BAD APPLES:
THE PEER EFFECTS OF VIOLENCE

ABSTRACT: Miguel *et al.* (2011) find a positive relationship between the degree of civil war in a soccer player's home country and the number of yellow and red cards he receives, suggesting that childhood socialization into violence affects future behavior. Intrigued by their work, I decided to determine whether the contagion of violence spreads from groups to individuals and between individuals through analyzing the influences of teammates' background and behavior on the cards received by a single player. My statistical analysis reveals that a team's aggregate aggressive behavior exerts a peer effect on each of its player's actions while other models are insignificant.

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I. INTRODUCTION

One bad apple spoils the whole bunch. Many acknowledge this oft-cited idiom as a universal truth, using it to justify their prejudices against an outgroup—or caution their children against associating with a particular clique. The sheer prospect of falling under someone else's sway is enough to make some people (and countries) retreat into safe, self-contained worlds of their own creation. With respect to international relations, the problem with such a mindset is that it is nearly impossible for states to achieve their aims on their own, necessitating the establishment of institutions that allow them to collaborate for the sake of realizing individual and joint gains. Democratizing countries, for instance, tend to join more international organizations, specifically of the economic and standards-based varieties, in order to overcome commitment issues and set themselves on a trajectory of sustained reform (Mansfield and Pevehouse 2008). Preferential trade agreements have been shown to settle or prevent military conflicts, and increases in bilateral trade reduce sanctioning behavior (Hafner-Burton and Montgomery 2008), but this does not mean that cooperation between states always leads to positive outcomes for all parties. The same paper found that sanctions are more likely in the event that a potential sanctioner's gross domestic product or centrality in the network of such agreements rises. It is evident that dealings between nations impact their future actions, but

what if it was possible to analyze whether groups of diverse individuals in a common institutional setting modify their conduct in response to the influence of their associates' background and behavior?

This paper executes the proposed analysis in an unconventional manner by probing the purported peer effects of violence in European soccer leagues. My inquiry begins where Miguel, Saiegh, and Satyanath's (2011) paper "Civil War Exposure and Violence" left off. They establish that athletes whose native countries have endured recurrent civil conflict engage in more violent tactics on the pitch and subsequently receive more yellow and red cards, but they do not comment on the effect of such conduct on their teammate's actions. I intend to determine whether a culture of violence (imparted through childhood exposure to armed conflict) and current aggressive behavior (dispersed by way of cognitive and neurological processes) exert a peer effect on an individual's behavior. Those who are skeptical about using professional sports to draw inferences regarding individual political actors should consider that athletic competitions often serve as microcosms for society, acting as the arena in which our national anxieties, passions, and rivalries manifest themselves. According to George Orwell (1945), "Serious sport has nothing to do with fair play. It is bound up with hatred, jealousy, boastfulness, disregard of all rules and sadistic pleasure in witnessing violence. In other words, it is war minus the shooting." An added benefit of examining soccer leagues is that it presents a clear, easily quantifiable measure of behavior, the number of cards a player receives per season.

I surmise that two kinds of peer effects are transferred from team *I* to player *i* and from player *j* to player *i*: the first is the influence of civil war exposure, and the second is of behavior. Empirical analysis reveals a positive, statistically significant relationship between team *I*'s violent conduct and player *i*'s ensuing aggressive actions; the other models were found to be insignificant.

This section sets the stage for the remainder of the paper while section 2 presents a review of the existing literature. Section 3 discusses the theory upon which my hypotheses, found in section 4, are built. Sections 5 and 6 describe my data sets and estimation procedures, respectively. Section 7 interprets my findings, and section 8 concludes.

II. Literature Review

Individuals in group settings bring their personality traits and other aspects of their identity with them, and the aggressive playing styles of some athletes in major European men's soccer leagues bear this out. Miguel *et al.* (2011) uncover a strong, positive relationship between the prevalence of civil conflict in a player's home country and his predilection for violent tactics resulting in yellow and red cards after controlling for factors ranging from player characteristics to league, team, and world region fixed effects. These results suggest a link between growing up in a war-torn environment and behaving aggressively as an adult. One might expect a young man to swear off viciousness after witnessing the horrors of conflict, but Miguel *et al.* (2011) find otherwise: "a history of violence appears to change norms and local 'culture', making violent conduct more socially acceptable, expected, or even desirable" (65). Culture is capable of influencing behavior and making an impression that persists even after the individual has relocated to a more stable, peaceful society and is enjoying a relatively comfortable life as a professional athlete, but it remains to be seen whether aggression is confined to those who experienced it as juveniles or transmits to others through the close contact undergone by members of the same group, in this case, teammates. Before we can answer any questions in the following sections of this investigation, a closer look at the literature on peer effects is in order.

Carrell, Malmstrom, and West (2008) studied self-reported academic cheating in United States military service academies, and their work revealed that greater levels of cheating among peers

increase the probability that an individual college student will cheat, and the diffusion of this practice is compounded by a multiplier effect. A college student who cheated in high school is 13.2% more likely to do so at the post-secondary level and goes on to create 0.47 additional cheaters. These results are attributed to interactions between peers that eventually cause a shift in norms and beliefs held by the initially morally upright pupil (Carrell *et al.* 2008). It is reasonable to anticipate that a similar mechanism is at play within sports teams, especially if they have a high concentration of players from countries with frequent intra-state conflict. Over time, players from comparatively peaceful cultures will become accustomed to and adopt the techniques of their aggressive teammates because their attitudes have evolved to deem violent behavior acceptable. "Peer Effects in Academic Cheating" considered—and rejected—*congestion of enforcement*, the idea that inconsistent execution of the rules encourages individuals to break them, as an alternative explanation. However, this has little applicability to my research since matches are closely monitored by a group of referees. I am interested in what drives athletes to break the rules despite the existence of punishments.

Gould and Kaplan (2011) offer a potential answer. Upon demonstrating that a baseball player's performance, especially with regard to power hitting, significantly improves after being on the same team with Jose Canseco, disgraced outfielder and admitted steroid user, they elucidate why someone would risk his career by engaging in illegal activities. Some workers will overcome social and moral barriers to adopt unscrupulous practices that are thought to enhance productivity when the incentives are strong enough. Prestige, titles, and lucrative contracts are on the line in professional soccer, and there are those who will be inclined to play "dirty" if they believe that it will improve their performance. Like Miguel *et al.* (2011), the authors control for variables they suspect will have an effect on power hitting, including player experience, home ballpark characteristics, team manager's endogenous personnel decisions, managerial quality, coaching quality, divisional pitching and batting quality in a given year, and fixed effects for the individual player, year, and division.

Divisional pitching and batting quality account for the fact that some members on a roster contribute to the team's defense while others ensure that its offense puts runs on the scoreboard.

Skeptics will dismiss the "incentive to imitate" mechanism as the misguided rationalizations of ambitious athletes, but Ingersoll, Malesky, and Saiegh (2013) show that there is some truth to the idea that learning from one another yields benefits on the field. An analysis of the performance of Union of European Football Associations (UEFA) Champions League teams in soccer reveals that teams with a greater degree of cultural diversity (measured by linguistic distance) do better than those that are less so: increasing diversity by one standard deviation results in an increase of 0.12 goals per game. Given that "soccer teams are characterized by a high degree of interdependent worker productivity" (Ingersoll *et al.* 2013, 8), it is in each player's interest to share his culturally-specific knowledge and techniques, thereby introducing "new" methods of interpreting and solving problems. Team wealth, player's market value, total roster value, average player value, and fixed effects in league, year, and team are included as control variables that can influence the amount of diversity on a team. For instance, organizations with more resources are better able to recruit the best competitors from around the world, and acquiring an expensive, international superstar may compel managers to look closer to home in order to fill the rest of their roster. National background, personality, and genetic diversity are among the variables used to measure robustness, and while they do not directly bear on my analysis, it is important for me to consider how measures to expand or limit diversity impinge on team composition, especially since countries like Spain have experimented with "Home Grown" rules which cap the number of foreign players within the domestic league in order to develop national talent. Now that the evidence of peer effects and the process by which they operate is more convincing, it begs asking whether all individuals respond to their associates' influence in an equal manner.

Bayer, Hjalmarsson, and Pozen (2009) suggest that some kinds of players may be more susceptible to peer effects than others. Their study looked into the effect of staying in a juvenile correctional facility, an environment full of other offenders, on recidivism. It found strong evidence of peer effects for certain types of crimes but only among individuals who had prior experience with that specific misdeed; there is "no evidence that exposure to peers with particular criminal histories increases an individual's propensity to recidivate in a crime category in which the individual has no prior experience" (Bayer *et al.* 2005, 28). In addition to the implication that athletes from relatively stable countries will be impervious to the influence of their conflict-scarred teammates, we can predict that players who initially received comparatively fewer fouls will experience an uptick in the number of yellow and red cards they obtain after interacting with their more belligerent colleagues. "Building Criminal Capital Behind Bars: Peer Effects in Juvenile Corrections" offers valuable insights: accounting for the non-random composition of teams and exploring the process of social learning through *stigma*, *reinforcement of addictive behavior*, and *information dispersion* and *network formation* (Bayer *et al.* 2005, 3) are important considerations for my own inquiry.

Many will have trouble believing that peer effects are always present in some capacity, and Guryan, Kroft, and Notowidgdo (2009) are able to affirm their doubts. Their paper "Peer Effects in the Workplace: Evidence from Random Groupings in Professional Golf Tournaments" examines the random assignment of competitors to groups within the first two rounds of Professional Golfers' Association tournaments in order to determine whether a golfer's performance is influenced by the success of his playing partners. Data analysis reveals the lack of a correlation between a golfer's score and the ability, relative or absolute, of his "groupmates;" there is no other indication of the existence of peer effects. While the authors reason that "[w]ithin a playing group, players are proximate to one another and can therefore observe each others' [*sic*] shots and scores…creat[ing] the opportunity to learn from and be motivated by peers" (Guryan *et al.* 2009),

their results should be taken with a grain of salt because golf, unlike soccer, is not a team sport. They also contradict the results of one of the aforementioned studies. Gould and Kaplan (2011) found that a professional setting with strong financial incentives can compel an athlete to cross the line, but Bayer *et al.* (2009) assert that highly-skilled individuals are able to overcome social influences that would otherwise result in peer effects. This contradiction is ripe for exploitation because my research can evaluate if teams are more conducive to peer effects. I posit that the prolonged contact with individuals sharing a common objective creates a setting in which the perceived benefits of learning and motivation are greater and more likely to be realized.

III. THEORY

The existing literature on peer effects is comprised of papers that either confirm or deny their presence in a specific setting, but there is a limited understanding of exactly *how* they operate. Combining theories and evidence from sociology, psychology, and neuroscience, this section presents a possible explanation for the means by which a soccer player from a war-torn nation may inadvertently transfer his aggressive tactics to his teammate.

Throughout life, we are exposed to diverse, innumerable influences that play a role in shaping who we are. Culture, "the distinctive ideas, customs, social behaviour, [*sic*] products, or way of life of a particular nation, society, people, or period" (Oxford English Dictionary), is just one of them, but it deserves special consideration because it makes an outsize portion of the milieu in which individuals live and function. Civil war disturbs the status quo, substituting routine activities with acts of violence that become the "new normal." There are four levels on which a culture of violence is able to develop and persist within civil war-torn countries even after peace accords have been adopted: international, state, collective, and individual (Steenkamp 2005). Archer and Gartner (1976) documented this transformation within states as they found that combatant countries are

more likely to experience increased homicide rates in the five years after the end of hostilities than those that did not engage in fighting. The wartime suspension of censuring aggression leaves citizens believing that such behavior is permissible long after the conflict has ended, but this simplified account does not do justice to the processes that bring about this change within a single person.

