UNIVERSITÀ CATTOLICA del Sacro Cuore

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This work extends previous research published in a companion paper (Caruso and Di Domizio, 2013) and in a shorter communication (Caruso et al. 2015). Earlier versions of this work have been presented at the Western economic association conference 2015, at the 2014 Silvaplana Workshop of Political Economy, the 6th ESEA European conference in Sport Economics in Antwerp and at the RMIT School of EFM Research Seminar (2015).

Abstract

This paper examines the role of national identity in explaining on field aggression during soccer competitions between national teams. In particular, this paper empirically investigates whether differences in macro identity markers such as: the economy, religion, education, governance and power between nation-states influence football players' aggressiveness across a range of international FIFA competitions. We analyse the finals of the FIFA World, Confederations and Under 20's World Cups as well as the Olympic tournaments from 1994 to 2012, resulting in 1088 individual matches. Our aggression focus is derived from both the (i) weighted measure of penalties (red and yellow cards) and; (ii) the count of sanctions (fouls) issued during a game as a proxy measure for on field aggression. We generate national identity factors from a set of macro level variables in order to estimate the size of national differences, from which we determine the impact that national identity has on the emergence of on field aggression between rival countries. Our results show that these national identity factors are significant predictors of aggression, while the match specific variables seem to be of less importance. Interestingly, our results also show that these aggression factors disappear once we include referee fixed effects, indicating that while national differences are played out on the football pitch the referees are effective at controlling the aggression.

Keywords: Football (soccer) tournaments; penalties; international relations; FIFA competitions, national identity, religion, governance, power, corruption.
Jel Codes: D71, D74, L83; F51; F61

Introduction

History demonstrates the human capacity for aggression and violence - its pages are strewn with conflict, war and our celebration of violence and death sports. Sport, like war, involves threat, coercion, aggressive behaviour, extreme competition and violence. Our social evolution has developed in parallel with our ability to harness sport as an outlet for violence and aggression, such that sport has become the socially acceptable form of violence. We crowded into the coliseums to watch the gladiatorial slaughter of opponents (not all human or willing) and lined the lists of medieval tourneys as man and beast charged each other clad in masses steel armour[1]. We have transformed pugilism from illegal gatherings in dark alleyways and backrooms, where men fought bare knuckled and without rules into precisely timed gloved bouts with rules and referees. The latest iteration of pugilism is the Ultimate Fighting Competition (UFC), where opponents face off in a cage using any number of styles (boxing, wrestling, martial arts etc.) to subdue their opponent. Through systematic codification sport has become a socially acceptable outlet for violence and aggression, over time this has resulted in fewer deaths. And while it has become less violent it can often be no less physical or aggressive, but has been changed to suit our modern way of life. Modern society has so many sporting codes that there is a sport to suit every level of violence, i.e. a perfect discrimination for violence. Not only have we codified sport, we have done so for war resulting in agreements such as the *Geneva Convention* and the *Rules of Engagement*.

Historically, we would only observe the mass's rallying behind a single leader or cause for large-scale wars, either across states or nations. In these conflicts armies and supporters would proudly display allegiances through the wearing of emblems or colours, displaying tribal, proto-kin type group behaviours. Sporting teams have tapped into this, allowing regions or entire nations to be able to

[1] Gladiators and Knights were truly the art of war turned into a recreational and sporting competition.

re-identify with a single set of sporting colours and values. These sporting teams have become surrogate vessels for identity and pride, which are held up as the physical embodiments of our values and beliefs. We can bask in the glory of victory or suffer in defeat. National teams are the grandiose extension of this, where the teams are instruments of national will and often for a political agenda. International matches are an opportunity to right wrongs or for the satisfaction of slights, either real or perceived. This makes international sport that much more intense and exciting, especially when confronting the old enemy, a bitter rival, the national sibling or the former colonial masters. This often results in contests spilling over into conflicts, as a result of who we are (i.e. our identity). Football (soccer) is the most universally followed and played sport in the world. It is played at all levels, from street matches to grand stadiums filled with tens if not hundreds of thousands of spectators and is telecast around the globe to be viewed by millions. The pinnacle of this sport is the FIFA World Cup, held every four years and is the grandest of stages – nation against nation for pride and glory. There are some that argue that it is just a *game* and not to be taken all that seriously. As an example of how serious this game has been taken in some circles, Columbian defender Andrés Escobar Saldarriaga was assassinated after the 1994 World Cup. It was speculated that his own goal was a major contributor to their loss against the USA, who has been seen as long standing enemy of the Columbian drug lords and often vilified by the people. But what about on the field, do we observe similar national differences being played out on the pitch during international fixtures?

In what follows, we investigate whether national identity has a significant impact on player aggressiveness during matches. Specifically, does the difference in national identity translate into more aggressive behaviour during international football tournaments between national teams? In an attempt to understand these questions we focus on the relationship between national identity and aggressive behaviour on the soccer pitch, as observed in international FIFA tournaments from 1994 to 2012, which includes the World, Under 20's and Confederation Cups and Olympic tournaments. The paper is

organized as follows: we begin with the relationship between Sport and Violence; we then discuss Identity and the role of national differences. We discuss our data and the variables used in the analysis, including both of the independent variables we use to investigate aggression. Finally, we present our analysis and concluding remarks.

1. Sport and Violence

As noted above, violence and sport are often intertwined. Sport involves threat, coercion, aggressive behaviour and extreme competition and such intertwining also shape both formal and informal institutions. It is possible to highlight several examples from recent history. The Soviet bloc during the Cold War is a perfectly illustrative example in this respect. Army and security agencies were pervasive in sport systems. Athletes were commonly either soldiers or police officers. Above all, sport was intimately linked with foreign policy. (Riordan, 1974; Howell, 1975; Cooper, 1989; Riordan, 1993).

Even in the midst of warfare, sport can break out. On Christmas Day 1914 (WWI), English and German forces agreed to a temporary truce and ceased hostilities. Individuals from both sides came together to sing hymns, exchange simple gifts (food) and to play football. On the day before and the day after they were actively trying to kill each other, but on that day, on a football field, pitched in the no man's land between trenches, they came together through sport[2]. Elias and Dunning (1986) considered the soccer match as the stylisation of a war and this approach has been consequently used to interpret violent off-pitch phenomena such as hooliganism (Caruso and Di Domizio, 2015; Leeson et al., 2012). The role of violence in sport has been widely debated in the economic literature, particularly for soccer (Giulianotti et al., 1994). Emergence of violence in sport is

[2] The anecdotal story states that the English won the match 3-2, which was the first time that the English beat the Germans, the only other time this occurred during a non-friendly was the contentious win during the 1966 World Cup.

consistent with the multi-shaped interpretation of sport as expounded in Caruso (2011, p.458): *"... a joint indivisible good, which is produced and consumed by different agents at a certain place and time. It can have multiple shapes. In fact, it is a combination of: (i) a market good, (ii) a relational good and (iii) an expression of threat, power and coercion. All components differ in intensity, but differently from (i) and (iii) the relational component must be necessarily positive"*.

