

## Global study of penalty cards in professional football

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### 1. Introduction

The manner in which people live and practice football throughout the world is a good indicator of country-specific features. This Monthly Report compares 87 top divisions worldwide from the point of view of the number of yellow and red cards given by referees during matches played between the 2015/16 (or 2016) and 2019/20 (or 2020) seasons.

The study highlights important differences in the number of warnings and sending offs according to country. It also reveals the existence of significant correlations between the amount of cards per match and many socio-economic indicators for nations: the gross domestic product, the human development index, the homicide rate and an indicator for perceived corruption.

Figure 1: study sample

UEFA	Albania [ALB]	Israel [ISR]	Spain [ESP]	CONMEBOL	Bolivia [BOL]	
	Armenia [ARM]	Italy [ITA]	Sweden [SWE]		Brazil [BRA]	
	Austria [AUT]	Kazakhstan [KAZ]	Switzerland [SUI]		Chile [CHI]	
	Azerbaijan [AZE]	Latvia [LVA]	Turkey [TUR]		Colombia [COL]	
	Belarus [BLR]	Lithuania [LTU]	Ukraine [UKR]		Ecuador [ECU]	
	Belgium [BEL]	Luxembourg [LUX]	Wales [WAL]		Paraguay [PAR]	
	Bosnia and Herzegovina [BIH]	Malta [MLT]	AFC		Peru [PER]	
	Bulgaria [BUL]	Moldova [MDA]			Australia [AUS]	Uruguay [URU]
	Croatia [CRO]	Montenegro [MNE]			China PR [CHN]	Venezuela [VEN]
	Cyprus [CYP]	Netherlands [NED]			Hong Kong [HKG]	CONCACAF
	Czech Republic [CZE]	North Macedonia [MKD]		India [IND]	El Salvador [SLV]	
	Denmark [DEN]	North Macedonia [MKD]		Iran [IRN]	Guatemala [GUA]	
	England [ENG]	Northern Ireland [NIR]		Japan [JPN]	Honduras [HON]	
	Estonia [EST]	Norway [NOR]		Korea Republic [KOR]	Mexico [MEX]	
	Faroe Islands [FRO]	Poland [POL]		Malaysia [MAS]	Nicaragua [NCA]	
	Finland [FIN]	Portugal [POR]		Qatar [QAT]	Panama [PAN]	
	France [FRA]	Republic of Ireland [IRL]	Saudi Arabia [KSA]	USA [USA]		
	Georgia [GEO]	Romania [ROM]	Singapore [SIN]	Algeria [ALG]		
	Germany [GER]	Russia [RUS]	Thailand [THA]	South Africa [RSA]		
	Greece [GRE]	Scotland [SCO]	United Arab Emirates [UAE]	Tunisia [TUN]		
Hungary [HUN]	Serbia [SRB]	Uzbekistan [UZB]	OFC	New Zealand [NZL]		
Iceland [ISL]	Slovakia [SVK]	Vietnam [VIE]				
	Slovenia [SVN]	Argentina [ARG]				

## 2. Penalty card differences between countries

On average, referees handed out 4.42 yellow and 0.25 red cards per match for the 101,491 fixtures analysed in the 87 leagues taken into account. The teams playing away received the majority of cards: 53.0% of the yellow and 56.7% of the red ones. Cards were mainly handed out in the second half: 65.8% for the yellow and 81.8% for the red ones.

The number of cards varies considerably according to the confederation of belonging of the leagues studied. At one extreme, in South America (CONMEBOL), referees handed out on average 5.83 cards per match. This figure is 45% higher than that observed in the 15 Asian (AFC) leagues studied (4.00). Invariably, away teams received more cards than home ones.

Figure 2: global statistics for penalty cards

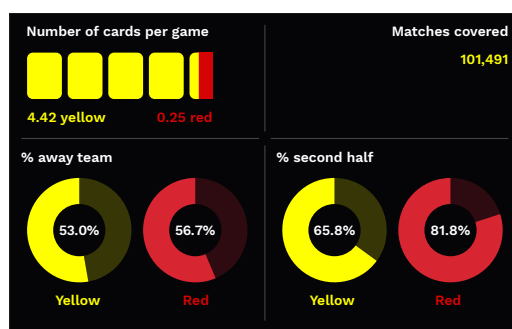


Figure 3: penalty card statistics, by confederation

	Countries	Per game			% away	
		Yellow	Red	Total	Yellow	Red
UEFA	50	4.28	0.21	4.49	52.8%	55.9%
AFC	15	3.82	0.18	4.00	51.9%	56.4%
CONMEBOL	10	5.44	0.39	5.83	53.2%	57.0%
CONCACAF	8	4.82	0.36	5.18	53.0%	56.4%
CAF	3	3.82	0.19	4.01	52.9%	58.0%
OFC	1	3.98	0.22	4.20	50.1%	50.5%

Seven American top divisions are at the top of the rankings for leagues where the referees gave the most warnings and sending offs: four South American (Bolivia, Uruguay, Colombia and Paraguay) and three Central American (Guatemala, Nicaragua and El Salvador). At the other end of the scale, four Asian and six Northern European nations are in the top 10 of the leagues with the least amount of cards.