Developed by psychologist Albert Bandura in the late-twentieth century, social learning theory (1971) explains human behavior as "a continuous reciprocal interaction between behavior and its controlling conditions" (2). It posits that our actions are informed by life lessons that are learned through both direct experience and observation. Although the latter is a passive process, it allows humans to efficiently accumulate a wealth of information without having to expend much effort or take risks. Social learning theory is far from a generic model; Bandura specifically applies it to aggression, delving into its origins, instigators, and regulators. Hostility, like other behaviors, can be learned vicariously, and given what we know about how society changes after civil war, it comes as little surprise that culture is considered one of the three principal sources of violence (Bandura 1978, 14). Once aggression is internalized, it only takes some provocation to convert it to action. Thwarting the suppression of violent behavior, the *disinhibitory modeling influence* of a teammate who plays dirty can lead a soccer player to consider belligerence permissible, disregard the prohibitions against fouls, and adopt similar tactics. Through witnessing the consequences—be they rewards or rebukes—of others' actions, we gain knowledge that leads us to alter our own in a process known as *vicarious reinforcement*. Observers will perform certain deeds less often once they recognize them as punishable offenses and others more frequently after realizing they will reap a benefit. Nonetheless, "[i]n the case of behavior that is ordinarily disapproved…seeing transgressions go unpunished seems to heighten analogous actions in observers to the same degrees as witnessing models rewarded" (Bandura 1971, 25). *Incentive inducements* are another instigator of aggression. If a player perceives that violent playing techniques bring about an increase in productivity, goals, and wins, he may *self-*

reinforce the behavior through processes ranging from *moral justification* ("Excessively physical techniques are necessary for victory.") to *attribution of blame to victims* ("If he was not in my way, I would not have kicked him in the shin.") and *diffusion of responsibility* ("Everyone else was rough on the field, so my actions were no worse than theirs.").

Social learning theory provides a cognitive account of how behaviors spread, but there is a biological one as well. In the early 1990's, mirror (also known as canonical) neurons were accidentally discovered by University of Parma scientists who noticed that the same F5 neurons of the macaque monkey under observation were activated when it performed different hand movements *and* when it observed an experimenter performing similar hand movements (di Pellegrino *et al.* 1992). The existence of mirror neurons in humans was confirmed in a study—albeit one with a sample size of twenty-one—by Mukamel *et al.* (2010), who found that these cells are dispersed throughout the brain rather than being concentrated within a single region; the overlap between observation and execution neurons demonstrates that the contrary "actions rely on a shared neural substrate" (Sommerville and Decety 2006, 181) and are closely related. This proximity has led some scientists to believe that mirror neurons are responsible for empathy, imitation, and even the development of civilization (Jarrett 2012). According to Oztop *et al.* (2013), mirror neurons are thought "to play a crucial role in transforming visual appearance of objects into motor plans for interacting with them" (43). Social mirroring, attaining social benefits through modeling one's actions after those of another, is one of the components of imitation. It relies on the brain's mirror system, whereas the other, learning by copying, involves advanced cognitive abilities not covered by the mirror system (Byrne 2005). With respect to the "nature versus nurture" debate, it seems that humans are wired to learn from each other and mimic one another's movements.

Theoretically, soccer players hailing from countries that have endured a high degree of civil conflict continue to carry the burden of their childhood experience onto the field, where they play

alongside teammates whose native countries have suffered less. Perceiving that antagonistic tactics lead to improved performance, these athletes are influenced or incentivized to mimic their colleague's playing techniques. They encounter new behaviors, take them on—thereby firing up the neurons in the regions of the brain that control motor skills—and incorporate them into their repertoire, activating those same neurons yet again. Before drawing hypotheses from this knowledge, assumptions must be made and limitations highlighted. I assume that (1) irrespective of the team, league, season or other factors, every player's objective is to win as many games as possible; and (2) on the pitch, players will take whatever steps they deem necessary to improve their team's chances of winning, even if those actions are against the rules of the sport. Bear in mind that independence of units cannot be taken for granted because the influence of teammates on an individual is being studied, and my empirical analysis is weakened by the fact that players are deliberately selected to be members of the club, precluding randomness.

IV. HYPOTHESES

Player *i* is subjected to two different types of influence during on-field interactions with his teammates. The first involves the collective impact of their exposure to (internationalized) internal armed conflict. My suspicion is that greater intensity of this influence, which is also referred to as culture or background, will result in the athlete of interest receiving more cards, bringing us to the first hypothesis.

H_1: Team *I*'s aggregate exposure to civil war exerts a peer effect on player *i*'s behavior.

Teammates' conduct is the second type of influence. Instead of drawing upon the war-torn past that has informed some players' actions, it asserts that aggression which culminates in cards brings an

effect of its own to bear. Once again, player *i* is expected to be issued more cards. This leads to my second hypothesis.

H_2: Team *I*'s aggregate violent behavior exerts a peer effect on player *i*'s behavior.

If teams as a whole are thought to play a role in how each of their players acquits himself throughout a match, then players can be expected to influence each other on a one-on-one level. Applying the previous hypotheses to the dyad composed of the player of interest and his colleague yields:

H_3: Player *j*'s exposure to civil war exerts a peer effect on player *i*'s behavior.

H_4: Player *j*'s violent behavior exerts a peer effect on player *i*'s behavior.

Finally, the interaction between two players is a more targeted "treatment" than the effect of the entire group on one of its members because the influence of a single player is not being diluted by the inclusion of others. Thus, player-to-player peer effects should have larger coefficients than those that are team-to-player.

H_5: Peer effects exerted by player *j* will be stronger than peer effects exerted by team *I*.

V. DATA

Miguel *et al.*'s (2011) data set is modified to meet the needs of this inquiry, which utilizes two data sets: one, monadic, and the other, dyadic. The original data set is comprised of statistics from six UEFA leagues—the supra-national Champions League and the elite national leagues of England,

France, Germany, Italy, and Spain—over the 2004-05 and 2005-06 seasons. ESPN *Soccernet* (now *ESPN FC)* provides data in the identification, violence, player characteristics, player regions of origin, and soccer league variable categories. Computer games *Football Manager, 2005* and *World Soccer Manager, 2006* disclose details about each player's salary and transfer fee. UCDP/PRIO Armed Conflict Data is the source of the civil conflict variables; it presents the number of years each player's home country has endured an "internal armed conflict" or "internationalized internal armed conflict" from 1956 through 2005, but special attention is paid to 1980-2005 because these years overlap with those in which the players matured. The World Bank's Worldwide Governance Indicators and World Development Indicators supply country characteristics such as rule of law (Miguel *et al.* 2011). Nevertheless, not all of these variables ultimately make it into my data sets or estimations.

The dependent variable is the behavior of a given player, *i*, and it is operationalized as the yellow, red, and total cards (yellow cards + red cards) he receives per season. This is a reasonable representation of the variable because the cards are used to either discourage players from continuing to engage in objectionable behavior or sanction them for their conduct, especially if it is excessively bellicose. According to the Fédération Internationale de Football Association (FIFA) Laws of the Game, the first yellow card issued during a match indicates that a player has been "warned that another cautionable offence will lead to send-off," whereas a red card compels the offending athlete to exit the match without being replaced by a teammate (FIFA 2004). Showing "dissent by word or action" and being "guilty of unsporting behavior" are two of the seven offenses that merit a yellow card. The former is straightforward enough, but the latter subsumes numerous violent actions including recklessly—"with complete disregard for danger to, or consequences for, his opponent"—committing an offense that results in a direct free kick and fouling an opponent in order to eliminate the threat of a "promising attack" (FIFA 2004). On the other hand, red cards are

issued for more egregious behaviors including serious foul play ("excessive force or brutality against an opponent when challenging for the ball"), violent conduct ("excessive force or brutality against an opponent when not challenging for the ball"), spitting at an opponent or anyone else, using unacceptable language or gestures, and receiving a second yellow card in the same match (FIFA 2004). Although the yellow card is used to penalize less serious or obviously violent actions, it still serves as a valuable way to measure the incidence and intensity of aggression.

The independent variables are teammates' exposure to civil war and teammates' violent behavior, and both of them are operationalized differently depending on whether the supposed peer effect being investigated is between the team and each of its players or between two athletes. Setting the stage for my empirical analysis requires generating dyads composed of *i*, the player of interest, and *j*, his teammate. This allows me to pair player *i* with every other member of the same team in a given league and season. However, sixteen players were dropped from the data set because they were the sole representatives of their respective teams. Team *I*'s aggregate exposure to civil war is embodied by a monadic spatial effect variable created using Stata command *spmon*, which quantifies the extent to which the interdependence between units has an impact on outcomes (Neumayer and Plümper 2010a); larger values indicate a larger impact.[1] In this case, the years of conflict between 1980 and 2005 in player *j*'s home country are lagged and weighted by the proportion of matches players *i* and *j* have played together.[2] To derive this connectivity variable, the difference in the number of total games played (number of games as a starter + number of games as a substitute) by each individual in the dyad was divided by the greater of the total games played, and the absolute value of this quotient was subtracted from 1. The subsequent values are weighted averages of the

[1] For more information regarding spatial statistical analysis and the *spmon* command, see Neumayer and Plümper (2010b) and Beck *et al.* (2006).

[2] Preferably, the weight would have been the absolute number of matches in which both players participated or the number of minutes spent on the pitch together, but since this information was not available, I had to settle for a noisier alternative.

spatial effect of each teammate's conflict history. This explanatory variable reflects the proposition that a legacy of violence is being transmitted from the group to the individual. Monadic spatial effect variables are also used to represent team *I*'s aggregate violent behavior and the claim that teammates are learning aggressive tactics from each other. The proportion of games played together continues to act as the weight, yet, in this case, yellow, red, and total cards received by player *j* are spatially lagged to generate three separate spatial effect variables upon which player *i*'s corresponding fouls will be regressed. It is worth noting that I do not consider all manifestations of the same soccer club as one and the same club. Instead, a distinction is made between a team participating in its country's national league and the same team participating in the Champions League during a particular season because competing in one as opposed to the other has its own unique pressures and challenges which may result in altering team strategy and style of play to more violent varieties. Furthermore, the composition of the roster can change within and between seasons as new players are signed, veterans retire, and others are loaned or traded to different squads; this has the potential to impact group cohesion. This judgment is justified by the fact that the values of the spatial effect variables vary across league and season. One-on-one peer effects are evaluated without spatial effect variables: player *j*'s civil war exposure and violent behavior are operationalized as the years of conflict in his native country from 1980 through 2005 and the yellow, red, and total cards issued to him, respectively.

An in-depth discussion of the control variables and why they are included is found in the following section, but I would like to point out that averages of the control variables—other than the dummy variables for field position—across members of a team are derived to serve as team *I* controls. Regrettably, player *i* was not excluded during the calculation of these means. Summary statistics (Table 1) of the monadic data set and other tables are presented after the Conclusion.

Those who are interested in the finer points of the data are advised to reference the "Data and Estimation" section in Miguel *et al.* (2011).