Other relevant interpretation on the linkage between sport and violence can be found in Bandura (1973) and Dunning (1999). In the first, violence is interpreted as the effect of the frustration generated by defeat. In the latter aggressiveness is associated to soccer matches because it links to masculine struggle, seen surely as territorial struggle and excitement. This is one of the reasons why sport is often considered an interesting outlet for political tensions or alternatively as a means of building trusts between rival countries (Nygård and Gates 2013, Jackson 2013, Jung 2013). This has led to team-sports themselves becoming more commonly analysed in the light of national identity, as well as the individual teams and players. As is often the case with group interaction it creates a collective identity, when national teams compete with each other in high stakes international soccer tournaments it generates feelings of nationalism. It is this sense of nationalistic pride that led to off pitch violence by fans or 'hooliganism'.

Hooliganism was thought to have started in the United Kingdom and has spread to almost all European countries (Spaaij, 2008). A considerable volume of research has incorporated actions of hooligans in a framework of rational behaviour in order to identify the optimal counter strategy to be implemented by governments and their results (Poutvaara and Priks, 2009; Marie, 2011; Caruso and Di Domizio, 2014). However, with respect to the violence on the soccer pitch, only recently have researchers begun to empirically disentangle the effect of culture, institutions and poverty in determining violent behaviour of players. Miguel et al.'s (2008) analysis supports the idea that the national culture and identity influence aggressiveness, showing a strong relationship between the

history of civil conflict and violent behaviour (number of cards issued). Cuesta and Bohórquez (2012) present different results in their empirical investigation on Latin America national teams competition (Copa Libertadores). They show that the violent behaviour of players depends exclusively on soccer characteristics, and that their nationality is not significant as far as their violent behaviour on the pitch is concerned.

It is evident that violence and aggression do not need to take the large-scale shape of actual wars or rebellions. It is clear that the sports environment is very close to an experimental environment, which was neatly summed up by Goff and Tollison (1990, pp. 6-7): *"Sports events take place in a controlled environment, and generate outcomes that come very close to holding 'other things equal.' In other words, athletic fields supply real-world laboratories for testing economic theories. The data supplied in these labs have some advantages over the data normally used in economic research ... The economist can perform controlled experiments similar to those performed by the physical and life scientists. Sports data afford a similar opportunity. Although the laboratory is a playing field, the data generated are very 'clean.' Most external influences are regularly controlled by the rules of the game".*

As such football matches can be seen as a natural environment where individuals will act according to their preferences without influence from any experimenter effects, which is ideal to seek explanations and answers to the impact of national identity on behaviour.

2. Identity

But what is National Identity? Smith (1991: p 14) in the book "National Identity" states that it is "*complex constructs composed of a number of interrelated components – ethnic, cultural, territorial, economic and legal-political*". In fact, in the current context we assume that national identity has a crucial influence on individual evidence that eventually shapes individual behaviour. The pioneering work on impact of identity is Boulding (1956). Recently, Akerlof and Kranton (2000) showed the impact that identity has on economic life

and may help in the understanding of destructive activities and violent behaviours of individuals. The main theoretical insights from the model are: (1) payoffs of people depend upon their own actions and others' action; (2) third parties can shape persistent change in these payoffs via the impact on beliefs and self-images; (3) identity is not deterministically shaped. In fact, people choose their identity; (4) the self-image with respect to the social reference group is the driver of behavioral prescription. In simpler words, whenever an individual identify herself or himself into a social group, she or he will choose the actions that do match with prescriptions of that social group. If someone chooses a different action she or he would be likely to see a loss of identity associated with that social group. In turn, any loss of identity would translate into a decrease of utility. Needless to say, this paves the way to expand the room of mainstream behaviors.

However, rather than looking at the factors that make up identity at the individual level, we look at the collective identity of a nation, such an identity function may be helpful in explaining international conflict and shows of aggression, especially within the frame of sport. That is, in our context, the social reference group is the 'nation-state'. Therefore, whenever individuals identify themselves into a nation-state, they are likely to choose behaviors that match with that national identity. Otherwise, they would experience a loss in utility. In addition, we analyze a very specific case in which national identity matters. That is, a football match between national teams is a kind of closed environment. When playing a match, players are perhaps more likely to espouse behavioral prescriptions of their national identity because they are not allowed to change their identity. This holds also for crowds of fans that follow the national teams.

In the same way that identity theory describes important traits, norms, behaviours and beliefs of a group, national identity examine some the more obvious macro factors, which could include: economic power, religion, government etc. In particular, national identity has also to be seen in relation to other national identities. That is, in fact an individual of nation A is likely to adopt behaviours

towards individuals of nation B that match relationship between nation A and nation B. This is in line with the conceptual idea at the heart of Guiso et al. (2009) investigation into the effect of cultural biases on trust between nations, where the larger the cultural gap observed between nations, the lower the level of trust. This leads to lower levels of trade and inherent national rivalry, where historically these issues could have led to war. While this could be considered a blunt instrument, it gives us a place to start (reference point). Ideally, one would include a measure of culture, but this is a difficult concept to pin down and even harder to conceive of a single variable measure. Conflict would likely arise when the perceived identity of a nation is at odds with that of another, e.g. in governance we observe the greatest distance between an open democracy and that of a dictatorial state (say North Korea and the USA). Religious identity would be similar, where the greatest distance would be that of a single state religion and a pluralistic society with open religious freedom.

Then, we change the focus and the parameters to investigate the macro factors involved in National Identity resulting in the following function:

$$Identity = f(g, e, m, a, r, c, p, k),$$

where national identity is a function of Governance (g), Economic Power (e), Military Spending (m), Aggressiveness (a), Religious Freedom (r), Conflict (c), Political Freedom (p) and Corruption (k). While this function is representative of the identity we do not know the true relationship of the function, as such we are only able to analyse the individual elements. This results in us being able to create a metric for each element and determining if the differential is a significant predictor of conflict within the confines of a soccer pitch. Furthermore, this function may also help us to understand the emergence of other destructive activities and violent behaviours. This is much in line with Basu (2005), who demonstrated that identity is indeed a source of conflict. Sen (2008) supports this view by discussing how the emergence of violence is not solely related to

economic factors but must be interpreted with a view towards some components of identity (nationality, culture and religion). In line with this Murshed (2009) models the influence of identity within two forms of low intensity violence, i.e. civilizational or cultural conflict and sectarian violence. Our approach is to determine if a national identity are likely to shape a players behaviour on the pitch, not in its own right but when compared to that of the opponent.

3. Data and Metodology

We exploit a novel data set that includes all final phase matches of the FIFA World Cup (308), Confederations Cup (120), Under 20's World Cup (500) and the Olympic Games matches (160), from 1994-2012[3], covering 90 national teams[4]. Specifically, we investigate players' aggressiveness efforts by means of two variables: *(i) WINT* a weighted measure of penalties per match and *(ii) FOULS* the count of fouls committed[5]. We include a set of independent control variables that are divided into four basic groups: *(i)* **Tournament** and **Match** variables drawn from sport literature; *(ii)* **Identity** variables; and *(iii)* Geographical and institutional (**GeoInst)** variables. From these variables we then estimate a regression equation, by means of negative binomial using maximum likelihood techniques. All the variables are discussed in the following sections and shown in Table 1.