**Figure 4 : penalty card statistics, by country**

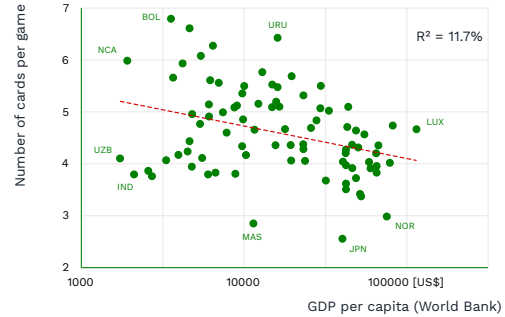
			Total			Total
1 Bolivia	6.32	0.48	6.80			
2 Guatemala	6.27	0.34	6.61			
3 Uruguay	5.92	0.51	6.43			
4 Colombia	5.93	0.34	6.27			
5 Paraguay	5.67	0.41	6.08			
6 Nicaragua	5.60	0.39	5.99			
7 El Salvador	5.48	0.45	5.93			
8 Romania	5.47	0.29	5.76			
9 Greece	5.41	0.28	5.69			
10 Ukraine	5.36	0.30	5.66			
11 Ecuador	5.21	0.40	5.61			
12 Peru	5.13	0.43	5.56			
13 Chile	5.14	0.39	5.53			
14 Spain	5.27	0.23	5.50			
. Argentina	5.14	0.36	5.50			
16 Venezuela	5.09	0.38	5.47			
17 Bulgaria	5.11	0.25	5.36			
18 Portugal	5.01	0.31	5.32			
19 Panama	4.82	0.38	5.20			
20 Costa Rica	4.80	0.35	5.15			
21 Bosnia and Herzegovina	4.94	0.20	5.14			
22 Turkey	4.84	0.28	5.12			
23 Hungary	4.88	0.22	5.10			
. Israel	4.85	0.25	5.10			
25 Brazil	4.84	0.25	5.09			
. Croatia	4.83	0.26	5.09			
27 Malta	4.76	0.31	5.07			
28 Italy	4.76	0.27	5.03			
29 Serbia	4.79	0.21	5.00			
30 Azerbaijan	4.70	0.26	4.96			
31 North Macedonia	4.71	0.20	4.91			
32 Mexico	4.49	0.36	4.85			
33 Cyprus	4.67	0.16	4.83			
34 Albania	4.53	0.24	4.77			
35 Switzerland	4.55	0.19	4.74			
36 United Arab Emirates	4.42	0.29	4.71			
37 Slovenia	4.47	0.22	4.69			
38 Latvia	4.45	0.22	4.67			
39 Russia	4.44	0.22	4.66			
. Luxembourg	4.40	0.26	4.66			
41 Hong Kong	4.47	0.17	4.64			
42 Thailand	4.39	0.21	4.60			
43 Australia	4.36	0.21	4.57			
44 Armenia	4.26	0.17	4.43			
45 Czech Republic	4.20	0.17	4.37			
. Belgium	4.13	0.24	4.37			
47 Slovakia	4.18	0.18	4.36			
. Poland	4.18	0.18	4.36			
49 Iceland	4.20	0.15	4.35			
50 Kazakhstan	4.17	0.17	4.34			
51 Austria	4.12	0.20	4.32			
52 Saudi Arabia	4.09	0.19	4.28			
. Northern Ireland	4.02	0.26	4.28			
54 Moldova	4.09	0.15	4.24			
55 Qatar	4.01	0.19	4.20			
. New Zealand	3.98	0.22	4.20			
57 Algeria	3.98	0.19	4.17			
. China PR	3.98	0.19	4.17			
59 Iran	3.91	0.20	4.11			
60 Uzbekistan	3.93	0.17	4.10			
61 Lithuania	3.88	0.18	4.06			
. Tunisia	3.82	0.24	4.06			
63 Estonia	3.84	0.21	4.05			
64 Faroe Islands	3.86	0.18	4.04			
. France	3.78	0.26	4.04			
66 Republic of Ireland	3.80	0.22	4.02			
67 Scotland	3.77	0.21	3.98			
68 Singapore	3.73	0.23	3.96			
69 Georgia	3.72	0.22	3.94			
70 Germany	3.76	0.15	3.91			
. Denmark	3.76	0.15	3.91			
72 Honduras	3.51	0.36	3.87			
73 Belarus	3.70	0.13	3.83			
. USA	3.60	0.23	3.83			
75 Montenegro	3.67	0.14	3.81			
76 India	3.62	0.18	3.80			
. South Africa	3.65	0.15	3.80			
78 Vietnam	3.59	0.17	3.76			
79 Finland	3.58	0.15	3.73			
80 Korea Republic	3.49	0.19	3.68			
81 Wales	3.40	0.22	3.62			
82 England	3.39	0.12	3.51			
83 Sweden	3.28	0.14	3.42			
84 Netherlands	3.19	0.18	3.37			
85 Norway	2.89	0.10	2.99			
86 Malaysia	2.75	0.11	2.86			
87 Japan	2.48	0.08	2.56			