VI. Estimation Procedures

Player *i* on a particular team (*t*) in a given league (*l*) during season (*s*) is the unit of analysis. Negative binomial regressions are performed because yellow, red, and total cards constitute count variables. The controls originate from Miguel *et al.* (2011) and are employed in various combinations. Their main independent variable, years of civil war in player *i*'s home country between 1980 and 2005, serves as the most important control in my models: the positive relationship between experiencing conflict and subsequent violent behavior has already been established, and the athlete's own background cannot be ignored as a determinant of his actions. Player's field position is included to account for the dissimilar odds of committing fouls among teammates: forwards and some midfielders are responsible for the team's offense and primary targets for the opposing team, which will try to thwart their advances and induce meting out of cards. Like the authors of "Civil War Exposure and Violence," I omit the goalie position from my specifications.[3] Starting XI players attempt to set the tone for the match and tend to play for longer intervals than their substitutes, necessitating the addition of number of games played as a starter and as a substitute as control variables. Age is considered because younger players may be more aggressive than their older, wiser counterparts and find themselves in disputes with their adversaries or the referee which ultimately lead to reprimands. In the same vein as field position, the number of goals scored serves as a control variable because those who are adept at putting points on the scoreboard draw the attention of their challengers, who seek to gain an advantage at their expense. Superior athletes command higher

[3] In spite of the fact that many goalies received yellow cards (and some were given red cards), Miguel *et al.* (2011) do not explain why they exclude the position from their models. I surmise that it is because goalies tend to stay in the penalty box, and in theory, they should not be engaging in the kinds of techniques that merit being disciplined by the referee.

transfer fees, and the logarithm of this figure, coupled with goals scored, represents player quality. Rule of law within a player's home country is incorporated to capture the extent to which he honors and abides by regulations.[4] Fixed effects for league (λ) and world region (ϱ) are present in all specifications. They address discrepancies in how cards and fouls are called across nations and possible racial/ethnic discrimination by referees, respectively. Whereas Miguel *et al.* (2011) included team fixed effects in some of their specifications, I decided against using them because one of the models addresses team characteristics. Robustly estimated standard errors are clustered by player *i*'s native country. Robustness is verified through the use of zero-inflated negative binomial regressions.

Team-to-Player Model

This model examines both of the ways in which a team purportedly affects the behavior of each of its members. The first measures the collective influence of the violent cultural backgrounds present within team *I*'s roster on the number of cards (yellow, red, or total) received by one of its own, player *i*. The explanatory variable is represented by the weighted average of the spatially lagged years of civil war in a teammate's (player *j*) home country that are linked to the player of interest by the proportion of games the two played together, and it is estimated with individual and team controls. The equations for the specifications employing the former are as follows:

$$\begin{aligned} Yellow\ Cards_{itls} = {} & \beta_0 + \beta_1 Spatially\ Lagged\ Civil\ War\ Years_j + \beta_2 Civil\ War\ Years_i + \beta_3 Position_i \\ & + \beta_4 Starter_{itls} + \beta_5 Substitute_{itls} + \beta_6 Age_{is} + \beta_7 Goals\ Scored_{itls} + \beta_8 Ln(Transfer\ Fee)_{its} \\ & + \lambda_{is} + \rho_{is} + \varepsilon_{itls} \end{aligned}$$

$$\begin{aligned} Red\ Cards_{itls} = {} & \beta_0 + \beta_1 Spatially\ Lagged\ Civil\ War\ Years_j + \beta_2 Civil\ War\ Years_i + \beta_3 Position_i \\ & + \beta_4 Starter_{itls} + \beta_5 Substitute_{itls} + \beta_6 Age_{is} + \beta_7 Goals\ Scored_{itls} + \beta_8 Ln(Transfer\ Fee)_{its} \\ & + \beta_9 Rule\ of\ Law_i + \lambda_{is} + \rho_{is} + \varepsilon_{itls} \end{aligned}$$

[4] In keeping with the estimation procedure employed in Table 2, Column 1 of Miguel e*t al.* (2011), rule of law is not included in the yellow card models.

$$Total\ Cards_{itls} = \beta_0 + \beta_1 Spatially\ Lagged\ Civil\ War\ Years_j + \beta_2 Civil\ War\ Years_i + \beta_3 Position_i + \beta_4 Starter_{itls} + \beta_5 Substitute_{itls} + \beta_6 Age_{is} + \beta_7 Goals\ Scored_{itls} + \beta_8 Ln(Transfer\ Fee)_{its} + \beta_9 Rule\ of\ Law_i + \lambda_{is} + \rho_{is} + \varepsilon_{itls}$$

To account for team *I* characteristics, player *i*'s field position is removed from the equations and player *i* controls are replaced with team averages of the corresponding variables. This allows me to determine the extent to which team performance drives a single player's aggressive actions.

$$Yellow\ Cards_{itls} = \beta_0 + \beta_1 Spatially\ Lagged\ Civil\ War\ Years_j + \beta_2 Civil\ War\ Years_i + \beta_3 \overline{Starter}_{Ils} + \beta_4 \overline{Substitute}_{Ils} + \beta_5 \overline{Age}_{Is} + \beta_6 \overline{Goals\ Scored}_{Ils} + \beta_7 \overline{Ln(Transfer\ Fee)}_{Is} + \lambda_{is} + \rho_{is} + \varepsilon_{Ils}$$

$$Red\ Cards_{itls} = \beta_0 + \beta_1 Spatially\ Lagged\ Civil\ War\ Years_j + \beta_2 Civil\ War\ Years_i + \beta_3 \overline{Starter}_{Ils} + \beta_4 \overline{Substitute}_{Ils} + \beta_5 \overline{Age}_{Is} + \beta_6 \overline{Goals\ Scored}_{Ils} + \beta_7 \overline{Ln(Transfer\ Fee)}_{Is} + \beta_8 \overline{Rule\ of\ Law}_{Ils} + \lambda_{is} + \rho_{is} + \varepsilon_{Ils}$$

$$Total\ Cards_{itls} = \beta_0 + \beta_1 Spatially\ Lagged\ Civil\ War\ Years_j + \beta_2 Civil\ War\ Years_i + \beta_3 \overline{Starter}_{Ils} + \beta_4 \overline{Substitute}_{Ils} + \beta_5 \overline{Age}_{Is} + \beta_6 \overline{Goals\ Scored}_{Ils} + \beta_7 \overline{Ln(Transfer\ Fee)}_{Is} + \beta_8 \overline{Rule\ of\ Law}_{Ils} + \lambda_{is} + \rho_{is} + \varepsilon_{Ils}$$

The second kind of peer effect capable of dispersing from the group to the individual is that of the aggregate behavior of team *I*, which is operationalized as spatial effect variables lagging the fouls received by player *j* and weighting the proportion of games he played with player *i*. The equations incorporating individual controls are found below.

$$Yellow\ Cards_{itls} = \beta_0 + \beta_1 Spatially\ Lagged\ Yellow\ Cards_j + \beta_2 Civil\ War\ Years_i + \beta_3 Position_i + \beta_4 Starter_{itls} + \beta_5 Substitute_{itls} + \beta_6 Age_{is} + \beta_7 Goals\ Scored_{itls} + \beta_8 Ln(Transfer\ Fee)_{its} + \lambda_{is} + \rho_{is} + \varepsilon_{itls}$$

$$Red\ Cards_{itls} = \beta_0 + \beta_1 Spatially\ Lagged\ Red\ Cards_j + \beta_2 Civil\ War\ Years_i + \beta_3 Position_i + \beta_4 Starter_{itls} + \beta_5 Substitute_{itls} + \beta_6 Age_{is} + \beta_7 Goals\ Scored_{itls} + \beta_8 Ln(Transfer\ Fee)_{its} + \beta_9 Rule\ of\ Law_i + \lambda_{is} + \rho_{is} + \varepsilon_{itls}$$

$$Total\ Cards_{itls} = \beta_0 + \beta_1 Spatially\ Lagged\ Total\ Cards_j + \beta_2 Civil\ War\ Years_i + \beta_3 Position_i + \beta_4 Starter_{itls} + \beta_5 Substitute_{itls} + \beta_6 Age_{is} + \beta_7 Goals\ Scored_{itls} + \beta_8 Ln(Transfer\ Fee)_{its} + \beta_9 Rule\ of\ Law_i + \lambda_{is} + \rho_{is} + \varepsilon_{itls}$$

Once again, individual control variables are substituted with team means.

$$Yellow\ Cards_{itls} = \beta_0 + \beta_1 Spatially\ Lagged\ Yellow\ Cards_j + \beta_2 Civil\ War\ Years_i + \beta_3 \overline{Starter}_{Ils} + \beta_4 \overline{Substitute}_{Ils} + \beta_5 \overline{Age}_{Is} + \beta_6 \overline{Goals\ Scored}_{Ils} + \beta_7 \overline{Ln(Transfer\ Fee)}_{Is} + \lambda_{is} + \rho_{is} + \varepsilon_{Ils}$$

$$Red\ Cards_{itls} = \beta_0 + \beta_1 Spatially\ Lagged\ Red\ Cards_j + \beta_2 Civil\ War\ Years_i + \beta_3 \overline{Starter}_{Ils} + \beta_4 \overline{Substitute}_{Ils} + \beta_5 \overline{Age}_{Is} + \beta_6 \overline{Goals\ Scored}_{Ils} + \beta_7 \overline{Ln(Transfer\ Fee)}_{Is} + \beta_8 \overline{Rule\ of\ Law}_{Ils} + \lambda_{is} + \rho_{is} + \varepsilon_{Ils}$$

$$Total\ Cards_{itls} = \beta_0 + \beta_1 Spatially\ Lagged\ Total\ Cards_j + \beta_2 Civil\ War\ Years_i + \beta_3 \overline{Starter}_{Ils} + \beta_4 \overline{Substitute}_{Ils} + \beta_5 \overline{Age}_{Is} + \beta_6 \overline{Goals\ Scored}_{Ils} + \beta_7 \overline{Ln(Transfer\ Fee)}_{Is} + \beta_8 \overline{Rule\ of\ Law}_{Ils} + \lambda_{is} + \rho_{is} + \varepsilon_{Ils}$$

Player-to-Player Model

As alluded to earlier, peer effects can spread between two individuals. The team model utilized spatial statistical analysis in a monadic data set, but an alternative empirical strategy is to generate dyads comprised of player *i* and each of his teammates and regress his fouls on conflict years endured and cards received by his dyadic partner.[5] Player *i*'s characteristics are taken into consideration as control variables, but there are no specifications incorporating player *j*'s attributes because the teammates are not linked to each other via spatial effect variables. Team *I* controls are not factored into the analysis because individual influence is being evaluated. "Years of civil war in player *j*'s home country" as the independent variable provides us with these equations:

[5] The shortcomings of this estimation procedure are discussed in the Conclusion section.

$$Yellow\ Cards_{itls} = \beta_0 + \beta_1 Civil\ War\ Years_j + \beta_2 Civil\ War\ Years_i + \beta_3 Position_i + \beta_4 Starter_{itls} + \beta_5 Substitute_{itls} + \beta_6 Age_{is} + \beta_7 Goals\ Scored_{itls} + \beta_8 Ln(Transfer\ Fee)_{its} + \lambda_{is} + \rho_{is} + \varepsilon_{itls}$$

$$Red\ Cards_{itls} = \beta_0 + \beta_1 Civil\ War\ Years_j + \beta_2 Civil\ War\ Years_i + \beta_3 Position_i + \beta_4 Starter_{itls} + \beta_5 Substitute_{itls} + \beta_6 Age_{is} + \beta_7 Goals\ Scored_{itls} + \beta_8 Ln(Transfer\ Fee)_{its} + \beta_9 Rule\ of\ Law_i + \lambda_{is} + \rho_{is} + \varepsilon_{itls}$$

$$Total\ Cards_{itls} = \beta_0 + \beta_1 Civil\ War\ Years_j + \beta_2 Civil\ War\ Years_i + \beta_3 Position_i + \beta_4 Starter_{itls} + \beta_5 Substitute_{itls} + \beta_6 Age_{is} + \beta_7 Goals\ Scored_{itls} + \beta_8 Ln(Transfer\ Fee)_{its} + \beta_9 Rule\ of\ Law_i + \lambda_{is} + \rho_{is} + \varepsilon_{itls}$$

Finally, cards received by player *i* serves as the explanatory variable.

$$Yellow\ Cards_{itls} = \beta_0 + \beta_1 Yellow\ Cards_j + \beta_2 Civil\ War\ Years_i + \beta_3 Position_i + \beta_4 Starter_{itls} + \beta_5 Substitute_{itls} + \beta_6 Age_{is} + \beta_7 Goals\ Scored_{itls} + \beta_8 Ln(Transfer\ Fee)_{its} + \lambda_{is} + \rho_{is} + \varepsilon_{itls}$$

$$Red\ Cards_{itls} = \beta_0 + \beta_1 Red\ Cards_j + \beta_2 Civil\ War\ Years_i + \beta_3 Position_i + \beta_4 Starter_{itls} + \beta_5 Substitute_{itls} + \beta_6 Age_{is} + \beta_7 Goals\ Scored_{itls} + \beta_8 Ln(Transfer\ Fee)_{its} + \beta_9 Rule\ of\ Law_i + \lambda_{is} + \rho_{is} + \varepsilon_{itls}$$

$$Total\ Cards_{itls} = \beta_0 + \beta_1 Total\ Cards_j + \beta_2 Civil\ War\ Years_i + \beta_3 Position_i + \beta_4 Starter_{itls} + \beta_5 Substitute_{itls} + \beta_6 Age_{is} + \beta_7 Goals\ Scored_{itls} + \beta_8 Ln(Transfer\ Fee)_{its} + \beta_9 Rule\ of\ Law_i + \lambda_{is} + \rho_{is} + \varepsilon_{itls}$$

VII. RESULTS

Miguel et al. *(2011) "Replication"*

The primary "Civil War Exposure and Violence" findings for yellow cards [Table 2, Column 1] and red cards [Table 2, Column 2] are replicated in the monadic data set. Since the authors did not consider the effect of conflict history on total cards [Table 2, Column 3] received by the player

of interest, I employ their red card specification because it controls for rule of law as a determinant of flagrantly aggressive acts. These results are included to function as a point of reference and to facilitate comparisons with my own.