3.1 WINT & FOULS

The weighted measure of intenseness (*WINT*) has been calculated by

[3] Full details on matches by competitions appear in the Appendix in Table A1. The list of countries and the specification of matches played are available under request.
[4] We consider the team Yugoslavia (World Cup 2000) as for Serbia and Montenegro (World Cup 2006) and Serbia (World Cup 2010).
[5] Full match reports are provided by FIFA on the web in the statistic section of each competition and can be retrieved from the following sources: http://www.fifa.com/worldfootball/statisticsandrecords/index.html.

using the weighted issuing of yellow and red cards throughout a match as follows:

$$WINT = (1st\ yellow\ card\ ) + 2 \times (2nd\ yellow\ card) + 3 \times (direct\ red\ card)$$

The weighting process is used to distinguish a single direct red card, usually issued after a very violent foul, from the highest sanction issued as the sum of less violent fouls[6].

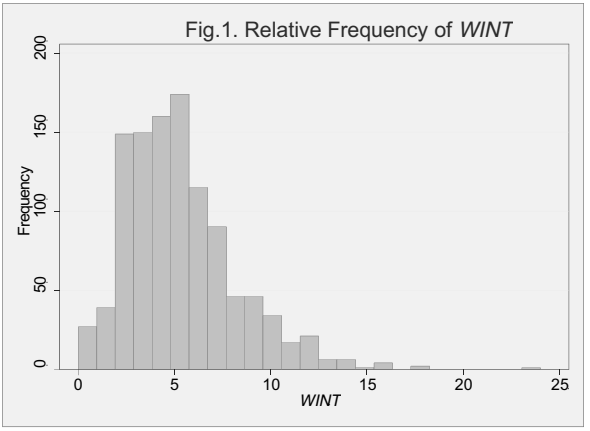
Table 1: Descriptive statistics

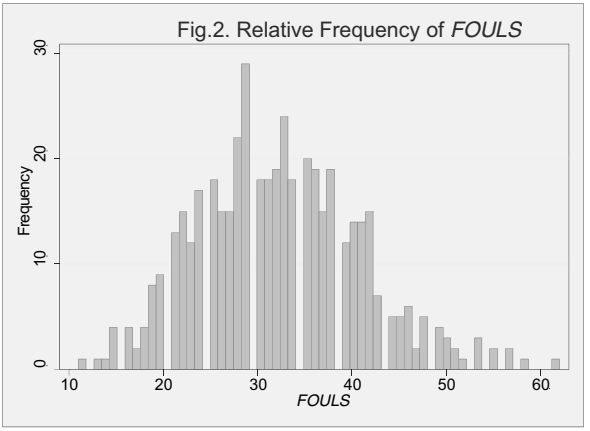
Variables	*Obs.*	*Mean*	*SD*	*Min*	*Max*
WINT	*1088*	5.036	2.982	0	24
FOULS	*464*	32.222	8.611	11	62
Ln Rank Difference	*1088*	1.363	1.065	0	4.927
Trade Imbalance	*1066*	0.778	0.283	0	1
Education Imbalance	*1073*	0.297	0.235	0.001	0.943
Power Imbalance	*1088*	0.704	0.272	0	0.999
Armed Conflict	*1088*	1.279	0.668	0	2
Attendance ('000)	*1088*	30.464	22.686	0.5	110
Distance ('000) km	*1088*	8.460	4.371	0.174	19.877
Religious Difference	*1078*	8.645	6.520	0	32
Governance Difference	*886*	3.746	3.283	0	12
Corruption Difference	*686*	2.524	1.736	0	8.1
Same Religion	*1088*	0.262	0.440	0	1

[6] The dependent variable was also introduced without distinguishing types of yellow cards, and no significant differences emerge in the estimations.

Dummies	*Obs*	0	1
Knockout Stage	*1088*	786	302
World Cup	*1088*	780	308
Confederations Cup	*1088*	968	160
Under 20's	*1088*	588	500
Olympic Games	*1088*	928	160
Hosting Country	*1088*	958	130
Over Time	*1088*	1002	86
Penalties	*1088*	879	209
Ex Soviets	*1088*	933	155
Contiguity	*1088*	1057	31

The issuing of any cards during any particular match are subject to the referee's discretion and are in general, only issued for fouls. However, the awarding of fouls is much more common and could be seen as a proxy for general match aggression. Thus, the second measure *FOULS* is the total count of fouls sanctioned by referees during a match, but these counts are only provided from 2002 onwards which reduces the number of matches down to 464.



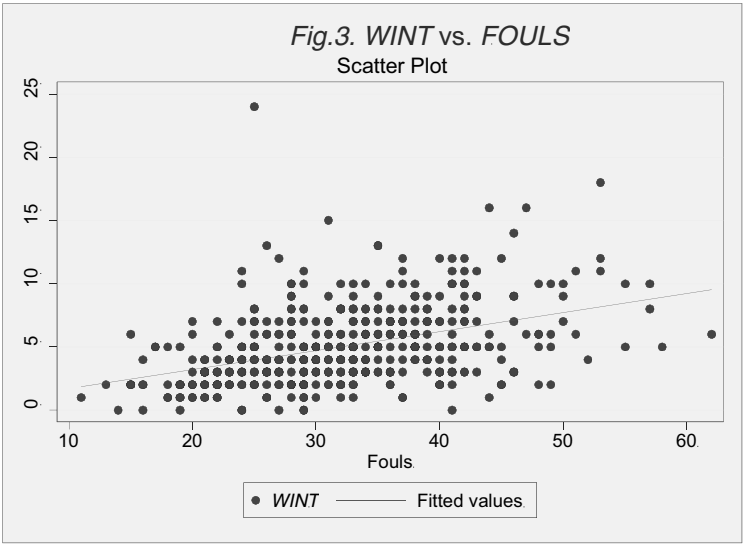


The subjectivity of issuing cards during a match could lead to a potential distortion of the distribution and by extension *WINT*. While there is a positive moderate correlation between *WINT* and *FOULS* (as confirmed by the Pearson index – 0.419), the relative frequencies of *WINT* and *FOULS* appear to be distributed according to different probability functions (see Fig 1 and 2)[7]. The visible hand of the

[7] *WINT* fails standard tests for normality but holds for *FOULS*.

referee seems to play a relevant part in cards distribution,[8] as confirmed by the scatter plot of the two variables (Fig 3), where the variability of the weighted intenseness is far of being explained totally by *FOULS*.

Fig.3. WINT vs. *FOULS*



3.2 Tournament and Match

The primary tournament variable of interest is associated to the closeness of the match and is associated to the FIFA World ranking of each team prior the competition under investigation[9]. Following Krumer et al. (2014), that adopted this approach to better approximate the gap between tennis players, we computed the natural logarithm of the absolute difference in the FIFA World

[8] On this issue see Dawson et al. (2007).

[9] Data on ranking are provided by FIFA and retrievable on line in www.fifa.com/worldranking/rankingtable/index.html.

Ranking. We do not formulate unidirectional expectation on the sign of the *Ln Rank Difference* coefficient, while an expected balanced match may be harsh, by increasing the gap in the teams' recognised strengths (ranking) may induce a more aggressive attitude of the underdog team as an attempt to reduce the deficit. The remaining variables are dummies signalling the typology of the match (knockout phase versus group phase matches), the matches played by the hosting country, those finished in over time, and those in which at least a penalty was assigned. We expect a positive sign for the associated coefficients, *Knockout Stages*, *Hosting Countries*, *Over Time* and *Penalties*.

