The Cultural Sources of Deception in Soccer: How Collectivism Affects the Number of Penalties in European Soccer Leagues

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Objectives. This article relies on data from 20,730 matches in 30 national soccer leagues in Europe to explore the determinants of penalties taken in elite soccer. *Methods.* We run OLS cross-sectional regressions using aggregated data. *Results.* We find that the variation in the number of penalties given across European soccer leagues is largely explained by the individualism versus collectivism dimension. *Conclusions.* The more (less) collectivistic (individualistic) the culture of the country, the more likely soccer players are to fall intentionally in the penalty area to increase the chances of a foul being called.

Introduction

Penalties are the most critical events in a soccer match. According to Instat ⟨https://instatsport.com/football/article/penalty_research⟩, from 2009 until 2019, there were almost 100,000 penalty shots on soccer fields around the globe in official matches; 75.49 percent of those resulted in goals. Unsurprisingly, a considerable amount of research that has been conducted on the determinants of penalties taken in elite soccer focus on home advantage, referee bias toward home and/or successful teams, and the strength of teams. However, while these variables account for the variation in the number of penalties taken across matches and teams, they can hardly explain the huge differences across national soccer leagues. For instance, in the 2017/18, 2018/19, and 2019/20 seasons (winter leagues) in the Polish Ekstraklasa, a penalty was awarded every 230 minutes (i.e., about 2.5 matches), but only every 389 minutes (i.e., about 4.3 matches) in the Norwegian Eliteserien (Poli et al., 2020).

This research examines the cross-national or cross-league differences in the number of penalties awarded in European soccer. We argue that soccer players across countries have different likelihoods to fall intentionally in the penalty area to increase the chances of a foul (penalty) being called depending on the collectivist nature of their culture. While individualism is preferred for a loosely knit social framework in which individuals are expected to

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take care of only themselves and their immediate families, collectivism represents a tightly knit framework in society in which individuals can expect their relatives or members of a particular in-group to look after them in exchange for unquestioning loyalty (Hofstede, 1980, 2001).

As individuals/players assume more personal responsibility for their actions in individualist cultures than in collectivist ones, deception by soccer players in the penalty area is expected to be more likely in the latter than in the former. Relying on data from 20,730 matches in 30 national soccer leagues in Europe from 2017 to 2020, we show that country-level collectivism, using Hofstede's conventional measure (1980, 2001) and religiosity as an exogenous proxy, increases the number of penalties taken in the corresponding national soccer league.

Arguments

Over recent decades, a large body of research in economics, psychology, and sport sciences has been devoted to uncovering the determinants of penalties taken in elite soccer. Three variables have been shown to systematically affect how frequent penalties are awarded: home advantage, the referee bias toward home and/or successful teams, and the strength of teams:

- Home teams are more likely to be awarded a penalty kick than visiting teams. The evidence from the German *Bundesliga* (Dohmen, 2008) and the Spanish *La Liga* (Lago-Peñas and Lago-Ballesteros, 2011) indicates that home teams are awarded roughly twice as many penalty kicks as visitors. The mechanism accounting for this home advantage is the different playing strategies of home and visiting teams. As there is more play in the visiting team's penalty area, home teams are more often involved in critical situations in which a penalty kick is awarded. Roughly speaking, the home environment (i.e., the support of the crowd) is associated with more offensive behavior.
- Home and successful teams are more likely to receive an incorrect penalty compared with their opponents, and they are less likely to be denied a penalty they should have been awarded. On the one hand, when penalty kick decisions are disputable, home teams are awarded 28.7 percent of disputable penalties, but visiting teams are only awarded 20.3 percent (Dohmen, 2008). One of the mechanisms explaining this referee bias toward home teams is crowd noise and social pressure (Boyko, Boyko, and Boyko, 2007; Unkelbach and Memmert, 2010). Nevill, Balmer, and Williams (2002) conducted a laboratory experiment to measure the impact of crowd noise. Soccer referees showed videotaped tackles from an English Premier League soccer game to decide whether to award a foul. One group watched the videotape with the noise of the crowd being played and the other groups without; the latter called 15.5 percent fewer fouls against the home team than the former. Interestingly, home-biased refereeing is greater when the score margin is close and the home team is behind in score. There is also evidence that the home bias is mitigated when the fraction of supporters of the visiting team rises, which indicates that conflicting social forces have countervailing effects on individuals (Boyko, Boyko, and Boyko, 2007; Dohmen, 2008; Nevill, Balmer, and Williams, 2002). On the other hand, referees are also biased toward successful teams. In a recent study conducted by Erikstad and Johansen (2020) using video footage (similar to video assistant referees), an expert panel of four Norwegian Premier League (NPL) referees evaluated all potential penalty situations involving two top teams during an entire NPL season. Fifty-five potential penalty situations from matches without

