110	0.440	0	13
Use of Force (outside)	75936	0.320	0.780	0	33
Use of Force (pubs/bars)	75936	0.070	0.360	0	11
Use of Force (elsewhere)	75936	9.660	8.090	0	374
Subject resisted	75936	6.430	6.110	0	301
Subject heavily resisted	75936	1.980	2.750	0	127
Police assaulted	75936	0.420	0.860	0	32
Police injured	75936	0.180	0.570	0	15
Police injured (minor)	75936	0.140	0.460	0	11
Police injured (severe)	75936	0.010	0.080	0	2
Tactic: compliant handcuff	75936	5.110	4.340	0	142
Tactic: non compliant handcuff	75936	2.350	2.600	0	122
Tactic: unarmed	75936	3.370	3.980	0	201
Tactic: equipment used	75936	1.010	1.570	0	64
Subject injured	75936	0.290	0.710	0	25
Subject severely injured	75936	0.010	0.120	0	8
Subject hospitalised	75936	0.460	0.990	0	18
Subject: White	75936	4.230	4.040	0	136
Subject: Asian	75936	1.290	2.000	0	46
Subject: Black	75936	3.720	4.570	0	277
Premier League match	75936	0.010	0.100	0	1
Championship match	75936	0.010	0.070	0	1
Other match	75936	0.020	0.120	0	1
FA/EFL Cup match	75936	0.010	0.070	0	1
Home win	75936	0.020	0.130	0	1
Draw	75936	0.010	0.090	0	1
Home loss	75936	0.010	0.100	0	1
Notting Hill Carnival	75936	0.000	0.010	0	1
PL Home win, less 0.25 victory	75936	0.000	0.020	0	1
PL Home win, more 0.25, but less 0.55 victory	75936	0.000	0.040	0	1
PL Home win, more 0.55 victory	75936	0.000	0.050	0	1
PL Home draw, less 0.25 victory	75936	0.000	0.020	0	1
PL Home draw, more 0.25, but less 0.55 victory	75936	0.000	0.030	0	1
PL Home draw, more 0.55 victory	75936	0.000	0.020	0	1
PL Home loss, less 0.25 victory	75936	0.000	0.030	0	1
PL Home loss, more 0.25, but less 0.55 victory	75936	0.000	0.030	0	1
PL Home loss, more 0.55 victory	75936	0.000	0.020	0	1
Cham'ship or other Home win, less 0.25 victory	75936	0.000	0.010	0	1
Cham'ship or other Home win, more 0.25, but less 0.55 victory	75936	0.010	0.080	0	1
Cham'ship or other Home win, more 0.55 victory	75936	0.000	0.040	0	1
Cham'ship or other Home draw, less 0.25 victory	75936	0.000	0.020	0	1
Cham'ship or other Home draw, more 0.25, but less 0.55 victory	75936	0.000	0.070	0	1
Cham'ship or other Home draw, more 0.55 victory	75936	0.000	0.020	0	1
Cham'ship or other Home loss, less 0.25 victory	75936	0.000	0.020	0	1
Cham'ship or other Home loss, more 0.25, but less 0.55 victory	75936	0.000	0.070	0	1
Cham'ship or other Home loss, more 0.55 victory	75936	0.000	0.020	0	1

Notes: Authors' calculations based on Metropolitan Police and match data.

Figure A2: Home win predicted probability



Notes: Bet365's pre-match odds for home win for all professional games (Premier League, Championship, League One, League Two, FA/EFL Cup and National League) taking place in London between April 1, 2017 and February 28, 2025

Table A2: Match outcomes and force used by home win probability

	(1)	(2)	(3)	(4)	(5)	(6)
	All UoF	Stadium	Publ. Trans	Outside	Pubs/Bars	Elsewhere
Home win, ≤0.25 victory	0.868	0.489**	-0.088***	0.160	-0.042	0.348
	(0.924)	(0.229)	(0.031)	(0.168)	(0.034)	(0.859)
Home win, >0.25, but ≤0.55 victory	0.123	0.299***	0.001	-0.028	-0.024	-0.124
	(0.432)	(0.070)	(0.019)	(0.021)	(0.017)	(0.397)
Home win, >0.55 victory	-0.028	0.393***	0.007	-0.032	-0.027	-0.369
	(0.384)	(0.101)	(0.027)	(0.035)	(0.021)	(0.390)
Home draw, ≤0.25 victory	-0.108	0.525***	-0.045	0.001	-0.012	-0.577
	(0.824)	(0.141)	(0.038)	(0.111)	(0.050)	(0.832)
Home draw, >0.25, but ≤0.55 victory	0.040	0.210***	-0.024	-0.060***	-0.022	-0.065
	(0.268)	(0.069)	(0.017)	(0.021)	(0.023)	(0.251)
Home draw, >0.55 victory	-0.040	0.255***	-0.039	0.109	-0.035*	-0.330
	(0.669)	(0.080)	(0.029)	(0.069)	(0.019)	(0.626)
Home loss, ≤0.25 victory	0.783*	0.506***	-0.009	-0.014	0.023	0.277
	(0.390)	(0.141)	(0.043)	(0.057)	(0.036)	(0.348)
Home loss, >0.25, but ≤0.55 victory	-0.016	0.186***	-0.023	-0.006	-0.018	-0.155
	(0.342)	(0.060)	(0.019)	(0.037)	(0.025)	(0.311)
Home loss, >0.55 victory	0.217	0.356**	0.019	-0.053	-0.038	-0.067
Mean of dep. var.	10.189	0.034	0.107	0.317	0.075	9.657
Observations[1]	75936	75936	75936	75936	75936	75936
Borough FE	Yes	Yes	Yes	Yes	Yes	Yes
Daily date FE	Yes	Yes	Yes	Yes	Yes	Yes