The second group of match-specific variables we use to control in game stressors that may generate an additional or external source of aggression (see e.g. Savage and Torgler, 2012). First, we consider the crowd, namely the *Attendance* (measured in thousands). It has been shown that referees decision can be affected by the size/noise generate by the crowd (see e.g. Schwartz and Barsky, 1977; Greer, 1983; Pollard, 1986; Nevill et al., 2002), which can affect the issuing of fouls and cards. Furthermore, it is likely that a more passionate environment may induce a more aggressive behaviour of players; as such the associated coefficient is expected to be positive.

3.3 National asymmetries

The second group relates to variables summarising the national characteristics, which broadly make up the national identity differences between each team, these include: the differential in bilateral commercial trade; the Education Gap; Power Gap; Religious Freedom Gap; Governance Gap; and the count of armed conflicts after the end of the World War II. First, we consider the impact of trade on relationship between states and eventually on identity. In fact, this is a classic topic of international relations and a substantial literature had analysed the relation between trade and conflict [Hegre et al. (2010); Martin et al. (2008); Reuventy and Kang (2003); Reuveny (2000), Polachek (1997, 1999, 1980); Polachek et al.

(1999); Hirschman (1945)]. From the mentioned literature, it is clear that asymmetry in trade is often considered a crucial aspect of trade relationships. In the light of this, we first compute a trade penetration gap index (*Trade Imbalance*)[10] as follows:

$$Trade\ Imbalance = 1 - \frac{\min\left[\frac{Import\ A\ from\ B}{Import\ A};\ \frac{Import\ B\ from\ A}{Import\ B}\right]}{\max\left[\frac{Import\ A\ from\ B}{Import\ A};\ \frac{Import\ \ B\ from\ A}{Import\ B}\right]}$$

where *Import A* from *B* (*Import B from A*) are the gross imports (c.i.f.) of country/team *A* (*B*) from country *B* (*A*), and *Import A* (*B*) are total imports (c.i.f.) of country *A* (*B*). The index ranges between 0 and 1; it is decreasing in the distance of relative bilateral trade. It is 0 (no gap) for countries with equal share of trade exchanges, and 1 if at least one country has no commercial relation with the other one. Stated simply, if the index approaches to 1, there are asymmetric gains from trade in the bilateral relationship. USA and Germany, from our sample, have an average index around 0.796 and 0.835, respectively; i.e. USA and Germany exhibit a large bilateral trading gap. If we consider the value of the index between them, it is about 0.266. This gap rises slightly if we compare United States or Germany to Italy (0.447 and 0.661 respectively) and England (0.651 and 0.626), while it increases if compared to Portugal (0.946 and 0.998) and Cameroon (0.966 and 0.997).

[10] The trade data has been taken from International Monetary Fund (2013), Direction of Trade Statistics (Edition: June 2013) Mimas, University of Manchester. DOI: http//dx.doi.org/10.5257/imf/dots/2013-06. Data on commercial trade are in current US dollars. Final data retrieved on February 2014. Note that data on England and Scotland are those from United Kingdom, data on Yugoslavia and Serbia are from Serbia and Montenegro (up to 2004) and from Republic of Serbia, data on Belgium prior 1998 are from Belgium and Luxembourg.

As measure of human capital imbalance, we employ an Education gap (*Education Imbalance*) computed using the percentage of Secondary School Enrolment (gross) of both countries provided by the World Bank in the Catalogue Sources of World Development indicators[11]. We computed the imbalance as the difference between 1 and the ratio between the two percentages taking the minimum value as the numerator.

$$\textit{Education Imbalance} = 1 - \frac{\min[\%\ \textit{Secondary School Enrolment}\ (\textit{Country A};\textit{Country B})]}{\max[\%\ \textit{Secondary School Enrolment}\ (\textit{Country A};\textit{Country B})]}$$

Then, the *Education Imbalance* index ranges between 0 and 1, and is increasing in the distance of school enrolment ratio of countries. That is, at a value of 0 there are no differences in the educational attainments of either nation, but as the value increases there is a widening disparity in national education levels. Take again United States and Germany: the average education imbalance scores are 0.175 and 0.197, respectively, whereas the gap between them is about 0.046, namely there is no significant difference in education levels. The gap is similar to other developed countries Italy (0.022 and 0.025, respectively) or England (0.078 and 0.019, respectively), but is extremely different for African nations like Ghana, whose gap is about 0.465 and 0.433 respectively.
Next we employ the variable *Power Imbalance* computed as the previous gap measures using the Composite Index of National Capability (CINC) of the two countries, provided by the Correlates

[11] The total enrolment in secondary education, regardless of age, is expressed as a percentage of the population of official secondary education age; it is the more inclusive data on school participation for our sample. This is available on line at http://data.worldbank.org/indicator/SE.SEC.ENRR (data retrieved between December 2013 and September, 2014).

of War project in the National Material Capabilities data set (NMC version 4)[12]:

$$Power\ Imbalance = 1 - \frac{\min[CINC\ (A);\ CINC\ (B)]}{\max[CINC\ (A);\ CINC\ (B)]}$$

The CINC index uses data on urban and total population, iron and steel production, energy consumption, military personnel and expenditure to proxy the power of each country. Yet United States and Germany show an average gap of 0.890 and 0.648 with the observed compared countries, and their gap is about 0.807. We expect a positive sign of the associated coefficient because the football matches can be viewed as an opportunity of revenge for less power countries. That is, a more aggressive behaviour of players on the soccer pitch may be induced by that chance of redemption. In addition to power, we also include an *Armed Conflict* variable intended to capture whether, or not, a country has been involved into an armed conflict. In line with Cuesta and Bohóruqez (2012) and Miguel et al. (2008) this variable shows the country's inclination toward armed conflict (either internal or external). We draw information from Uppsala Conflict Data Program (UCDP)[13] to associate a discrete variable (0, 1, 2) with each single match in order to capture if none, one or both countries experienced an interstate or an intrastate war after 1946.

In line with the idea of religion being an integral part of a national identity, we have included a *Religion Gap* (*R-GAP*) variable, measuring the differential in religious freedom between the two

[12] Data on CINC are available on line in http://www.correlatesofwar.org/ (data retrieved from December, 2013 to April, 2014). For details see Singer et al. (1972).

[13] See Table A3 for details on intrastate or interstate conflict location; data is available online at http://www.pcr.uu.se/research/ucdp/datasets/ucdp_dyadic_dataset/ (data retrieved on November, 2013). For further discussion see Harbom et al. (2008).

countries. We aggregate the four indexes from the Association of Religion Data Archives (ARDA, 2014)[14]

$$\textit{Religious Difference (R-GAP)} = \left| \left(ARDA_{CountryA}\right) - \left(ARDA_{CountryB}\right) \right|$$

Once these scores are aggregated we have a religion score that scales from 0-40 for each national team, which we then calculate the absolute size differential. In addition to the regulation of religious freedom we have included dummy terms for the same base religion (0 = Same, 1 = Different)[15]. Anecdotally, we observe that nations are less likely to engage in conflict if the underlying identity, legal and social belief structures are similar (ceteris paribus). However, we do observe a number of conflicts across religious lines.