top teams were also rated. Overall, the match referees identified 73.3 percent (22 of 30) of the expert panel-identified penalties during matches without successful teams. Successful teams were awarded 110 percent (11 of 10) of the expert panel-identified penalties, while their opponents were awarded 12.5 percent (1 of 8).

- Top teams are awarded more penalty kicks than bottom teams. This may be due to the fact that top teams have significantly higher figures for attack indicators such as shots, ball possession, and successful passes in the scoring zone and spend much more time in the offensive half of the pitch than bottom teams. Conversely, bottom teams commit significantly more fouls, spend more time in their own half of the pitch, suffer more red and yellow cards, and consequently are sanctioned with more penalty kicks (Lago-Peñas and Lago-Ballesteros, 2011).

These three variables—home advantage, the referee bias toward home and/or successful teams, and the strength of teams—are able to explain cross-match and cross-team differences in the number of penalties (i.e., why penalties are awarded in specific matches and why particular teams are awarded more penalty kicks than others). When making comparisons across leagues or countries, these three variables are constant and therefore the cross-national variation in the number of penalties is puzzling. However, in the data compiled by Poli et al. (2020) for 30 European soccer leagues in the 2017/18, 2018/19, and 2019/20 seasons (winter leagues), a penalty is obtained on average every 295 minutes (i.e., about every three matches), but the standard deviation is huge, 46 minutes (i.e., a half of a match).

We argue that variation in the number of penalties awarded across countries or leagues is explained by the different tendency of players to look for fouls. Physical contact between offensive and defensive players in the penalty area can be exaggerated by the former to use to his/her advantage. Players in European leagues have different tendencies to dive in the penalty area to convince the referee that a foul has been committed and a penalty kick should be awarded. We claim that deception by soccer players in the penalty area is no different than other dishonest behaviors such as cheating on taxes, taking office supplies from work, overcharging clients, or returning used goods as new and therefore responds to the same mechanisms.

In a recent review of the large body of research about dishonest behavior in psychology and economics, Jacobsen, Fosgaard, and Pascual-Ezama (2018:373) illustrated that large macro-mechanisms, such as culture and political ideology, matter in terms of how honestly people in these environments behave and noted that, "collectivistic and socialistic ideologies seem to cause more misbehavior." According to the conventional definition by Hofstede (2001:25), "individualism stands for a society in which the ties between individuals are loose: Everyone is expected to look after her/his immediate family only. Collectivism stands for a society in which people from birth onwards are integrated into strong, cohesive in-groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty." As explained by Mazar and Aggarwal (2011:843–4), individuals in collectivist cultures, relative to those in individualist cultures, tend to hold more favorable attitudes toward sharing responsibilities, perceive risky actions as less risky because they see their group or society as providing a "cushion" that would protect them from harm, make situational rather than dispositional attributions, and have a weaker sense that they themselves—rather than society—determine who they are.