Team I*'s Aggregate Civil War Exposure*

There is little evidence that the collective civil war exposure of a player's peers has an effect on his own behavior. Regressing yellow cards received by player *i* on the spatially lagged years of civil war in player *j*'s home country does not yield a statistically significant relationship—irrespective of controlling for player *i* [Table 3, Column 1] or team *I* [Table 3, Column 2] characteristics. Contrary to my expectations, the coefficients in both cases, -0.000840 (individual controls) and -0.00326 (team controls), are negative, but their extremely small magnitudes make this a trivial matter. All player *i* controls are significant at the confidence levels of 95% or higher, yet among team *I* variables, mean age and mean log of transfer fee are not. Given that neither of these metrics directly influences what happens during a match, this development is not especially remarkable.

Red cards tell a similar story: the coefficient of spatially lagged years of civil war continues to be slight and statistically insignificant, but its sign is positive (0.0164) when accounting for the player's own characteristics [Table 3, Column 3] and negative (-0.00160) when his team's characteristics [Table 3, Column 4] are taken into consideration. Relative to the analogous yellow card specifications, fewer control variables are significant. The number of games in which player *i* was a substitute and the rule of law in his native country do not affect the number of red cards he accrues nor do the averages across the team of the number of games played as a substitute, age, log of transfer fee, and rule of law. The fact that rule of law is insignificant as both an individual and team control is further proof against the presence of a peer effect since this "shared standard of appropriate behavior" (Miguel *et al.* 2011, 64) should also have made a difference in the number of

red cards issued to player *i*. On the other hand, any lack of significance found in these specifications can be attributed to the much smaller quantity of red cards (814) versus yellow cards (12,683).

The findings of the other foul classifications are echoed by those of total cards. Regardless of controlling for player *i* [Table 3, Column 5] or team *I* [Table 3, Column 6] metrics, player *i*'s spatially lagged conflict background is statistically insignificant. Although its magnitude is inconsequential in both instances, the coefficient is positive in the first case (0.000204) and negative in the second (-0.00476). Rule of law in player *i*'s home country is the only insignificant individual control; the rest are significant at 95% or 99% confidence levels. Among the team *I* control variables, mean age and mean rule of law are not statistically significant.

Ergo, I am unable to reject the null hypothesis in favor of the assertion that team *I*'s aggregate exposure to civil war exerts a peer effect on player *i*'s behavior. (H_1).

Team I*'s Aggregate Violent Behavior*

There is evidence in favor of the claim that teammates' collective aggressive actions exert a peer effect on each player in their ranks. Due to negative binomial regression's non-linear nature, discussing spatially lagged cards in terms of their regression coefficients is insufficient. An attempt will be made to supplement these interpretations with discussions of the incidence rate ratios (IRR) and clear, relatable illustrations.

Controlling for player *i* qualities [Table 4, Column 1], there is a positive and statistically significant relationship at the 99% confidence level between the spatially lagged number of yellow cards received by player *j* and the number of yellow cards received by player *i*. Each unit increase in the spatial effect variable leads to a 0.155 increase in the expected log count of yellow cards. The magnitude of this effect is larger than the coefficient of years of civil war in player *i*'s home country (0.00762) observed by Miguel *et al.* (2011) [Table 2, Column 1]. Upon examining years of civil war as

a control variable in the specification controlling for player *i* traits, I find that the coefficient is statistically significant at the 99% confidence level and has increased to 0.00800. The aggregate influence of the team's aggressive actions has a greater impact on one of its players than his exposure to armed conflict, and examining the IRRs demonstrates the extent to which this is the case.[6] Holding other variables constant, a one unit increase in the spatial effect variable drives an almost seventeen percent increase in the yellow cards received per season (IRR = 1.1679), whereas every additional year of civil war in player *i*'s home country, *ceteris paribus*, accounts for close to one percent of the increase (IRR = 1.00803).[7] The other control variables are statistically significant at the 95% and 99% confidence levels. This result is robust to using zero-inflated negative binomial regression as the estimator. The coefficient of the spatial effect variable remains significant at the 99% confidence level but drops to 0.0738 [Table 5, Column 1]. Player *i*'s years of civil war falls in significance to the 95% confidence level and in magnitude to 0.00529. On the following page, Figure 1 displays the number of per-season yellow cards the average player in the data set is expected to receive should the specified spatial effects be exerted upon him.

[6] Incidence rate ratios are reported in the appendix.
[7] The most important drivers in the increase in cards, irrespective of the classification, are the field positions.

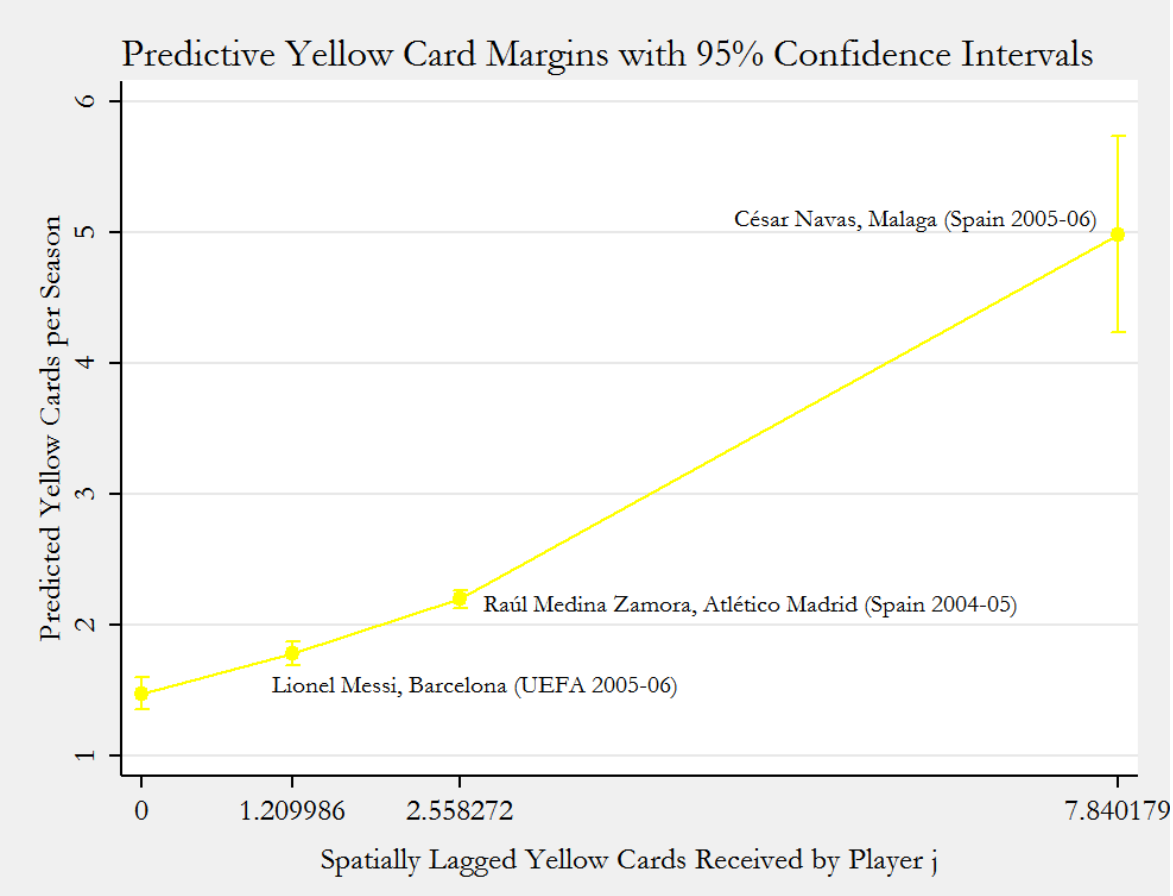

Figure 1: Zero is the minimum value of the spatially lagged yellow cards. Since multiple players have this spatial effect exerted on them, the margin does not have a label. The spatial effect exerted on Lionel Messi is included because he is a well-known player. Raúl Medina Zamora represents the median, and César Navas the maximum.

Moving on to the specification controlling for team *I* characteristics [Table 4, Column 2], a positive, statistically significant relationship is observed at the 99% confidence level. A 0.0624 increase in the expected log count of yellow cards is observed for every unit increase in the independent variable. The coefficient of years of civil war in player *i*'s home country has risen, albeit marginally, to 0.00827, but its significance has fallen to the 90% confidence level. Both variables are more forceful in this specification: with other variables held constant, spatially lagged yellow cards issued to player *j* has an IRR of 1.866, indicating an approximately 87% increase in yellow cards per season, while civil war history's IRR of 1.00830 denotes a barely perceptible one percent rise. Among the other control variables, all but mean number of games as a substitute and mean log of

transfer fee are statistically significant but mostly at the 90% confidence level. This demonstrates that a team's overall behavior determines how each of its members will act, but team averages are inadequate in terms of explaining individual behavior. This finding is robust to the use of zero-inflated negative binomial regression. In the team control specification [Table 5, Column 2], the coefficient of the spatially lagged yellow cards received by player *j* is statistically significant at a confidence level of 99% and has a magnitude of 0.268. Player *i*'s conflict history is statistically significant at the 90% confidence level, and its magnitude has fallen to 0.00546.

The peer effect of the team's aggressive conduct is more pronounced for red cards, but these results must be approached with skepticism due to the significantly smaller count of these fouls. In the specification employing individual control variables [Table 4, Column 3], player *j*'s spatially lagged red cards are significant at the 95% confidence level, and the expected log of red cards received by player *i* rises by 0.427 each time the spatial effect variable rises by one. This same unit increase is responsible for 53% more red cards per season. An athlete's civil war exposure continues to determine how many red cards are issued to him, but it is not responsible for a sizable proportion of any increase. The coefficient of 0.0150 at the 95% confidence level is identical to the one detected in Miguel *et al.*'s (2011) findings [Table 2, Column 2]. With respect to the other controls in my specification, those found by the authors to be significant remain so and at the same confidence levels; while the coefficients tend to be the same, there are slight differences in their magnitude which may be attributed to dissimilar rounding methods. Figure 2, found on the next page, depicts the relationship between spatially lagged red cards received by player *j* and the number of per-season red cards the average player in the data set is expected to receive with special attention being paid to specific values of the independent variable.