In line with this we include the *Government Difference* (*G-GAP*) index, a measure of difference in the political/government process and freedom between each country. We utilise the indexes created by "Freedom House" (Freedom House, 2014) [16] that measures the Political Rights (PR)[17] and Civil Liberties (CL)[18] of each nation's citizenry[19]. We take the average of each nation's PR and CR and

[14] These four indexes measure "Government Regulation", "Government Favouritism", "Social Regulation of Religion", and "Religious Persecution" of each country ranging from 0-10, with the lowest score (0) being the least restrictive and the highest (10) being the worst or most restrictive.

[15] Catholic and Lutheran are both classified as Christian.

[16] We only have differential measurements dating back to 1998, based upon a 1- 7 scale (1 being the best and 7 being the worst).

[17] The Political Rights index includes: Electoral process, Political Pluralism and Functioning of Government.

[18] The Civil Liberties index includes: Freedom of Expressions and Belief, Associational and Organisational Rights, Rule of Law and Personal Autonomy and Individual Rights.

[19] PR index ranges from 1-7, where the lower score equates to more political rights and the CL index ranges from 1-7, where again the lower the score the greater the civil liberties for its citizenry.

calculate the absolute difference in size between each national team, as shown below:

$$\textit{Gov. Difference} = \left|\left[\left(PR_{CountryA}\right) + \left(CL_{CountryA}\right)\right] - \left[\left(PR_{CountryB}\right) + \left(CL_{CountryB}\right)\right]\right|$$

The absolute size difference gives us a measure of the distance between the two teams in terms of their national government identity, i.e. the higher the differential score, the greater the national political/government difference.
The final identity variable measures the absolute size difference in levels of perceived corruption between the two nations ranked on a 10 point scale; this index is generated using the Transparency International corruption perception scores covering all the match periods. It is important to note that this measure only extends back to 1997, as such we do not have a measure for prior tournaments reducing the total number of observations to 464 (this includes the 1994 World Cup, 1995 Confederation and Under 20 World Cups and the 1996 Olympic Games). The Corruption Gap is estimated as below:

$$\textit{Corruption Difference} = \left|\left(TI\_Score_{CountryA}\right) - \left(TI\_Score_{CountryB}\right)\right|,$$

where the Transparency International Score (*TI_Score*) for each nation during the year of the event is used as a proxy for the probability that aggregate levels of corruption may be representative of the teams willingness to show aggression or break FIFA rules.

3.4 Geography and Institutions

Finally we include some geographic and institutional variables including: *(i) Contiguity*, a dummy variable if countries are neighbours; *(ii) Distance*, which is the distance in kilometres between the capitals of countries involved in the match; *(iii) Ex Soviets*, a dummy variable which signals those matches involving countries that were part of Soviet bloc in the Cold War period;[20] *(iv)* dummies associated to each tournament to test if some edition stands out for aggressiveness. Table 1 summarizes descriptive statistics of the dependent variables and dummies used in the regressions[21].

4. Estimation strategy and results

Given the count nature of the dependent variables and the over-dispersion between the mean and the variance of both, we used a Negative Binomial regression (type II) instead of a Poisson model. As suggested by the Principal Component Analysis (PCA) test we have included all the explanatory variables of each group in the regressions, Tables 2 and 3 present the results. For all equations (of both models) we performed the Likelihood Ratio and Wald tests considering specification (1) as the baseline model. The comparison of results with respect to the models (1) confirms the hypothesis that sport variables are not exhaustive in explaining the aggressive attitude of players on the soccer pitch. We slowly introduce each of the national identity variables in order to investigate the impact each has on the overall relationship with aggression (2-6). We observe that all the national identity variables are significant, except for the difference in Governance[22]. These specifications (2-9) indicate that

[20] In line with Riordan (1974) where the role of sport in socialist countries, viewed as a tool to gain international prestige, we expect a positive sign of the related coefficient.

[21] We have included a complete variance-covariance matrix in Table A2 in the appendix.

[22] All national identity variables are strongly significant when singularly included in the baseline regression, available upon request.

national identity plays a strong role in the prediction of on field violence between national teams, which remain robust even when we control for additional factors such as *Attendance*, *Distance*, *Ex-Soviet*, sharing a border (10) and tournament type (11).

Table 2: MLE – Negative Binomial II Count Regression (*WINT*)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
WINT												
Ln Rank	**1.798*****	**1.177*****	**1.158*****	**1.113*****	**1.110*****	**1.108*****	**1.108*****	**1.103*****	**1.092*****	**1.064****	**1.053***	0.989
Difference												
	(26.72)	**(7.28)**	**(7.19)**	**(5.70)**	**(5.47)**	**(5.44)**	**(5.45)**	**(4.38)**	**(3.90)**	**(2.98)**	**(2.43)**	(-0.56)
Knockout	**2.228*****	**1.473*****	**1.372*****	**1.370*****	**1.388*****	**1.396*****	**1.398*****	**1.436*****	**1.393*****	**1.330*****	**1.270*****	**1.319*****
	(12.03)	**(7.18)**	**(5.92)**	**(6.05)**	**(6.30)**	**(6.38)**	**(6.40)**	**(5.78)**	**(5.34)**	**(4.66)**	**(3.79)**	**(5.69)**
Hosting	**1.937*****	**1.173***	1.141	1.128	1.140*	1.119	1.119	1.068	1.076	0.955	0.963	0.997
	(7.29)	**(2.24)**	(1.89)	(1.86)	(2.04)	(1.77)	(1.77)	(0.89)	(1.01)	(-0.63)	(-0.51)	(-0.04)
Penalty	**2.238*****	**1.400*****	**1.350*****	**1.324*****	**1.315*****	**1.315*****	**1.315*****	**1.292*****	**1.299*****	**1.307*****	**1.303*****	**1.265*****
	(11.90)	**(6.20)**	**(5.79)**	**(5.48)**	**(5.38)**	**(5.40)**	**(5.39)**	**(4.21)**	**(4.27)**	**(4.77)**	**(4.84)**	**(5.24)**
Over Time	1.210	**1.227***	**1.222****	**1.189***	**1.172***	**1.172***	**1.171***	1.110	1.100	1.138	1.146	1.119
	(1.78)	**(2.55)**	**(2.58)**	**(2.25)**	**(2.06)**	**(2.04)**	**(2.04)**	(1.17)	(1.08)	(1.41)	(1.52)	(1.42)
Trade Imbalance		**3.844*****	**2.802*****	**1.865*****	**1.812*****	**1.800*****	**1.794*****	**1.658*****	**1.601*****	**1.388*****	**1.344****	0.926
		(30.97)	**(16.65)**	**(7.78)**	**(7.36)**	**(7.30)**	**(7.14)**	**(5.13)**	**(4.85)**	**(3.55)**	**(3.21)**	(-1.02)
Conflict			**1.291*****	**1.211*****	**1.184*****	**1.163*****	**1.162*****	**1.178*****	**1.152*****	**1.134*****	**1.103***	0.999
			(8.18)	**(6.71)**	**(5.85)**	**(4.97)**	**(4.93)**	**(4.47)**	**(3.87)**	**(3.49)**	**(2.56)**	(-0.03)
Power				**1.982*****	**1.921*****	**1.855*****	**1.858*****	**1.757*****	**1.677*****	**1.366*****	**1.303****	0.996
				(8.23)	**(7.85)**	**(7.46)**	**(7.42)**	**(5.89)**	**(5.36)**	**(3.49)**	**(3.00)**	(-0.05)
Education					**1.298****	**1.267****	**1.257***	1.067	1.099	**1.271***	1.209	1.045
					(2.88)	**(2.64)**	**(2.48)**	(0.52)	(0.75)	**(2.03)**	(1.61)	(0.41)