The social consequences of individualism–collectivism are nicely illustrated by the empirical evidence from the following two pieces of research. First, Mazar and Aggarwal (2011) conducted a laboratory experiment with 140 business students to test whether collectivism made people more likely to offer a bribe in an international business setting.

The students were asked to read a scenario that included an international business deal and the opportunity to offer a bribe to seal the deal. People were then asked whether they would choose to offer the bribe and how responsible they felt for their actions. Collectivistic values made more people opt for offering a bribe to win the international business deal, and this was mediated by a lack of feeling personally responsible.

Second, relying on cross-societal experiments from 23 countries around the world, Gächter and Schulz (2016) found that weak institutions and cultural legacies that generate rule violations impair individual intrinsic honesty. After developing an index of the "prevalence of rule violations" (PRV) based on country-level data from the year 2003 of corruption, tax evasion, and fraudulent politics, they conducted the experiments with 2,568 young participants (students) who, due to their young age in 2003, could not have influenced PRV in 2003. Individual intrinsic honesty was stronger in the subject pools of low PRV countries than those of high PRV countries.

As that deception by soccer players in the penalty area is a dishonest behavior, our expectation is that, all else being equal, the number of penalties taken in national soccer leagues will increase with country-level collectivism. Specifically in soccer, Traclet et al. (2011) examined the moral disengagement mechanisms employed by participants in a sample of 30 French male players at a regional level to explain why they engage in cheating behaviors such as faking an injury or running down the clock. A typical feature of collectivism, displacement of responsibility (i.e., players do not feel responsible for their actions and displace responsibility for their antisocial acts on coaches and referees), was the most common excuse employed by players, 55 percent of the time. The conventional wisdom about deception argues that ethical values, including honesty, are transmitted from prestigious people, peers, and parents, and their cheating can set bad examples for dishonest practices (Gächter and Schulz, 2016). Deception in soccer should be no different. Veteran players in soccer exert a strong influence over newcomers and offer detailed information about expected behavior (Benson, Blair Evans, and Eys, 2016). If deception in the penalty area is acceptable in the team, dishonesty is signaled as a way to succeed in the team.

There are qualifications to our argument but we believe the main issues can be dealt with effectively. First, Hofstede's argument has been heavily criticized for presuming a too stable notion of national culture, a flawed interpretation of culture dimensions or using data of questionable quality. Especially, the individualism versus collectivism dimension has been questioned for not capturing the content of the underlying items properly (Beugelsdijk and Welzel, 2018). However, empirical studies strongly support Hofstede's culture framework. In a meta-analysis of 598 studies examining the relationship between Hofstede's cultural value dimensions and a variety of organizationally relevant outcomes, Taras, Kirkman, and Steel (2010) find that individualism has the greatest predictive power compared with the other dimensions and even more importantly for our purposes that had the strongest positive associations at the individual level with avoiding unethical behavior.

Second, soccer squads are increasingly composed of players from different countries and with different cultural backgrounds. The free circulation of players in the European leagues has substantially increased in the last decades, as limits on the number of foreign players in the European leagues have been lifted and clubs become more commercially minded (Milanovic, 2005). The internationalization of the soccer players' labor market is conventionally measured through the number of expatriate players. Expatriate players are those having grown up outside of the national association of their employer club and having gone abroad for soccer-related reasons. According to the recent data compiled by Poli, Ravenel, and Besson (2019), as of October 1, 2019, the proportion of expatriate players in a sample of 31 top division leagues of UEFA members association has increased to a record level of

41.8 percent. In 2009, this percentage was *only* 34.7. Accordingly, it can be argued that not all players in a country/domestic league have the same individualistic–collectivistic values. However, in our view, there are good reasons to expect a strong correlation between the number of penalties taken in national soccer leagues and country-level collectivism even when taking into account the number of expatriate players. On the one hand, domestic players from the corresponding country are the largest group in every European top division league (Poli, Ravenel, and Besson, 2019). On the other hand, empirical evidence about newcomer integration processes in sport teams shows that socialization tactics carried by the coach and the rest of players allow new players to understand the culture and norms of the team (Leo et al., 2020). As acculturation of newcomers is expected, new players should adjust to the team environment and exhibit approved organizational behavior outcomes, including deception in the penalty area when it is tolerated.