*Standard errors adjusted for clustering at the borough level in parentheses. */**/*** denote statistical significance on the 10%, 5% and 1% level respectively.* [1] *Observations are effective observations numbers excluding any singleton combinations of fixed effects.*

Table A3: Matches, subject resistance and police injuries

	(1)	(2)	(3)	(4)	(5)	(6)
	Subject resisted	Subject resisted heavily	Police assaulted	Police injured	Police injured intentionally	Police severely injured
Premier League match	0.551**	0.267*	0.050*	-0.009	0.025	-0.004
	(0.256)	(0.135)	(0.028)	(0.018)	(0.024)	(0.002)
Championship match	0.633	0.327*	0.073	0.034	0.071**	0.004
	(0.448)	(0.190)	(0.062)	(0.036)	(0.029)	(0.008)
Cup match	0.290	-0.007	0.024	-0.003	0.016	0.007
	(0.328)	(0.166)	(0.036)	(0.027)	(0.030)	(0.007)
Other match	-0.345	-0.130	-0.019	-0.008	-0.009	-0.004**
	(0.221)	(0.103)	(0.022)	(0.016)	(0.014)	(0.002)
Mean of dep. var.	6.431	1.977	0.421	0.180	0.144	0.006
Observations[1]	75936	75936	75936	75936	75936	75936
Borough FE	Yes	Yes	Yes	Yes	Yes	Yes
Daily date FE	Yes	Yes	Yes	Yes	Yes	Yes

*Standard errors adjusted for clustering at the borough level in parentheses. */**/*** denote statistical significance on the 10%, 5% and 1% level respectively.* [1] *Observations are effective observations numbers excluding any singleton combinations of fixed effects.*

Table A4: Matches and types of use of force

	(1)	(2)	(3)	(4)
	Handcuff		Unarmed	Use of equipment
	Compliant	Non-complicant		
Premier League match	0.109	0.165	0.420**	0.221***
	(0.128)	(0.122)	(0.166)	(0.053)
Championship match	-0.189	-0.042	0.478	0.086
	(0.153)	(0.228)	(0.346)	(0.060)
Cup match	0.312**	0.070	0.197	-0.028
	(0.134)	(0.101)	(0.183)	(0.088)
Other match	-0.065	-0.136	-0.238	-0.041
	(0.102)	(0.091)	(0.147)	(0.057)
Mean of dep. var.	5.110	2.352	3.374	1.009
Observations[1]	75936	75936	75936	75936
Borough FE	Yes	Yes	Yes	Yes
Daily date FE	Yes	Yes	Yes	Yes

*Standard errors adjusted for clustering at the borough level in parentheses. */**/*** denote statistical significance on the 10%, 5% and 1% level respectively.* [1] *Observations are effective observations numbers excluding any singleton combinations of fixed effects.*

Table A5: Matches, injuries to and ethnicity of subjects

	(1)	(2)	(3)	(4)	(5)	(6)
	Subject injured	Subject injured severely	Subject hospitalised	White subject	Black subject	Asian subject
Premier League match	0.027*	-0.001	0.025	1.043***	-0.066	-0.226*
	(0.014)	(0.004)	(0.061)	(0.186)	(0.110)	(0.124)
Championship match	0.039	0.011***	0.051	0.614*	-0.141*	-0.158
	(0.065)	(0.002)	(0.054)	(0.346)	(0.071)	(0.174)
Cup match	0.010	0.005	-0.038	0.212	0.014	0.248
	(0.032)	(0.008)	(0.062)	(0.214)	(0.082)	(0.173)
Other match	-0.014	0.001	0.003	0.000	-0.083**	-0.212*
	(0.016)	(0.003)	(0.031)	(0.143)	(0.040)	(0.107)
Mean of dep. var.	0.294	0.009	0.464	4.230	1.287	3.717
Observations[1]	75936	75936	75936	75936	75936	75936
Borough FE	Yes	Yes	Yes	Yes	Yes	Yes
Daily date FE	Yes	Yes	Yes	Yes	Yes	Yes

*Standard errors adjusted for clustering at the borough level in parentheses. */**/*** denote statistical significance on the 10%, 5% and 1% level respectively.* [1] *Observations are effective observations numbers excluding any singleton combinations of fixed effects.*