Relig.Diff	**1.008****	**1.007***	**1.011***	**1.012***	1.007	1.007	1.001
	(2.62)	**(2.20)**	**(2.38)**	**(2.57)**	(1.63)	(1.65)	(0.20)
Gov. Diff		1.000	0.998	0.999	1.000	1.000	1.001
		(0.29)	(-1.36)	(-0.47)	(0.21)	(-0.33)	(0.59)
Corrpution			**1.080*****	**1.071*****	**1.040****	**1.043****	0.998
			(4.75)	**(4.34)**	**(2.60)**	**(2.78)**	(-0.14)
SameRelig				**1.244*****	**1.177****	**1.154****	1.057
				(4.13)	(3.12)	(2.73)	(1.37)
Attend.					**1.005*****	**1.008*****	1.000
					(4.52)	**(5.48)**	(-0.14)
Distance					**1.028*****	**1.023*****	0.997
					(4.83)	**(3.91)**	(-0.59)
ExSoviets					**1.296****	**1.281****	1.033
					(3.19)	**(3.05)**	(0.41)
Contig.					**1.546*****	**1.480*****	0.990
					(3.81)	**(3.49)**	(-0.08)
Confcup						0.962	**0.830***
						(-0.45)	**(-2.02)**
Olympic						**1.246****	1.077
						(2.76)	(1.00)
Under 20						**1.242****	0.986
						(2.96)	(-0.18)

REF FFX												**YES**
Obs.	1088	1066	1066	1066	1058	1055	1055	675	675	675	675	675
Prob.> χ^2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.
α^2	0.682	0.257	0.238	0.211	0.208	0.206	0.2058	0.193	0.184	0.149	0.142	6.6e-08
Log-like	-3247.2	-2797.5	-2755.8	-2705.0	-2681.9	-2671.9	-2671.9	-1709.0	-16996	-1665.0	-1656.7	-1418.6
Wald	2145.88	6220.14	6196.3	6339.5	6367.2	6387.5	6104.9	4503.1	4572.5	5403.0	5659.4	.

Exponentiated coefficients; *t* statistics in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The LR tests supports the idea that the identity variables are of great importance in determining the level of aggressiveness, using either the number of sanctions or fouls committed. All coefficients associated to the variables of the second group are positive and of significance; this suggests that the (bilateral) gaps of trade, education level, political power, religious freedom, governance and the corruption are significant predictors of on pitch aggressiveness. The coefficients of regression in the MLE techniques can be interpreted as the semi-elasticity of the dependent variable with respect to the explanatory variables, ceteris paribus. Then, the coefficients capture the change in the conditional average of *WINT* and *FOULS* for one unit variation of the explanatory variables.

The most interesting result is the inclusion of the referee fixed effects (12), here we observe that all national differences disappear when we control for the referee impact. This is a strong indicator of the ability of the referees to control the game and limit the aggression, by taking national identity out of play but leaving game factors such as *Knockout* and *Penalty*. This result reveals that in the end the referee is an exceptionally good neutralizer of out of game influences, but allows in game pressure to shine through. The Knockout stages are a "winner take all" environment, where the looser must exit the competition only the winner has a chance to take the ultimate prize, as such it is not surprising that this factor is robustly significant. Additionally, it is not unusual that there is a significant link between *WINT* and the issuing of a *Penalty*, in the vast majority of situations any event that is "bad" enough for a card to be issued is likely to be coupled with a penalty.

In Table 3, we investigate the same set of controls on the list of fouls called during a game, keeping in mind that not all games had fouls issued and that fouls do not always lead to issuing of cards[23]. Fouls are a general measure of the roughness of raw aggression of a game. We follow the same approach as explored in Table 2, firstly adding the match variables (13) and then slowly building the set of National

[23] It is also important to note that any foul that has been committed and deemed serious enough to be issued a card, will not appear in this count, but rather in *WINT*.

Identity (14-21) and finally controlling for additional factors such as *Attendance*, *Distance*, *Ex-Soviet*, sharing a border (22) and tournament type (23). Again we include a R*eferee* fixed effect model to investigate the role of the referee on *FOULS* (24). While we observe that three are much less observations in the *FOULS* regressions, we see a very similar patterns emerging as with *WINT*. The national identity variables are robustly significant throughout the specifications, but virtually vanish when we include the *Referee* FFX modelling (24). Both *WINT* and *FOULS* are significantly predicted by national identity, yet both are moderated by the in game referee to such as extent as to make national identity insignificant in both specifications (12 & 24).

An interesting element of the *FOULS* regressions is that several of the variables do not become insignificant after controlling for referees (24) as observed in the *WINT* estimations (12). We observe that *FOULS* are more likely to be committed in the high cost/stress periods of the game such as: knockout stages and overtime and when hosting. Alternatively, we observe reductions in *FOULS* when the referees may perceive there could be existing tension as we observe in the *Power* and *Corruption* gaps – it may be the case that referees are willing to allow or ignore some on field indiscretions in such matches.

Table 3: MLE – Negative Binomial II Count Regression (FOULS)