Data and Methods

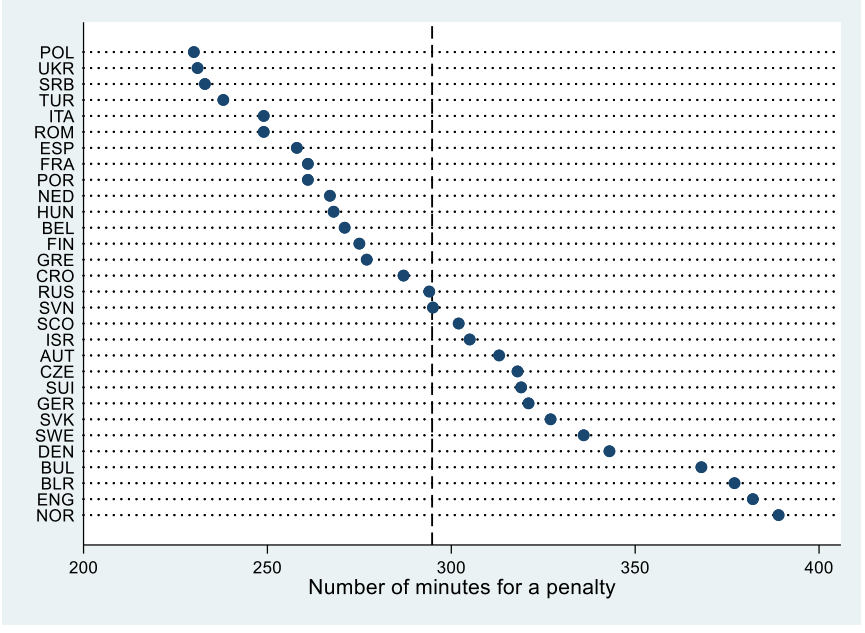
Penalties in soccer are relatively rare events. For instance, at the club level in a sample of 35 European leagues from the 2017/18 season through the first half of the 2019/20 session (winter league), the Serbian side FK Crvena Zvezda led the rankings with a penalty obtained every 209 minutes (i.e., every two and a half matches; Poli et al., 2020). Being a rare and largely random event, it is difficult to construct a research design that could capture the determinants of penalties. To minimize randomness, control for confounders (such as playing at home or away or the strength of the team and their opponent), and allow for statistical inference, the sample should meet three requirements: (i) the number of teams and matches has to be very large, (ii) the unit of analysis should be leagues and not individual teams, and (iii) the competition format should be the round-robin format (i.e., every team plays all others once at home and once away).

First, when examining penalties in competitions involving few teams, such as the group stage and/or the knockout stage in World Cups, the number of matches and penalties is not large enough to run statistical analyses. Additionally, as each team does not play every other team once, the strength of the team and their opponent is very different across matches. Second, when focusing on individual teams in a single national league or in qualifying competitions, such as the South American Football Confederation (CONMEBOL) in the World Cup, for instance, the strength of the team and their opponent is not an issue. However, the number of observations is too small to deal with the randomness of penalties. Finally, when comparing national leagues, hundreds of matches are aggregated, and the use of the double round-robin format makes it possible to control for home advantage and the varying quality of teams.