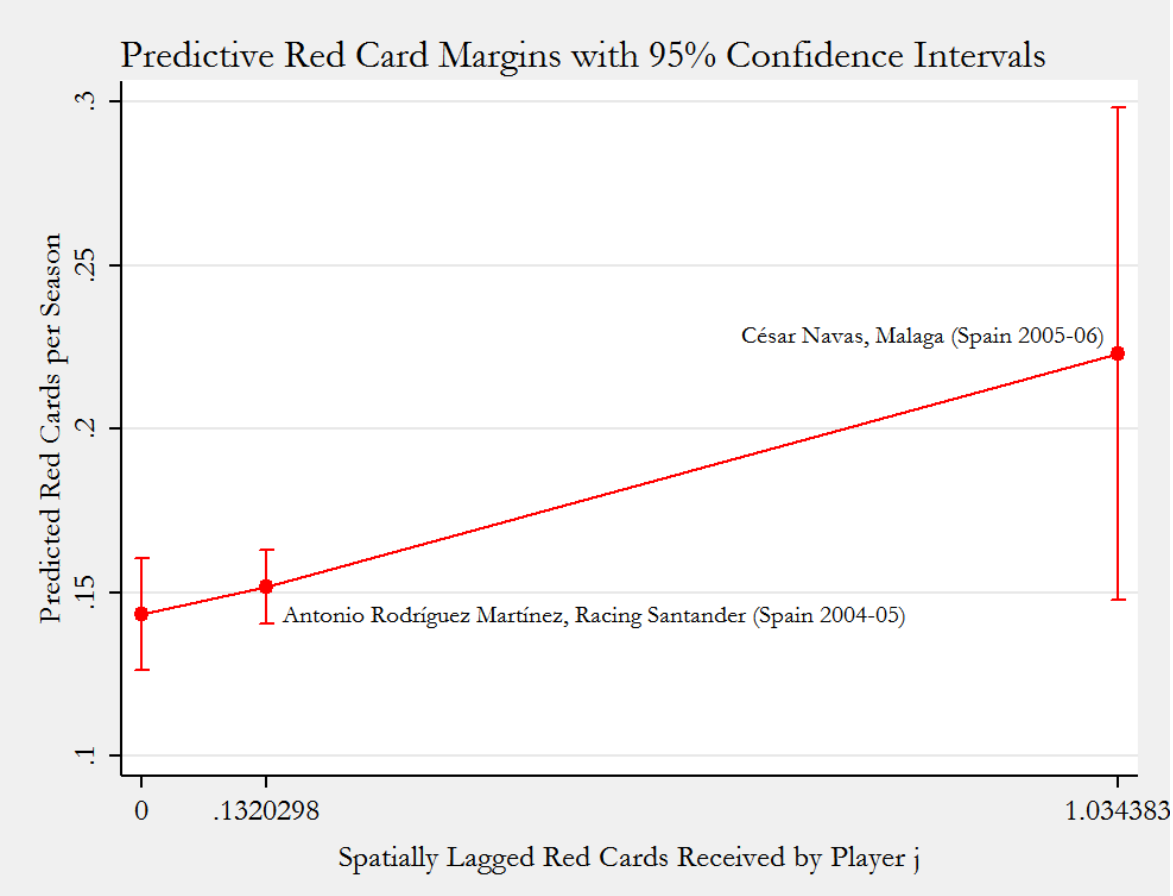

Figure 2: Zero is the minimum value of the spatially lagged red cards. Since multiple players (including Lionel Messi) have this spatial effect exerted on them, the margin does not have a label. Antonio Rodríguez Martínez represents the median, and César Navas the maximum.

The specification controlling for team qualities [Table 4, Column 4] reiterates the corresponding results for yellow cards. Spatially lagged red cards received by player *j* are significant at a confidence level of 99%, and the coefficient of 1.570 implies that a unit increase in the independent variable precipitates a 1.570 increase in the expected log of red cards. To put this in perspective, every increase in the spatial effect variable, *ceteris paribus*, increases the number of red cards accrued per season by a factor of 4.805—or nearly 481%. Years of civil war in player *i*'s home country is statistically significant at the 99% confidence level, and its coefficient is 0.0173, which is larger than the one observed in "Civil War Exposure and Violence." Player *i*'s exposure to civil war continues to precipitate an increase in his per-season red cards but by a measly 1.7%. As observed in

the previous specifications, few of the team *I* control variables are significant. When team rather than individual characteristics are included in the specification, player *j*'s spatially lagged red cards and player *i*'s conflict history (to a much lesser extent) are responsible for a larger share of the latter's red cards. This comes as little surprise as none of the team controls involve interaction with player *i*. Yet, as astounding as some of these figures are, it is important to remember that the smaller quantity of red cards casts doubt on the validity of these results. Robustness could not be determined for either of the red card specifications because the zero-inflated models did not converge despite numerous diverse combinations of control variables and fixed effects.

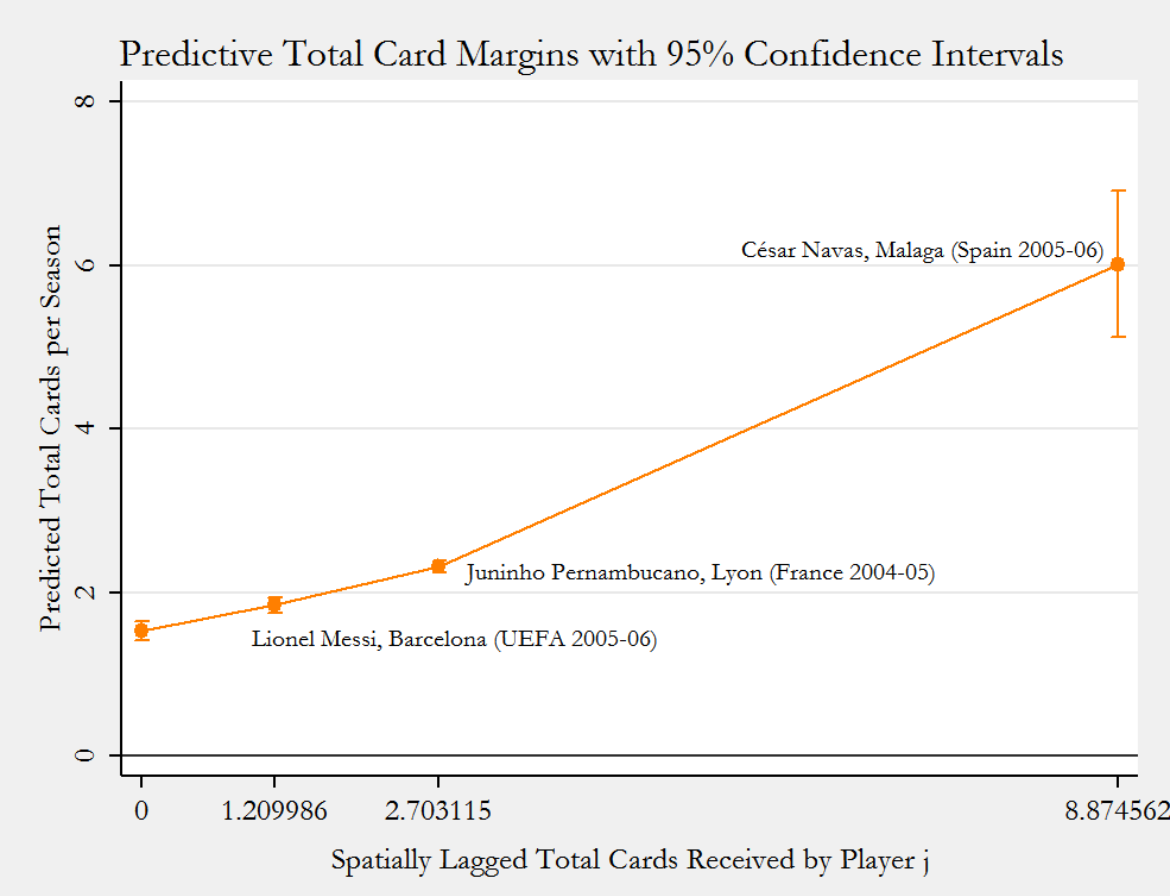

Figure 3: Zero is the minimum value of the spatially lagged total cards. Since multiple players have this spatial effect exerted on them, the margin does not have a label. The spatial effect exerted on Lionel Messi is included because he is a well-known player. Juninho Pernambucano represents the median, and César Navas the maximum.

The total cards results reinforce the findings of the previous card classifications. Controlling for player *i* characteristics [Table 4, Column 5], there is a positive, statistically significant relationship at the 99% confidence interval between player *j*'s spatially lagged total cards and the fouls earned by player *i*. Since players tend to have more yellow than red cards, the peer effect exerted in this specification is expected to be similar to that of the spatially lagged yellow cards, and the coefficient of 0.154 bears this out. With an IRR of 1.167, the independent variable accounts for close to a 17% increase in total cards per season a player receives. Years of civil war in player *i*'s home country continues to play a minor role in an athlete's on-field behavior, driving a per-season increase in cards

of one percent. Excluding rule of law, all the player *i* control variables remain statistically significant. Figure 3 (on the previous page) depicts the predicted number of total cards the average player in the data set is expected to receive per season should the specified spatial effects be exerted upon him. This result is robust to estimation by way of zero-inflated negative binomial regression [Table 5, Column 3]. The spatial effect variable is statistically significant at the 99% confidence level, and every unit increase is responsible for a 0.0765 rise in expected log of total cards received by player *i*. Years of civil war in his home country are significant at a confidence level of ninety-five percent and have suffered a decrease in magnitude to 0.00567.

The outcome of the specification controlling for team *I* characteristics [Table 4, Column 6] echoes previous results. Since the average number of games as a starter, age, and goals scored among members of the team are the only statistically significant control variables, the spatial effect variable shoulders a greater degree of responsibility for the total cards per season issued to player *i*, precipitating an 80% rise with every unit increase. The coefficient of player *j*'s spatially lagged total cards (0.586) is significant at a confidence level of 99%. Player *i*'s civil war history has a coefficient of 0.00861, which is significant at the 95% confidence level. Its IRR is 1.00864, indicating that it barely makes a difference in how many cards player *i* receives, but, in all fairness, the other control variables have similar IRR values.

Thus, I am able to reject the null hypothesis in favor of the claim that team *I*'s aggregate violent behavior exerts a peer effect on player *i*'s behavior (H_2).

Player j's Civil War Exposure

There is scant evidence to support rejecting the null hypothesis in favor of my third hypothesis, "Player *j*'s exposure to civil war exerts a peer effect on player *i*'s behavior." Starting with yellow cards [Table 6, Column 1], the coefficient of years of civil war in player *j*'s home country is

statistically insignificant and has a negligible value of 0.000223. Player *i* traits serve as control variables, and significance at the 99% confidence level is achieved for all of them excluding log of transfer fee, which is significant at the 95% confidence level. Likewise, there is no relationship between the player *j*'s conflict history and player *i*'s red cards [Table 6, Column 2]: the coefficient is insignificant and nearly zero with a value of 0.00371. All control variables are statistically significant at a confidence level of ninety-five percent or higher. The findings for total cards [Table 6, Column 3] offer more of the same. Years of civil war in player *j*'s home country has a miniscule, insignificant coefficient (0.000471). However, nearly all the controls are statistically significant at the 99% confidence level; the exception, log of transfer fee is significant at a confidence level of 95%. Therefore, a player's conduct is not being acted upon by the peer effect of the culture of violence in which his teammate may have been socialized.