	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Ln Rank Difference	**11.02*****	**2.161*****	**1.732*****	**1.455*****	**1.396*****	**1.369*****	**1.365*****	**1.317*****	**1.286*****	**1.140*****	**1.103****	0.978
	(19.19)	**(9.71)**	**(7.56)**	**(7.56)**	**(6.69)**	**(6.86)**	**(6.91)**	**(5.62)**	**(5.42)**	**(3.91)**	**(3.05)**	(-1.80)
Knockout	**4.214*****	**1.572****	1.253	**1.539*****	**1.685*****	**1.711*****	**1.744*****	**1.622*****	**1.515****	**1.302***	1.142	**1.062***
	(8.31)	**(3.01)**	(1.76)	**(3.35)**	**(4.07)**	**(4.23)**	**(4.35)**	**(3.47)**	**(3.04)**	**(2.36)**	(1.44)	**(2.18)**
Hosting	**7.939*****	**2.312*****	**2.141****	**1.979****	**2.067*****	**1.893*****	**1.892*****	**1.874*****	**1.918*****	1.287	1.191	**1.089***
	(11.24)	**(4.20)**	**(3.23)**	**(2.97)**	**(3.34)**	**(3.54)**	**(3.67)**	**(3.77)**	**(4.17)**	(1.87)	(1.47)	**(2.43)**
Penalty	**3.973*****	**1.524****	1.290	**1.228***	1.211	1.203	1.216	1.148	1.114	**1.221***	**1.195***	1.013
	(7.96)	**(2.62)**	(1.93)	**(1.96)**	(1.78)	(1.75)	(1.83)	(1.15)	(0.98)	**(1.98)**	**(2.03)**	(0.49)
Over Time	1.323	**1.818****	**1.496***	1.169	1.134	1.159	1.156	1.038	0.974	1.062	1.091	**1.204*****
	(1.09)	**(2.59)**	**(2.30)**	(0.86)	(0.69)	(0.81)	(0.79)	(0.20)	(-0.16)	(0.46)	(0.72)	**(4.44)**
Trade Imbalance		**17.50*****	**9.172*****	**4.287*****	**3.942*****	**3.761*****	**3.637*****	**2.868*****	**2.594*****	**1.660*****	**1.532*****	1.004
		(30.68)	**(20.23)**	**(10.76)**	**(9.71)**	**(9.64)**	**(9.18)**	**(6.36)**	**(6.04)**	**(3.75)**	**(3.43)**	(0.10)
Conflict			**2.022*****	**1.530*****	**1.415*****	**1.360*****	**1.342*****	**1.335*****	**1.284****	**1.338*****	**1.198****	0.963
			(9.57)	**(6.30)**	**(5.05)**	**(4.46)**	**(4.23)**	**(3.67)**	**(3.28)**	**(4.79)**	**(3.22)**	(-1.81)
Power Imbalance				**4.878*****	**4.536*****	**4.034*****	**4.076*****	**3.862*****	**3.476*****	**2.180*****	**2.000*****	**0.895***
				(10.07)	**(10.14)**	**(8.96)**	**(9.16)**	**(8.52)**	**(7.78)**	**(5.82)**	**(5.91)**	**(-2.56)**

Education	**2.608*****	**2.228*****	**1.999*****	1.474	1.445	**1.987*****	**1.895*****	1.059
Imbalance								
	(4.43)	**(4.20)**	**(3.40)**	(1.45)	(1.45)	**(3.36)**	**(3.37)**	(0.78)
Relig. Diff		**1.028*****	**1.023****	**1.031*****	**1.034*****	**1.015***	**1.015***	1.001
		(3.51)	**(3.02)**	**(3.51)**	**(4.00)**	**(2.24)**	**(2.45)**	(0.36)
Gov. Diff			1.004	0.999	1.001	1.003	1.001	1.002*
			(1.90)	(-0.40)	(0.45)	(1.57)	(0.68)	(2.38)
Corruption				**1.196*****	**1.178*****	**1.068****	**1.072****	**0.977***
				(5.97)	**(5.47)**	**(2.62)**	**(2.98)**	**(-2.37)**
Same Relig					**1.651*****	**1.394*****	**1.285*****	1.013
					(5.67)	**(4.41)**	**(3.77)**	(0.51)
Attend						**1.016*****	**1.024*****	**0.998***
						(7.13)	**(9.19)**	**(-2.34)**
Distance						**1.071*****	**1.053*****	0.997
						(8.37)	**(6.44)**	(-1.02)
Ex-Soviets						**1.503*****	**1.479*****	0.965
						(4.63)	**(4.29)**	(-0.84)
Contiguity						**1.818****	**1.792****	1.107
						(3.28)	**(3.13)**	(1.29)
Conf. Cup							1.073	**0.734*****
							(0.57)	**(-4.33)**
Olympics							1.040	**0.831***

											(0.23)	**(-2.49)**
Under 20											**1.860*****	0.950
											(6.15)	(-0.93)
REF FFX												**YES**
Obs.	464	453	453	453	445	445	445	337	337	337	337	337
Prob.> χ^2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.
α^2												
Log-like												
Wald												

Exponentiated coefficients; *t* statistics in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Conclusion

The main purpose of this paper was to empirically investigate whether and how feeling of national identity reverberates on the soccer pitch. In particular, whether national identity and international rivalry across pairs of countries predict aggressiveness of soccer players, through the use of proxy measure for aggression *(i)* a weighted measure of penalties and *(ii)* the count of fouls committed in international competitions. We collected information of 1088 matches of final phases of FIFA World, Confederations and Under 20's cup as well as the Olympic Games tournaments in the period 1994 to 2012. As explanatory variables we employ a collection of data referring to sport, commercial, educational, political and religious aspects. In particular, we also applied a novel measure of trading penetration to take into account the possible emergence of economic rivalry between countries. Our results show that penalties and fouls increase as the asymmetry between countries increases and its intenseness is positively correlated with the power imbalance between countries suggesting the idea that football is perceived as an opportunity of redemption for less advanced (free) countries.

This paper enriches the literature on identity as well as the impact identity has on hostility between countries in a sporting context. We have considered tournament-specific and match-specific variables and in particular the possible emergence of a crowd effect by including the attendance. While significant, some sport variables (as ranking difference) seem to be of less importance in determining the level of aggressiveness of players. Surprisingly, there is little evidence of a crowd effect, namely a more crowded stadium is positively associated with the count of penalties and fouls. It is likely that players at this level of sport are acclimated to the effects of crowds but is susceptible to other forms of match stress (see Savage and Torgler, 2012). Our results also demonstrate that not only can the concept of identity be successfully expanded to the national level, but we show that it is possible to build a set of national identity variables based upon macro variables and to use these variables to

explore national differences. We show that the same arguments put forward by Akerlof and Kranton (2000) for the existence of individual identity hold at the national level, which may allow us to better understand aggressive behaviour between nations based on the differences in identity.

Finally, but not surprisingly, our results demonstrate the impact that referees have on on-field aggression, such that the introduction of the referee fixed effects negates the significance of virtually all of the national identity variables. While this result is not unexpected, the size and clarity of the effect is interesting and demonstrates the neutralizing impact of referees on international tournaments. While observe that referees are controlling the games and the number of cards issued, there is evidence that support the idea that the referees may be willing to allow a certain level of aggression or rough play to go unpunished between some nations (*FOULS*). In matches where nations have large *Power* or *Corruption* differences the referees appear to reduce the expected number of sanctions and let the game flow. This work has the potential to open up the new lines of investigation into national identity and strengthens our understanding of identity in context of nationality and the perchance for aggression. We often hear the saying that it is our differences that make us strong, but it is possible that the reason for this is it stokes the fires of aggression and mistrust – which we mistake for strength.