Our empirical evidence comes from a sample of 20,730 matches in 30 national soccer leagues in Europe in the 2017/18, 2018/19, and 2019/20 seasons (winter leagues). The national soccer leagues included in the sample are the following: Bundesliga (Austria), First Division A (Belgium), Premier League (Belarus), First League (Bulgaria), HNL (Croatia), Czech League (Czech Republic), Superliga (Denmark), Premier League (England), Veikaausliiga (Finland), Ligue 1 (France), Bundesliga (Germany), Super League 1 (Greece), NB I (Hungary), Liga ha'al (Israel), Serie A (Italy), Eredivisie (The Netherlands), Eliteserien (Norway), Ekstraklsa (Poland), Primeira Liga (Portugal), Liga I (Romania), Premier League (Russia), Premiership (Scotland), Super League (Serbia), Super Liga (Slovakia), SNL (Slovenia), La Liga (Spain), Allsvenskan (Sweden), Super League (Switzerland), Super Lig (Turkey), and Premier League (Ukraine). The source is Poli et al. (2020).

FIGURE 1

Number of Minutes for a Penalty in European Soccer Leagues



The data from the clubs playing in the corresponding soccer leagues have been aggregated, and therefore we have 30 observations in our analysis.

The dependent variable is the number of minutes to obtain a penalty in each European soccer league (i.e., the number of penalties divided by the total amount of minutes played in the league—90 minutes multiplied by the number of matches). As can be seen in Figure 1, there is a huge variation across leagues: the variable goes from 230 minutes in Poland (i.e., less than three matches) to 389 in Norway (i.e., more than four matches), while the average is 294.8 minutes.

The key independent variable is the individualism versus collectivism dimension. To examine the robustness of our results, two different measures were employed. First, Hofstede's individualism score (1980, 2001) measures the extent to which it is believed that individuals are supposed to take care of themselves as opposed to being strongly integrated and loyal to a cohesive group. Individuals in countries with a high level of the index value personal freedom and status, while individuals in countries with a low level of the index value harmony and conformity. The data are available at ⟨http://www.geert-hofstede.com/⟩. The variable goes from 25 in Belarus, Serbia, and Ukraine to 89 in the United Kingdom (England and Scotland in our sample).[1] The average is 54.50.

However, Hofstede's individualism score is not completely exogenous to cheating behaviors, our dependent variable. As it is calculated using survey questions that are also employed when capturing cheating, the same concepts are, to some extent, on the two sides of the equation. Additionally, Hofstede's individualism score is strongly correlated with one of our controls, the corruption perception index (the Pearson correlation coefficient is

[1]We have assigned to both England and Scotland the values for the United Kingdom in all the independent variables. The results are the same if England, Scotland, or both are excluded from the sample.

0.71), and therefore it does not disentangle whether the story is about individualism versus collectivism or corruption in the country in general. Our second measure of the key independent variable is religiosity in the country, in particular the percentage of adults who say religion is an important part of their lives according to the Gallup surveys conducted in 114 countries in 2009 ⟨https://news.gallup.com/poll/142727/religiosity-highest-world-poorest-nations.aspx⟩.[2] The variable goes from 17 percent in Sweden to 84 percent in Romania. The average is 45.13 percent. Country-level collectivism has been shown to be strongly related to country-level religiosity (see Gebauer et al., 2017). For instance, using experimental evidence from college students in Turkey, the Philippines, and the United States (where most of the population is Muslim, Catholic, and Protestant, respectively), Cukur, Rosario T de Guzman, and Carlo (2004) found that religiosity is positively correlated with collectivism and negatively correlated—or neat zero in relation—to individualism in the three countries. The correlation between Hofstede's individualism score and the religiosity in the country in our sample of 30 countries is −0.51 (statistically significant at the 0.01 percent level).