Player j's Violent Behavior

Yellow cards issued to player *i* are not affected by the yellow cards issued to player *j* [Table 7, Column 1]. The coefficient, though positive (0.00122), is insignificant and diminutive in magnitude. Log of transfer fee, as observed in previous specifications, is the sole control variable significant at the 95% confidence level while all the others are significant at the 99% confidence level. Similarly, player *j*'s red cards have no bearing on player *i*'s [Table 7, Column 2]: the coefficient, 0.00410, is slight and insignificant. Other than the statistically insignificant number of games played as substitute, all of the control variables are significant at the 95% or 99% confidence level. The total cards results are a pleasant surprise, suggesting that the sum of yellow and red cards an athlete receives is partly driven by his associate's totals. The coefficient, slight at 0.00157, is statistically significant at the 90% confidence level and arouses suspicion, compelling me to disregard this outcome. Players tend to obtain many more yellow than red cards, in which case a statistically

significant relationship should have been observed between player *j*'s and player *i*'s yellow cards. The argument can be made that including red cards might have tipped the scale toward significance, but this is a weak claim since they were found to be insignificant when analyzed separately. The null hypothesis cannot be rejected in favor of the contention that player *j*'s behavior influences player *i*'s behavior (H_4). Bearing in mind that a one-on-one peer effect was not observed, the null hypothesis continues to stand while hypothesis 5, "Peer effects exerted by player *j* will be stronger than peer effects exerted by team *I*," is refuted.

III. Conclusion

The findings regarding the existence of peer effects within European soccer teams are mixed. Although there is reason to believe that aggressive actions spread from the group to each of its members, the other propositions are unsubstantiated: neither the team's overall exposure to civil war nor a teammate's exposure to civil war nor a teammate's violent behavior has any bearing on a single athlete's conduct.

The latter of these is the most surprising. Given the verification of team-to-player peer effects, one would anticipate an increase in the number of cards an athlete receives as a function of his one-on-one interactions with his colleagues. I concede that my empirical strategy, regressing the cards received by player *i* on those received by player *j*, was not the best course of action because it did not account for spatial dependence between teammates. Ideally, an approach similar to the methodology of the team *I* specifications would have been taken. Spatial effect variables lagging the number of cards received by player *j* and weighting them by the extent of the "proximity" between players would once again be generated, but this time around, the dyad is the unit of analysis, and the influence observed within each pair will be compared to the influence observed in the others. Such a technique furnishes the opportunity to estimate the degree of the hypothesized peer effect more

precisely. This model was not pursued due to its relative complexity. While it may have restricted my own efforts, I urge others to take up the challenge.

The peer effect of team *I*'s aggregate violent behavior implies that a contagion of violence does spread among individuals, but it is not because some of its sources were exposed to civil war as impressionable children. Miguel *et al.* (2011) suggest that growing up in a conflict-ravaged environment influences one's future actions, and this is corroborated by the continued statistical significance of years of civil war in player *i*'s home country across my models and specifications. This demonstrates that a player may be unable to escape his own past, but the experience has not left a strong enough impression on him so that he may affect his teammate through the cognitive process of social learning or the biological processes underpinning mirror neurons. It is not culture—the ambiguous, broadly-defined amalgam of forces in which we live and participate—which diffuses among individuals, but behavior—the actions of the people with whom we interface on a regular basis.

The United Nations High Commissioner for Refugees (2015) reported that 59.5 million people, the most since World War II, were forcibly displaced worldwide in 2014 and that 13.9 million of them were "newly displaced due to conflict or persecution" (2). As if their plight was not trying enough, the men, women, and children fleeing bloodshed in their home countries face hostility from citizens of the nations to which they are trying to relocate. Right-wing groups across Europe have opposed accepting Middle Eastern migrants and refugees into their countries for various reasons, including the fear that an influx of people from war-ravaged areas will lead to increased crime in their communities and pass cultural influences to those native to these European countries (Yardley 2016). In light of the absence of civil war peer effects, these concerns are unfounded. If the asylum seekers have not previously engaged in combat, then there is no indication that they will induce their hosts to behave aggressively. It is easy for many of us to let our

preconceived notions of specific peoples dictate how we respond to them. Instead of dismissing every person from a global hot spot as a "bad apple," we must reasonably evaluate their actions and our own in order to claim membership in the most important international organization—humanity.

Table 1: Summary Statistics

VARIABLES	Source	N	Mean	Std. Dev.	Min	Max	Sum
Dependent							
Yellow Cards Received by Player *i*	ESPN *Soccernet*	5,403	2.347	2.706	0	16	12,683
Red Cards Received by Player *i*	ESPN *Soccernet*	5,403	0.151	0.408	0	3	814
Total Cards Received by Player *i*		5,403	2.498	2.876	0	17	13,497
Independent – Team *I* Model							
Spatially Lagged Years of Civil War in Player *j*'s Home Country, Weight = Games Played Together		5,403	2.734	2.642	0	22	
Spatially Lagged Yellow Cards Received by Player *j*, Weight = Games Played Together		5,403	2.507	1.394	0	7.840	
Spatially Lagged Red Cards Received by Player *j*, Weight = Games Played Together		5,403	0.161	0.138	0	1.034	
Spatially Lagged Total Cards Received by Player *j*, Weight = Games Played Together		5,403	2.669	1.494	0	8.875	
Controls – Player *i*							
Years of Civil War in Player *i*'s Home Country	UCDP/PRIO Armed Conflict Data	5,403	2.742	4.763	0	26	
Age	ESPN *Soccernet*	5,403	25.89	4.457	16	41	
Goalie	ESPN *Soccernet*	5,403	0.0763	0.265	0	1	
Defender	ESPN *Soccernet*	5,403	0.331	0.471	0	1	
Forward	ESPN *Soccernet*	5,403	0.237	0.425	0	1	
Midfield	ESPN *Soccernet*	5,403	0.356	0.479	0	1	
Number of Games as a Starter	ESPN *Soccernet*	5,403	13.32	11.47	0	40	
Number of Games as a Substitute	ESPN *Soccernet*	5,403	3.083	3.858	0	29	
Age	ESPN *Soccernet*	5,403	25.89	4.457	16	41	
Goals Scored	ESPN *Soccernet*	5,403	1.606	3.093	0	31	
Transfer Fee	*Football Manager 2005*; *World Soccer Manager 2006*	5,072	6.305e+06	8.174e+06	3,000	7.800e+07	
Ln(Transfer Fee)	*Football Manager 2005*; *World Soccer Manager 2006*	5,072	15.15	1.084	8.006	18.17	
Rule of Law in Player *i*'s Home Country	World Governance Indicators	5,403	0.831	0.901	-1.760	2.100	
Controls – Team *I*							
Number of Games as a Starter – Team *I* Average		5,403	13.32	4.843	0.500	28.25	
Number of Games as a Substitute – Team *I* Average		5,403	3.083	1.207	0	12.50	
Age – Team *I* Average		5,403	25.89	1.406	20	31.75	
Goals Scored – Team *I* Average		5,403	1.607	0.759	0	8.750	
Transfer Fee – Team *I* Average		5,394	6.219e+06	4.197e+06	65,000	2.538e+07	
Ln(Transfer Fee) – Team *I* Average		5,394	15.14	0.554	11.08	16.67	

Rule of Law in Player *i*'s Home Country – Team *I* Average		5,403	0.830	0.377	-0.780	2.017
Soccer League						
English Premiership	ESPN *Soccernet*	5,403	0.173	0.378	0	1
French Ligue 1	ESPN *Soccernet*	5,403	0.157	0.364	0	1
German Bundesliga	ESPN *Soccernet*	5,403	0.146	0.353	0	1
Italian Serie A	ESPN *Soccernet*	5,403	0.174	0.379	0	1
Spanish Primera Divison	ESPN *Soccernet*	5,403	0.165	0.371	0	1
UEFA Champions League	ESPN *Soccernet*	5,403	0.185	0.388	0	1
World Region						
Africa	ESPN *Soccernet*	5,403	0.0792	0.270	0	1
Asia	ESPN *Soccernet*	5,403	0.00463	0.0679	0	1
Eastern Europe	ESPN *Soccernet*	5,403	0.0690	0.254	0	1
Latin America and the Caribbean	ESPN *Soccernet*	5,403	0.127	0.333	0	1
OECD	ESPN *Soccernet*	5,403	0.726	0.446	0	1

Table 2: The Effect of Player *i*'s Civil War Exposure on Player *i*'s Behavior
[Miguel *et al.* (2011) "Replication"]

VARIABLES	(1) Yellow Cards	(2) Red Cards	(3) Total Cards
Independent			
Years of Civil War in Player *i*'s Home Country	0.00762***	0.0150**	0.00813***
	(0.00284)	(0.00666)	(0.00286)
Controls			
Defender	1.716***	1.115***	1.672***
	(0.116)	(0.155)	(0.117)
Forward	1.400***	0.710***	1.345***
	(0.126)	(0.179)	(0.127)
Midfield	1.726***	0.882***	1.664***
	(0.136)	(0.199)	(0.138)
Number of Games as a Starter	0.0677***	0.0506***	0.0676***
	(0.00186)	(0.00275)	(0.00190)
Number of Games as a Substitute	0.0411***	0.0125	0.0404***
	(0.00364)	(0.0124)	(0.00373)
Age	0.0138***	0.0138*	0.0141***
	(0.00231)	(0.00739)	(0.00228)
Goals Scored	-0.0226***	-0.0285***	-0.0231***
	(0.00374)	(0.00838)	(0.00384)
Ln(Transfer Fee)	0.0333**	0.0613**	0.0376***
	(0.0141)	(0.0296)	(0.0132)
Rule of Law in Player *i*'s Home Country		-0.142	-0.0166
		(0.0958)	(0.0506)
Constant	-3.176***	-5.136***	-3.111***
	(0.320)	(0.657)	(0.335)
Observations	5,072	5,072	5,072
League Fixed Effects	Yes	Yes	Yes
World Region Fixed Effects	Yes	Yes	Yes

Notes: The dependent variables are cards received by player *i* over the course of a season while playing for a particular team in a given league. Column 1 replicates the results of Miguel *et al.* (2011), Table 2, Column 1; Column 2 replicates the results of Miguel *et al.* (2011), Table 2, Column 4; and Column 3 presents the results of a specification similar to the one described in Miguel *et al.* (2011), Table 2, Column 4. All three specifications serve as baselines to which subsequent corresponding specifications can be compared. Columns 1 through 3 present the results of negative binomial regressions with robust standard errors (found in parentheses) clustered by player *i*'s nation. Goalie (field position) and English Premier League (league) are omitted in all specifications. Columns 1 and 2 omit OECD in their world region fixed effects, while Column 3 omits Africa in its world region fixed effects. The results for league and region fixed effects are not shown. Statistical significance is at the 90% (*), 95% (**), and 99% (***) confidence levels.