### 3. Socio-economic determinants

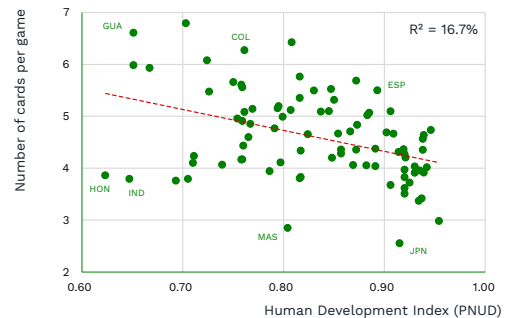
In order to explain the differences observed for warnings and sending offs according to country, we have tested for causal links between the rate of cards per match and different socio-economic factors at the level of nations. This analysis brings to light several significant statistical correlations.

Firstly, the gross domestic product (GDP) and the Human Development Index (HDI) are inversely correlated to the quantity of cards. This indicates that the matches played in States whose inhabitants enjoy a higher standard of living and education are less fraught, or at least are less sanctioned by the referee corps. The correlation between the amount of cards per match and the HDI is higher than that between the amount of cards and the GDP:  $R^2$  of 16.7% and 11.7% respectively.

**Figure 5: GDP per capita and amount of cards per game**

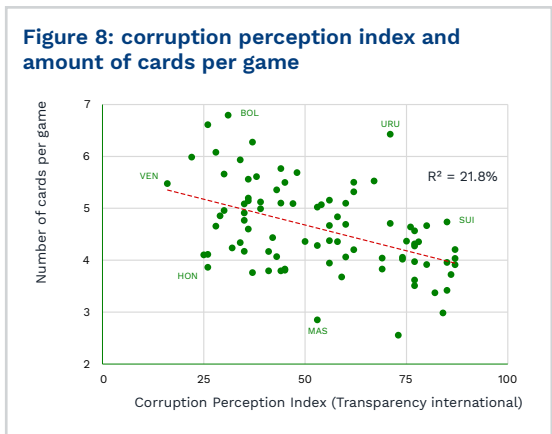
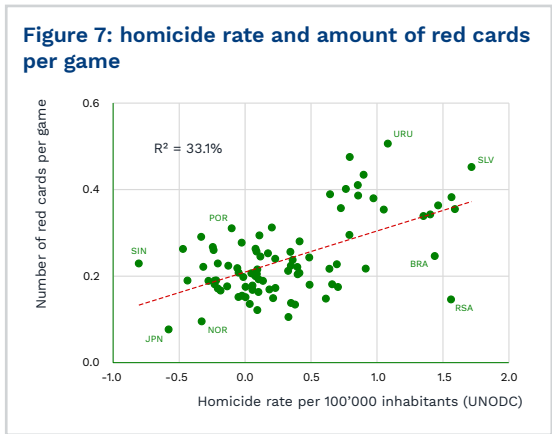


**Figure 6: Human Development Index and amount of cards per game**



A significant statistical correlation was also measured between the amount of cards and the homicide rate per country ( $R^2$  of 20%). The strength of this link attains 33.1% if we correlate the homicide rate with the number of red cards per match only. The violence present in a society thus seems to be transposed to football matches.

A final significant statistical correlation concerns the number of penalty cards and the perceived indicator for corruption in a country as it is calculated by the Transparency International organisation. The more citizens consider that the level of corruption in their country is high, the more referees are likely to hand out cards. This result could reflect the existence of a social climate where distrust and suspicion are rife.



## 4. Conclusion

As a global sport par excellence, football is played according to the same rules worldwide. However, the styles of play are quite different according to country, as well as the way in which the encounters are experienced for both supporters and players. The style of refereeing also varies according to geographical areas and playing cultures.

All of these elements explain the considerable differences in the number of cards given by the referees according to country. The only constant independent of the continent of belonging of the leagues surveyed resides in the fact that teams playing away are handed the majority of cards. This is probably related to their more defensive attitude and the pressure exerted by home team fans.

The differences in the amount of cards by country are significantly correlated with several socio-economic indicators relative to the latter. The wealthier the country or the higher its Human Development Index, the less the cards are given to players. Conversely, the higher the homicide rate and the greater the perceived corruption, the more likely the referees are to distribute cards.

These findings show that football matches take place under different dynamics according to the social, economic, political and cultural context of the country in which they are played. They confirm the very strong link between football and society and reveal the importance of taking into account the specifics of countries for a fine analysis of the game even in a context of globalisation.