Three controls are included in the models:

- The corruption perception index scores by International Transparency in each country in 2018 ⟨https://www.transparency.org/en/about⟩.[3] The scores range from 0 to 100, where 0 is highly corrupt and 100 is very clean. In our sample, the variable goes from 28 in Russia to 87 in Denmark. The average is 61.07. Using this variable, our purpose is clarifying whether deception by soccer players in the penalty area is more frequent in corrupt countries or in collectivistic cultures. Due to multicollinearity, the corruption perception index score will not be included at the same time as Hofstede's individualism score.
- The average number of goals per match in every European soccer league in the 2017/18 season to control for whether teams in the corresponding leagues are more offensive or defensive. The variable goes from 2.25 in Greece to 3.16 in Switzerland. The average is 2.63. The source is Poli, Besson, and Ravenel (2018:57).
- The competitive balance of each European soccer league captured with the average gap between shots from within the opponents' box in the 2017/18 season. This variable captures the varying gap between top and bottom teams in European leagues. The variable goes from 3.83 in Poland to 5.11 in Croatia. The average is 4.33. The source is Poli, Besson, and Ravenel (2018:59).

When aggregating all matches in a given season in every country and making comparisons of national averages, the three conventional variables accounting for the determinants of penalties taken in elite soccer—home advantage, the referee bias toward home and/or successful teams, and the strength of teams—are not able to explain cross-national differences. On the one hand, as the number of games played at home and away are divided into two equal halves everywhere, home advantage and the referee bias toward home teams are expected to be similar in the 30 soccer leagues included in the sample. On the other hand, in all national leagues there are strong and weak teams (i.e., at the top and at the bottom of the table), and therefore the referee bias in favor of successful teams is expected to be present everywhere. Of course, the gap between strong and weak teams is not ex-

[2]The specific question was as follows: "Is religion important in your daily life? Yes/No."

[3]We have tested the robustness of our results using the control of corruption measure from the World Bank (http://info.worldbank.org/governance/wgi/Home/Documents#doc-intro) instead of the International Transparency scores and the results are virtually the same. The estimates are available upon request.

TABLE 1

Descriptive Statistics

Variable	Obs.	Mean	*SD*	Min	Max
Number of minutes for a penalty	30	294.8	46.21	230	389
Importance of religion (Gallup)	30	45.13	16.69	17	84
Hofstede's individualism score	30	54.50	21.08	25	89
Corruption perception index	30	61.07	18.17	28	87
Average number of goals per match	30	2.63	0.23	2.25	3.16
Competitive balance	30	4.33	0.33	3.83	5.11
Domestic players	30	59.92	12.37	36.4	85.2

actly the same in the 30 soccer leagues. Accordingly, in the regressions we control for the competitive balance of each soccer league.

The descriptive statistics of the variables are displayed in Table 1. The models are estimated using OLS. Although the structure of the data is hierarchical (by game, club, and country), we have decided not to run a multilevel model. First, penalties in soccer are rare events (in most of the games no penalties are taken), and therefore the aggregation of data and the use of averages are necessary to examine its determinants. Second, the number of penalties taken in a given country/soccer league is quite stable over time. For instance, in the last 10 seasons of the English Premier League, the average number of minutes to obtain a penalty ranges from 323 minutes in the 2016/17 season to 428 minutes in the 2017/18 season, and the standard deviation is 37 minutes (⟨https://www.transfermarkt.com/premier-league/topErhalteneElfmeter/wettbewerb/GB1/plus/1?saison_id⟩ = 2020). In other words, independent of the season selected for the analysis, the number of penalties in the English Premier League is comparatively low. Finally, the two measures of our key independent variable, Hofstede's individualism score and religiosity, are only available at the country level. In case of using games or teams as unit of analysis, these two variables would be constant across games within countries.

Results

The first piece of evidence supporting our hypothesis is displayed in Figure 2. As expected, the lowess curves indicate that the number of minutes to obtain a penalty is negatively correlated with the percentage of adults who say religion is an important part of their lives and positively with individualism scores in our sample of 30 European soccer leagues. When the individualism versus collectivism dimension is captured with religiosity, there are no outliers. However, when using Hofstede's individualism score, Belarus, Bulgaria, and Norway are unusual observations.