Table 3: The Effect of Team *I*'s Aggregate Civil War Exposure on Player *i*'s Behavior

VARIABLES	(1) Yellow Cards Individual Controls	(2) Yellow Cards Team Controls	(3) Red Cards Individual Controls	(4) Red Cards Team Controls	(5) Total Cards Individual Controls	(6) Total Cards Team Controls
Independent						
Spatially Lagged Years of Civil War in Player *j*'s Home Country, Weight = Games Played Together	-0.000840	-0.00326	0.0164	-0.00160	0.000204	-0.00476
	(0.00980)	(0.0112)	(0.0295)	(0.0299)	(0.0104)	(0.0112)
Controls						
Years of Civil War in Player *i*'s Home Country	0.00796***	0.00852*	0.0147**	0.0177***	0.00833***	0.00877**
	(0.00298)	(0.00449)	(0.00635)	(0.00629)	(0.00299)	(0.00443)
Defender	1.716***		1.114***		1.671***	
	(0.117)		(0.156)		(0.116)	
Midfield	1.727***		0.880***		1.663***	
	(0.136)		(0.200)		(0.138)	
Forward	1.401***		0.709***		1.344***	
	(0.126)		(0.177)		(0.127)	
Number of Games as a Starter	0.0678***		0.0504***		0.0676***	
	(0.00186)		(0.00273)		(0.00189)	
Number of Games as a Substitute	0.0412***		0.0128		0.0405***	
	(0.00364)		(0.0124)		(0.00374)	
Age	0.0137***		0.0140*		0.0140***	
	(0.00230)		(0.00740)		(0.00226)	
Goals Scored	-0.0225***		-0.0282***		-0.0229***	
	(0.00374)		(0.00837)		(0.00383)	
Ln(Transfer Fee)	0.0331**		0.0626**		0.0378***	
	(0.0141)		(0.0295)		(0.0131)	
Rule of Law in Player *i*'s Home Country			-0.160		-0.0321	
			(0.0987)		(0.0537)	
Number of Games as a Starter – Team *I* Average		0.0670***		0.0914***		0.0690***
		(0.00572)		(0.0144)		(0.00586)
Number of Games as a Substitute – Team *I* Average		0.0534***		-0.0481		0.0474**
		(0.0184)		(0.0569)		(0.0190)
Age – Team *I* Average		-0.00868		-0.0431		-0.0101
		(0.0156)		(0.0308)		(0.0157)
Goals Scored – Team *I* Average		-0.113***		-0.207***		-0.121***
		(0.0342)		(0.0597)		(0.0356)
Ln(Transfer Fee) – Team *I* Average		0.0608		0.0419		0.0690*
		(0.0375)		(0.0761)		(0.0386)
Rule of Law in Player *i*'s Home Country – Team *I* Average				0.0517		0.0468
				(0.204)		(0.0630)
Constant	-3.147***	-1.139	-5.367***	-2.703	-3.123***	-1.206

	(0.335)	(0.790)	(0.712)	(1.870)	(0.324)	(0.834)
Observations	5,064	5,386	5,064	5,386	5,064	5,386
League Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
World Region Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The dependent variables are cards received by player *i* over the course of a season while playing for a particular team in a given league. Columns 1 through 6 present the results of negative binomial regressions with robust standard errors (found in parentheses) clustered by player *i*'s nation. Goalie (field position), English Premier League (league), and Africa (world region) are omitted in all specifications. The results for league and region fixed effects are not shown. Statistical significance is at the 90% (*), 95% (**), and 99% (***) confidence levels.

Table 4: The Effect of Team *I*'s Aggregate Violent Behavior on Player *i*'s Behavior

VARIABLES	(1) Yellow Cards Individual Controls	(2) Yellow Cards Team Controls	(3) Red Cards Individual Controls	(4) Red Cards Team Controls	(5) Total Cards Individual Controls	(6) Total Cards Team Controls
Independent						
Spatially Lagged Yellow Cards Received by Player *j*, Weight = Games Played Together	0.155***	0.624***				
	(0.0145)	(0.0203)				
Spatially Lagged Red Cards Received by Player *j*, Weight = Games Played Together			0.427**	1.570***		
			(0.217)	(0.183)		
Spatially Lagged Total Cards Received by Player *j*, Weight = Games Played Together					0.154***	0.586***
					(0.0124)	(0.0178)
Controls						
Years of Civil War in Player *i*'s Home Country	0.00800***	0.00827*	0.0150**	0.0173***	0.00839***	0.00861**
	(0.00284)	(0.00426)	(0.00664)	(0.00629)	(0.00290)	(0.00425)
Defender	1.732***		1.117***		1.688***	
	(0.119)		(0.156)		(0.120)	
Midfield	1.755***		0.882***		1.691***	
	(0.137)		(0.202)		(0.141)	
Forward	1.416***		0.709***		1.359***	
	(0.127)		(0.180)		(0.128)	
Number of Games as a Starter	0.0582***		0.0486***		0.0574***	
	(0.00170)		(0.00275)		(0.00182)	
Number of Games as a Substitute	0.0271***		0.0105		0.0258***	
	(0.00395)		(0.0126)		(0.00381)	
Age	0.0128***		0.0143*		0.0132***	
	(0.00225)		(0.00738)		(0.00220)	
Goals Scored	-0.0215***		-0.0283***		-0.0218***	
	(0.00355)		(0.00846)		(0.00363)	
Ln(Transfer Fee)	0.0318**		0.0646**		0.0371***	
	(0.0142)		(0.0300)		(0.0130)	
Rule of Law in Player *i*'s Home Country			-0.156		-0.0258	
			(0.0973)		(0.0521)	
Number of Games as a Starter – Team *I* Average		-0.0304***		0.0557***		-0.0318***
		(0.0102)		(0.0154)		(0.0104)
Number of Games as a Substitute – Team *I* Average		-0.0101		-0.00365		0.00113
		(0.0250)		(0.0514)		(0.0241)
Age – Team *I* Average		0.0218*		-0.0244		0.0233*
		(0.0127)		(0.0301)		(0.0126)
Goals Scored – Team *I* Average		0.0658*		-0.156**		0.0619*
		(0.0384)		(0.0632)		(0.0371)

Ln(Transfer Fee) – Team *I* Average		0.0131		0.0546		0.0223
		(0.0380)		(0.0661)		(0.0369)
Rule of Law in Player *i*'s Home Country – Team *I* Average				0.0565		0.00254
				(0.203)		(0.0644)
Constant	-3.268***	-1.225*	-5.308***	-3.283**	-3.250***	-1.347**
	(0.337)	(0.697)	(0.618)	(1.621)	(0.319)	(0.636)
Observations	5,064	5,386	5,064	5,386	5,064	5,386
League Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
World Region Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The dependent variables are cards received by player *i* over the course of a season while playing for a particular team in a given league. Columns 1 through 6 present the results of negative binomial regressions with robust standard errors (found in parentheses) clustered by player *i*'s nation. Goalie (field position), English Premier League (league), and Africa (world region) are omitted in all specifications. The results for league and region fixed effects are not shown. Statistical significance is at the 90% (*), 95% (**), and 99% (***) confidence levels.

Table 5: The Effect of Team *I*'s Aggregate Violent Behavior on Player *i*'s Behavior – Robustness Check

VARIABLES	(1) Yellow Cards Individual Controls	(2) Yellow Cards Team Controls	(3) Total Cards Individual Controls	(4) Total Cards Team Controls
Independent				
Spatially Lagged Yellow Cards Received by Player *j*, Weight = Games Played Together	0.0738***	0.268***		
	(0.0105)	(0.0116)		
Spatially Lagged Total Cards Received by Player *j*, Weight = Games Played Together			0.0765***	0.257***
			(0.00876)	(0.0118)
Controls				
Years of Civil War in Player *i*'s Home Country	0.00529**	0.00546*	0.00567**	0.00591*
	(0.00226)	(0.00304)	(0.00222)	(0.00312)
Defender	1.102***		1.121***	
	(0.0515)		(0.0541)	
Midfield	1.198***		1.197***	
	(0.0633)		(0.0679)	
Forward	1.035***		1.028***	
	(0.0597)		(0.0631)	
Number of Games as a Starter	0.0374***		0.0372***	
	(0.00157)		(0.00156)	
Number of Games as a Substitute	0.00158		0.00105	
	(0.00325)		(0.00332)	
Age	0.00417**		0.00384**	
	(0.00185)		(0.00188)	
Goals Scored	-0.0218***		-0.0219***	
	(0.00356)		(0.00354)	
Ln(Transfer Fee)	-0.00512		0.000179	
	(0.0106)		(0.0106)	
Rule of Law in Player *i*'s Home Country			-0.0190	
			(0.0345)	
Number of Games as a Starter – Team *I* Average		-0.0112*		-0.0121
		(0.00674)		(0.00764)
Number of Games as a Substitute – Team *I* Average		-0.00986		-0.00174
		(0.0184)		(0.0180)
Age – Team *I* Average		0.00704		0.00489
		(0.00671)		(0.00736)
Goals Scored – Team *I* Average		0.0311		0.0303
		(0.0309)		(0.0315)
Ln(Transfer Fee) – Team *I* Average		-0.0377		-0.0323
		(0.0240)		(0.0249)
Rule of Law in Player *i*'s Home Country – Team *I* Average				0.0297
				(0.0528)
Constant	-0.968***	0.926**	-1.028***	0.866**
	(0.192)	(0.398)	(0.202)	(0.442)

Observations	5,064	5,386	5,064	5,386
League Fixed Effects	Yes	Yes	Yes	Yes
World Region Fixed Effects	Yes	Yes	Yes	Yes

Notes: The dependent variables are cards received by player *i* over the course of a season while playing for a particular team in a given league. Columns 1 through 4 present the results of zero-inflated negative binomial regressions with robust standard errors (found in parentheses) clustered by player *i*'s nation. Goalie (field position), English Premier League (league), and Africa (world region) are omitted in all specifications. The results for league and region fixed effects are not shown. Statistical significance is at the 90% (*), 95% (**), and 99% (***) confidence levels.

Table 6: The Effect of Player *j*'s Civil War Exposure on Player *i*'s Behavior

VARIABLES	(1) Yellow Cards	(2) Red Cards	(3) Total Cards
Independent			
Years of Civil War in Player *j*'s Home Country	0.000223	0.00371	0.000471
	(0.000788)	(0.00259)	(0.000807)
Controls			
Years of Civil War in Player *i*'s Home Country	0.00867***	0.0164**	0.00918***
	(0.00299)	(0.00728)	(0.00296)
Defender	1.730***	1.197***	1.692***
	(0.120)	(0.191)	(0.123)
Midfield	1.745***	0.935***	1.687***
	(0.144)	(0.244)	(0.149)
Forward	1.423***	0.724***	1.369***
	(0.133)	(0.209)	(0.137)
Number of Games as a Starter	0.0692***	0.0511***	0.0690***
	(0.00201)	(0.00237)	(0.00203)
Number of Games as a Substitute	0.0433***	0.0168	0.0427***
	(0.00363)	(0.0119)	(0.00377)
Age	0.0141***	0.0151**	0.0145***
	(0.00240)	(0.00726)	(0.00232)
Goals Scored	-0.0235***	-0.0281***	-0.0239***
	(0.00364)	(0.00781)	(0.00368)
Ln(Transfer Fee)	0.0278**	0.0679**	0.0326**
	(0.0140)	(0.0301)	(0.0134)
Rule of Law in Player *i*'s Home Country		-0.218**	-0.0452
		(0.100)	(0.0520)
Constant	-3.141***	-5.505***	-3.126***
	(0.321)	(0.620)	(0.309)
Observations	117,512	117,512	117,512
League Fixed Effects	Yes	Yes	Yes
World Region Fixed Effects	Yes	Yes	Yes

Notes: The dependent variables are cards received by player *i* over the course of a season while playing for a particular team in a given league. Columns 1 through 3 present the results of negative binomial regressions with robust standard errors (found in parentheses) clustered by player *i*'s nation. Goalie (field position), English Premier League (league), and Africa (world region) are omitted in all specifications. The results for league and region fixed effects are not shown. Statistical significance is at the 90% (*), 95% (**), and 99% (***) confidence levels.