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Appendix

Table A1: Data set composition of 1088 matches

Competition	Year	Hosting Country	Group matches	Knockout matches	Total
World Cup	1994	United States	36	16	52
	1998	France	48	16	64
	2002	Japan/South Korea	48	16	64
	2006	Germany	48	16	64
	2010	South Africa	48	16	64
			228	**80**	**308**
Confederation Cup	1995	Saudi Arabia	6	2	
	1997	Saudi Arabia	12	4	
	1999	Mexico	12	4	
	2001	Japan/South Korea	12	4	
	2003	France	12	4	
	2005	Germany	12	4	
	2009	South Africa	12	4	
	2013	Brazil	12	4	
			90	**30**	**120**
Olympic Games	1996	United States	24	8	
	2000	Australia	24	8	
	2004	Greece	24	8	
	2008	China	24	8	
	2012	Great Britain	24	8	
			120	**40**	**160**
World Cup Under 20	1995	Qatar	24	8	
	1997	Malaysia	36	16	
	1999	Nigeria	36	16	
	2001	Argentina	36	16	
	2003	United Arab Emirates	36	16	
	2005	Netherlands	36	16	
	2007	Canada	36	16	
	2009	Egypt	36	16	
	2011	Colombia	36	16	
	2013	Turkey	36	16	
			348	**152**	**500**
All competitions			**786**	**302**	**1088**

Table A2	Ranking	Knockout	Hosting	Penalty	Over Time	TPGI	Conflict	Power Gap	Education	Religious	Governance	Same Relig	Attendance	Distance	Ex Soviets	Contiguity
Ranking	1															
Knockout	0.002	1														
Hosting	-0.021	0.063	1													
Penalty	0.011	0.004	-0.029	1												
Overtime	-0.015	0.478	0.046	-0.001	1											
TPGI	-0.042	-0.026	-0.016	0.045	-0.045	1										
Conflict	-0.099	0.099	-0.017	0.033	0.035	0.088	1									
Power	-0.054	-0.098	-0.071	0.0034	-0.037	0.209	0.012	1								
Education	-0.009	-0.076	-0.078	0.010	-0.017	0.179	0.134	0.082	1							
Religious	-0.107	-0.078	0.015	-0.006	-0.058	0.014	0.160	0.091	0.068	1						
Governance	-0.036	-0.126	-0.047	0.038	-0.081	0.140	0.133	0.005	0.344	0.428	1					
Same Religion	-0.004	0.106	-0.045	-0.020	0.063	-0.022	0.013	0.006	-0.100	-0.232	-0.260	1				

Attendance	0.013	0.117	0.282	-0.044	0.051	-0.015	-0.157	-0.053	-0.126	-0.094	-0.097	0.062	1			
Distance	0.001	-0.177	0.033	-0.074	-0.090	-0.026	-0.078	0.021	-0.070	0.038	-0.035	-0.126	-0.102	1		
Ex Soviets	-0.063	-0.068	-0.112	0.025	-0.033	0.036	-0.059	-0.002	-0.163	-0.116	-0.047	-0.010	-0.048	-0.074	1	
Contiguity	-0.006	0.183	0.044	0.016	0.055	-0.055	-0.020	-0.039	-0.100	-0.051	-0.125	0.130	0.101	-0.265	-0.023	1

Table A3: Location, code and year identification of conflicts		
Location[A]	**Conflict[B]**	**Year**
Algeria	49, 191	1954-1962; 1991-2012
Angola	66, 81, 131, 192	1961-2002; 2004; 2007; 2009
Argentina	50, 151,	1955; 1963; 1974-1977; 1982
Australia	226	2003
Bolivia	1	1946; 1952; 1967
Cameroon	57, 158, 210	1957-1961; 1984; 1996
Chile	125	1973
China	3, 18, 39, 77, 108, 109, 138	1946-1950; 1954; 1956; 1958-1959; 1962; 1967; 1969; 1974; 1978-1981; 1984; 1986-1988
Colombia	92	1964-2012
Costa Rica	27	1948
Croatia	195	1992-1993; 1995
Ecuador	208	1995
France	15, 55, 73, 75	1946; 1956; 1961-1962
Ghana	98	1966; 1981; 1983
Greece	4	1946-1949
Honduras	58, 110	1957; 1969
Iran	6, 143, 128	1946; 1966-1968; 1979-1988; 1990-1993; 1996-1997; 1999-2001; 2005-2011
Ivory Coast	225	2002-2004; 2011
Mexico	205	1994; 1996
Morocco	47, 60, 81, 115, 135	1953-1958; 1963; 1971; 1975-1989

Netherlands	79	1962
Nigeria	100, 107, 154, 210, 249, 250	1966-1970; 1983; 1996; 2004; 2009; 2011-2012
North Korea	38	1949-1953
Paraguay	22	1947; 1954; 1989
Romania	175	1989
Russia (Soviet Union)	11, 13, 14, 53, 109, 181, 182, 204, 206, 256, 257	1946-1950; 1956;1969; 1979; 1990-1991; 1993-1996; 1999-2012
Saudi Arabia	145	1979
Senegal	180	1990; 1992-1993; 1995; 1997-1998; 2000-2001; 2003; 2011
Serbia (Yugoslavia)	189, 190, 218	1991; 1998-1999
South Africa	101, 150	1966-1988
South Korea	38	1949-1953
Spain	147	1978-1982; 1985-1987; 1991-1992
Togo	163	1986
Trinidad and Tobago	183	1990
Tunisia	48, 148, 75	1953-1956; 1961; 1980

Turkey	127, 159, 188	1974; 1984-2012
United Kingdom	16, 42, 119, 151, 226	1946; 1951-1952; 1956; 1971-1991; 1998; 2003
USA	41, 155, 173, 224, 226	1950; 1983; 1989; 2001-2002; 2004-2012
Uruguay	123	1972

[A] The country whose government have a primary claim to the issue in dispute.
[B] Identifies the conflict code in the UCDP/PRIO Armed Conflict Dataset. Details on Armed Conflict Dataset are in the codebook edited by L. Themnér (2013) available online in http://www.pcr.uu.se/research/ucdp/datasets/ucdp_dyadic_dataset/.

Table A4: Gross Enrolment Ratio. Secondary School. All Programmes. Source: UNESCO – World Bank Indicators. Data Retrieved in November 2013.	
Angola	Data 2006 is not available. It is calculated considering a regular (average) increase from 2002 up to 2008.
Belgium	Data 1998 refers to 1999.
Brazil	Data provided by World Bank covers the period 2002-2005. We used the nearest data available for each competition.
Cameroon	Data 2002 is calculated as the average of data 2001 and 2003.
Croatia	Data 2004 is calculated as the average of data 2003 and 2005. Data 2012 is that of 2010.
Czech Republic	Data 2012 refers to 2011.
Germany	Data 2012 refers to 2010.
Denmark	Data 2012 refers to 2010.
France	Data 2012 refers to 2011.
England	Data refers to United Kingdom; data 2012 is that of 2010.
Ghana	Data 2010 is calculated as the average of data 2009 and 2011.
Greece	Data 2008 and 2012 refer to 2007 and 2010 respectively.
Republic of Ireland	Data 2012 refers to 2010.
Iran	Data 1998 is calculated as the average of data 1997 and 1999.
Italy	Data 2012 refers to 2010.
Ivory Coast	The only data available and then used refers to 2002.
Jamaica	Data 1998 refers to 1999.

Nigeria	Data 1994 and 1998 are those of 1999.
Netherlands	Data 2012 refers to 2010.
Poland	Data 2012 refers to 2010.
Portugal	Data 2012 refers to 2010.
Russia	Data 2002 and 2012 refer to 2003 and 2009 respectively.
Saudi Arabia	Data 1994, 1998 and 2002 refer to 2005; data 2006 is calculated as the average of data 2005 and 2007.
Scotland	Data refers to United Kingdom.
South Africa	Data 2010 refers to 2009.
Sweden	Data 2012 refers to 2011.
Trinidad & Tobago	Data 2006 refers to 2004.
Turkey	Data 1996 is calculated as the average of data 1995 and 1997.
Ukraine	Data 2012 refers to 2011.
Yugoslavia	Data 1998 refers to Serbia 1999.

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