The results of the regression models are presented in Table 2. The first model, with only religiosity as a regressor, explains the 38 percent variance in the number of minutes to obtain a penalty. The coefficient on the importance of religion in the country is the expected negative sign and is statistically significant at the 0.01 percent level. The more individuals in a given country that think religion is important in their daily life, the more frequent penalties are in the corresponding soccer league. More specifically, for every additional percentage point of religious adults in the country, 1.44 less minutes are necessary to be awarded a penalty kick. When using Hofstede's individualism score instead of

FIGURE 2

Relationship Between the Number of Penalties, Religiosity, and Individualism in European Soccer Leagues

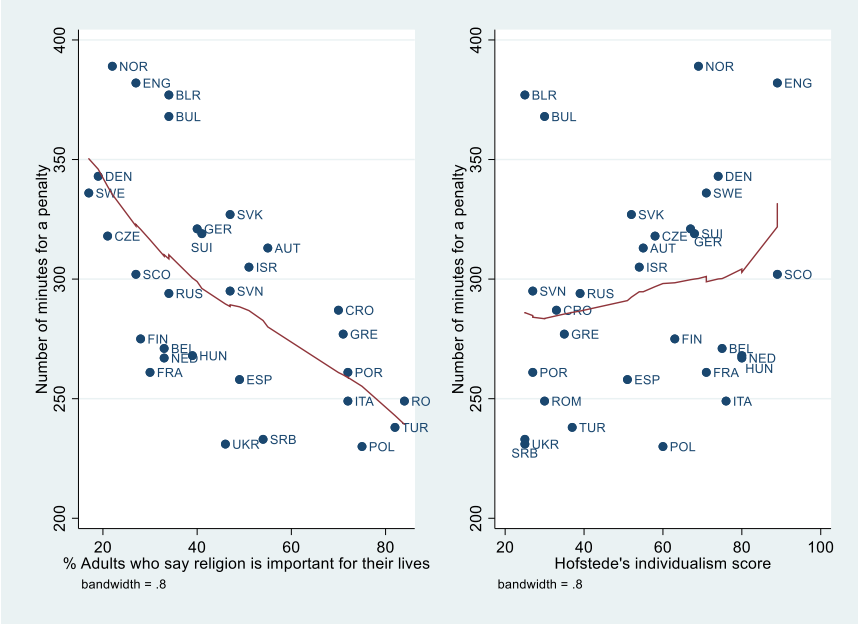


TABLE 2

Determinants of the Number of Penalties in European Soccer Leagues (I)

Variables	Model 1	Model 2	Model 3	Model 4
Importance of religion	−1.44***		−1.33***	
	(0.35)		(0.42)	
Hofstede's individualism score		0.84***		0.95***
		(0.33		(0.45)
Corruption perception index			0.57	
			(0.58)	
Average number of goals per match			−39.82(43.19)	−17.39(42.17)
Competitive balance			1.86(22.76)	14.95(22.12)
Constant	359.95***	238.58***	416.43***	213.28
	(17.17)	(19.79)	(125.45)	(113.59)
R^2	0.38	0.20	0.41	0.22
Observations	30	27	30	27

Note:
*** $p < 0.01$; ** $p < 0.05$. Standard errors in parentheses.

religiosity in the second model, the studentized residuals for Belarus, Bulgaria, and Norway are greater than 2. After deleting these three observations, Hofstede's measure of individualism is statistically significant at the 0.05 percent level and has the expected positive sign: individualistic cultures are associated with fewer penalties in soccer leagues. The fit of the

TABLE 3

Determinants of the Number of Penalties in European Soccer Leagues (II)

Variables	Model 1	Model 2	Model 3	Model 4
Importance of religion	−1.53***		−1.41	
	(0.37)		(1.76)	
Hofstede's individualism score		1.01***		−2.58
		(0.37)		(1.51)
Domestic players	−0.43(0.59)	0.56(0.60)	−0.33(1.65)	−1.85(1.28)
Religion × Domestic players			−0.002(0.030)	
Hofstede's score × Domestic players				0.058***(0.025)
Constant	389.54***	198.48***	383.64***	349.08***
	(44.34)	(45.45)	(100.75	(79.01)
R^2	0.39	0.23	0.39	0.36
Observations	30	28	30	27

Note:
***$p < 0.01$; **$p < 0.05$. Standard errors in parentheses.

model is worse than in model 1. In summary, our hypothesis about the cultural sources of deception by soccer players in the penalty area is strongly supported.