Table 7: The Effect of Player *j*'s Violent Behavior on Player *i*'s Behavior

VARIABLES	(1) Yellow Cards	(2) Red Cards	(3) Total Cards
Independent			
Yellow Cards Received by Player *j*	0.00122		
	(0.000775)		
Red Cards Received by Player *j*		0.00410	
		(0.0152)	
Total Cards Received by Player *j*			0.00157*
			(0.000828)
Controls			
Years of Civil War in Player *i*'s Home Country	0.00868***	0.0165**	0.00920***
	(0.00298)	(0.00732)	(0.00295)
Defender	1.730***	1.197***	1.692***
	(0.120)	(0.191)	(0.123)
Midfield	1.745***	0.935***	1.687***
	(0.144)	(0.244)	(0.149)
Forward	1.423***	0.724***	1.370***
	(0.133)	(0.209)	(0.137)
Number of Games as a Starter	0.0692***	0.0511***	0.0690***
	(0.00201)	(0.00237)	(0.00202)
Number of Games as a Substitute	0.0432***	0.0168	0.0427***
	(0.00363)	(0.0119)	(0.00377)
Age	0.0141***	0.0151**	0.0145***
	(0.00240)	(0.00727)	(0.00232)
Goals Scored	-0.0235***	-0.0281***	-0.0239***
	(0.00363)	(0.00781)	(0.00367)
Ln(Transfer Fee)	0.0278**	0.0677**	0.0326**
	(0.0141)	(0.0301)	(0.0134)
Rule of Law in Player *i*'s Home Country		-0.217**	-0.0451
		(0.100)	(0.0519)
Constant	-3.143***	-5.477***	-3.127***
	(0.322)	(0.617)	(0.310)
Observations	117,512	117,512	117,512
League Fixed Effects	Yes	Yes	Yes
World Region Fixed Effects	Yes	Yes	Yes

Notes: The dependent variables are cards received by player *i* over the course of a season while playing for a particular team in a given league. Columns 1 through 3 present the results of negative binomial regressions with robust standard errors (found in parentheses) clustered by player *i*'s nation. Goalie (field position), English Premier League (league), and Africa (world region) are omitted in all specifications. The results for league and region fixed effects are not shown. Statistical significance is at the 90% (*), 95% (**), and 99% (***) confidence levels.

REFERENCE LIST

*UNCHR Global Trends: Forced Displacement in 2014*2015, , United Nations High Commissioner for Refugees.

Anderson, C.A. & Bushman, B.J. 2002, "Human aggression", *Psychology,* vol. 53, no. 1, pp. 27.

Archer, D. & Gartner, R. 1976, "Violent Acts and Violent Times: A Comparative Approach to Postwar Homicide Rates", *American Sociological Review,* vol. 41, no. 6, pp. 937-963.

Bandura, A. 1971, *Social learning theory,* General Learning Press, New York.

Bandura, A. 1978, "Social Learning Theory of Aggression", *Journal of Communication,* vol. 28, no. 3, pp. 12-29.

Bayer, P., Hjalmarsson, R. & Pozen, D. 2009, "Building Criminal Capital Behind Bars: Peer Effects in Juvenile Corrections", *Quarterly Journal of Economics,* vol. 124, no. 1, pp. 105-47.

Beck, N., Gleditsch, K.S. & Beardsley, K. 2006, "Space is more than geography: Using spatial econometrics in the study of political economy", *International Studies Quarterly,* vol. 50, no. 1, pp. 27-44.

Byrne, R.W. 2005, "Social Cognition: Imitation, Imitation, Imitation", *Current Biology,* vol. 15, no. 13, pp. R498-R500.

Carrell, S.E., Malmstrom, F.V. & West, J.E. 2008, "Peer effects in academic cheating", *Journal of human resources,* vol. 43, no. 1, pp. 173-207.

Di Pellegrino, G., Fadiga, L., Fogassi, L., Gallese, V. & Rizzolatti, G. 1992, "Understanding motor events: a neurophysiological study", *Experimental brain research,* vol. 91, no. 1, pp. 176-180.

Ember, C.R. & Ember, M. 1994, "War, Socialization, and Interpersonal Violence A Cross-Cultural Study", *Journal of Conflict Resolution,* vol. 38, no. 4, pp. 620-646.

Galtung, J. 1990, "Cultural violence", *Journal of Peace Research,* vol. 27, no. 3, pp. 291-305.

Glaeser, E.L., Sacerdote, B. & Scheinkman, J.A. 1996, "Crime and Social Interactions", *Quarterly Journal of Economics,* vol. 111, no. 2, pp. 507-548.

Gould, E.D. & Kaplan, T.R. 2011, "Learning unethical practices from a co-worker: The peer effect of Jose Canseco", *Labour Economics,* vol. 18, no. 3, pp. 338-348.

Gould, E.D. & Winter, E. 2009, "Interactions between workers and the technology of production: evidence from professional baseball", *The Review of Economics and Statistics,* vol. 91, no. 1, pp. 188-200.

Guryan, J., Kroft, K. & Notowidigdo, M. 2009, "Peer Effects in the Workplace: Evidence from Random Groupings in Professional Gold Tournaments", *American Economic Journal: Applied Economics,* vol. 1, no. 4, pp. 34-68.

Hafner-Burton, E.M. & Montgomery, A.H. 2008, "Power or Plenty How Do International Trade Institutions Affect Economic Sanctions?", *Journal of Conflict Resolution,* vol. 52, no. 2, pp. 213-242.

Ingersoll, K., Malesky, E.J. & Saiegh, S.M. 2013, "Heterogeneity and Group Performance: Evaluating the Effect of Cultural Diversity in the World's Top Soccer League", *Available at SSRN 2333289,* .

International Football Association Board 2015, *Laws of the Game 2015/2016,* Fédération Internationale de Football Association, Zurich.

International Football Association Board 2004, *, Law 12: Fouls and Misconduct (Part 1 - Fouls)* [Homepage of Fédération Internationale de Football Association], [Online]. Available:http://www.fifa.com/mm/document/afdeveloping/refereeing/law_12_fouls_misconduct_en_47379.pdf [2015, 11/6].

International Football Association Board 2004, *, Law 12: Fouls and Misconduct (Part 2 - Misconduct)* [Homepage of Fédération Internationale de Football Association], [Online]. Available:http://www.fifa.com/mm/document/afdeveloping/refereeing/7.%20law%2012_miscounduct_557.pdf [2015, 11/6].

Jarrett, C. 2012, *Mirror Neurons: The Most Hyped Concept in Neuroscience?*, Psychology Today, https://www.psychologytoday.com/blog/brain-myths/201212/mirror-neurons-the-most-hyped-concept-in-neuroscience.

Kilner, J. & Lemon, R. 2013, "What we know currently about mirror neurons", *Current Biology,* vol. 23, no. 23, pp. R1057-R1062.

Mansfield, E.D. & Pevehouse, J.C. 2008, "Democratization and the varieties of international organizations", *Journal of Conflict Resolution,* vol. 52, no. 2, pp. 269-294.

Miguel, E., Saiegh, S.M. & Satyanath, S. 2011, "Civil War Exposure and Violence", *Economics & Politics,* vol. 23, no. 1, pp. 59-73.

Mukamel, R., Ekstrom, A.D., Kaplan, J., Iacoboni, M. & Fried, I. "Single-Neuron Responses in Humans during Execution and Observation of Actions", *Current Biology,* vol. 20, no. 8, pp. 750-756.

Neumayer, E. & Plumper, T. 2010, "Making spatial analysis operational: commands for generating spatial effect variables in monadic and dyadic data", *Stata Journal,* vol. 10, no. 4, pp. 585-605.

Orwell, G. 1945, *The Sporting Spirit*, Tribune, London.

Oxford, E.D. 2008, *, "culture, n."* [Homepage of Oxford University Press], [Online]. Available: http://www.oed.com/view/Entry/45746?rskey=UIcxbS&result=1 [2016, 01/15].

Oxford, E.D. *, "culture, n."*.

Oztop, E., Kawato, M. & Arbib, M.A. 2013, "Mirror neurons: functions, mechanisms and models", *Neuroscience letters,* vol. 540, pp. 43-55.

Plümper, T. & Neumayer, E. 2010, "Model specification in the analysis of spatial dependence", *European Journal of Political Research,* vol. 49, no. 3, pp. 418-442.

Sommerville, J.A. & Decety, J. 2006, "Weaving the fabric of social interaction: Articulating developmental psychology and cognitive neuroscience in the domain of motor cognition", *Psychonomic Bulletin & Review,* vol. 13, no. 2, pp. 179-200.

Steenkamp, C. 2005, "The Legacy of War: Conceptualizing a 'Culture of Violence' to Explain Violence after Peace Accords", *The Round Table,* vol. 94, no. 379, pp. 253-267.

Stephen Dobson, J.G. 2011, *The Economics of Football,* 2nd edn, Cambridge University Press, Cambridge.

Yardley, J. 2016, *Sexual Attacks Widen Divisions in European Migrant Crisis*, Web edn, New York Times, New York Times.

Appendix: The Effect of Team *I*'s Aggregate Violent Behavior on Player *i*'s Behavior – Incidence Rate Ratios

VARIABLES	(1) Yellow Cards Individual Controls	(2) Yellow Cards Team Controls	(3) Red Cards Individual Controls	(4) Red Cards Team Controls	(5) Total Cards Individual Controls	(6) Total Cards Team Controls
Independent						
Spatially Lagged Yellow Cards Received by Player *j*, Weight = Games Played Together	1.168	1.866				
	(10.69)**	(30.71)**				
Spatially Lagged Red Cards Received by Player *j*, Weight = Games Played Together			1.533	4.805		
			(1.96)*	(8.58)**		
Spatially Lagged Total Cards Received by Player *j*, Weight = Games Played Together					1.167	1.797
					(12.44)**	(33.01)**
Controls					1.008	1.009
Years of Civil War in Player *i*'s Home Country	1.008	1.008	1.015	1.017	(2.90)**	(2.03)*
	(2.81)**	(1.94)	(2.26)*	(2.74)**	5.409	1.797
Defender	5.654		3.055		(14.09)**	
	(14.58)**		(7.15)**		5.423	
Midfield	5.783		2.417		(11.99)**	
	(12.76)**		(4.38)**		3.894	
Forward	4.122		2.031		(10.61)**	
	(11.19)**		(3.94)**		1.059	
Number of Games as a Starter	1.060		1.050		(31.57)**	
	(34.20)**		(17.67)**		1.026	
Number of Games as a Substitute	1.028		1.011		(6.75)**	
	(6.86)**		(0.83)		1.013	
Age	1.013		1.014		(6.02)**	
	(5.69)**		(1.93)		0.978	
Goals Scored	0.979		0.972		(6.01)**	
	(6.06)**		(3.35)**		1.038	
Ln(Transfer Fee)	1.032		1.067		(2.85)**	
	(2.24)*		(2.15)*		0.975	
Rule of Law in Player *i*'s Home Country			0.856		(0.49)	
			(1.60)		1.167	
Number of Games as a Starter – Team *I* Average		0.970		1.057		0.969
		(2.98)**		(3.63)**		(3.05)**
Number of Games as a Substitute – Team *I* Average		0.990		0.996		1.001
		(0.40)		(0.07)		(0.05)

Age – Team *I* Average		1.022		0.976		1.024
		(1.72)		(0.81)		(1.85)
Goals Scored – Team *I* Average		1.068		0.855		1.064
		(1.71)		(2.48)*		(1.67)
Ln(Transfer Fee) – Team *I* Average		1.013		1.056		1.023
		(0.35)		(0.83)		(0.60)
Rule of Law in Player *i*'s Home Country – Team *I* Average				1.058		1.003
				(0.203)		(0.04)
Observations	5,064	5,386	5,064	5,386	5,064	5,386
League Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
World Region Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The dependent variables are cards received by player *i* over the course of a season while playing for a particular team in a given league. Columns 1 through 6 present the results of negative binomial regressions with robust standard errors (found in parentheses) clustered by player *i*'s nation. The incidence rate ratios are reported instead of the regression coefficients. Goalie (field position), English Premier League (league), and Africa (world region) are omitted in all specifications. The results for league and region fixed effects are not shown. Statistical significance is at the 90% (*), 95% (**), and 99% (***) confidence levels.