The results are qualitatively the same when including the controls. In the third model, where religiosity is again the key independent variable, the three controls are not statistically significant, while the importance of religion remains statistically significant at the 0.01 percent level with a slightly smaller coefficient. In other words, the cheating behavior of soccer players is not reflecting the existing corruption in the country but a dishonest behavior stimulated by collectivism. The variables capturing the logic of soccer—the average number of goals per match and the competitive balance—do not play any role. Finally, in the fourth model, Hofstede's individualism score is the only statistically significant variable, again at the 0.05 percent level, and its coefficient is larger than in the model without controls.

In Table 3, we examine whether the mixing of cultures due to the increasing internationalization of the soccer players' labor market affects the relationship between country-level collectivism and the number of penalties taken in national soccer leagues. We have created a continuous variable, *Domestic players*, capturing the proportion of domestic players in every league. The variable goes from 36.4 percent in Portugal to 85.2 percent in Serbia. The average is 59.92 percent. In models 1 and 2, we regress the number of minutes to obtain a penalty on religiosity and Hofstede's individualism score controlling for the proportion of domestic players in the corresponding league. As can be seen, the control is not statistically significant and produces somewhat bigger coefficients on religiosity and Hofstede's individualism score. In models 3 and 4, we add an interaction term, *Religion × Domestic players* and *Hofstede's score × Domestic players*. While the first interaction is far from being statistically significant (model 3), the coefficient on the interaction *Hofstede's score × Domestic players* is statistically significant at the 0.05 percent level: as expected, the more domestic players, the less frequent penalties are in individualistic cultures (model 4).

Conclusions

During the 2018 soccer World Cup, French defender Lucas Hernández said he had deliberately thrown himself onto the pitch to try to send off Australian de-

fender Mathew Leckie. However, following Hernández's cheeky confession about his antics against Australia, there was no apology from the French team and little criticism in the French media. Instead, the backlash came from the United States—with *USA Today* dubbing Hernández, the "World Cup's most blatant cheater" ⟨https://eu.usatoday.com/story/sports/columnist/martin-rogers/2018/06/20/lucas-hernandez-france-world-cup-diving/718024002/⟩—and legions of outraged Australian fans who bombarded the French player's social media accounts with abuse.

Is cheating in soccer more acceptable in some countries than in others? According to the evidence we have provided in our analyses using data from 20,730 matches in 30 national soccer leagues in Europe from 2017 to 2020, the answer is definitively yes. We have shown that the huge variation in the number of penalties across European soccer leagues is largely explained by the different tolerance toward deception on the soccer field. In other words, the more (less) collectivistic (individualistic) their culture, the more likely soccer players are to fall intentionally in the penalty area to increase the chances of a foul being called. The robustness of our results has been shown using two measures of our key independent variable, Hofstede's individualism score and the percentage of adults in the country who say religion is an important part of their lives.

Our analysis of how the individualism versus collectivism dimension affects the number of penalties awarded raises some relevant research questions. First, our aggregate-level evidence is crying out for additional data at the player level. Although obtaining information from professional soccer players about why they engage in cheating behaviors such as faking an injury is not easy, this evidence will be crucial for disentangling the individual-level mechanisms accounting for the relationship between collectivistic cultures and the number of penalties taken in elite soccer. Second, it is worth exploring whether the implementation of the Video Assistant Referee has changed the tendency of players to look for fouls.

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