

You Play the Way You Live

↪ Aggressive Soccer Play and Social Capital

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“Everything I know about morality and the obligations of men, I owe it to soccer.” Albert Camus

- Data from the Football Observatory at the International Centre for Sport Studies
 - Average number of disciplinary cards (yellow and red) booked per game
 - 86 national first-division professional soccer leagues
 - 2019/2020 season

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Introduction

Table: Average number of total cards per game

Selected countries 2019/2020 season			
Bolivia	7.01	Germany	4.13
Uruguay	6.61	...	
Guatemala	6.44	France	3.98
...		...	
Argentina	5.88	USA	3.9
Italy	5.82	...	
...		UK	3.74
Portugal	5.63	...	
...		Canada	3.43
Spain	5.51	Vietnam	3.36
...		Norway	3.11
Brazil	4.77	Japan	2.26

Introduction



“You play the way you live”
Francisco “Pacho” Maturana

What is the relationship between the average number of cards per game and indicators of generalized aggressive behavior in society?

Preview of the results:

Yes, generalized aggressive behavior is positively associated to the average number of cards per game: “you play the way you live”

The Idea

↔ Theoretical Mechanisms

- Let's define generalized aggressive behavior in society as low respect for the law and propensity to cheat or take unfair advantage
- What indicators can capture these elements?

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Social capital

■ Coleman (1988)

- The rule of law (social structure giving by rules or norms associated with sanctions)
- Generalized trust (the ability to facilitate certain actions within that social structure)

■ Putnam (1993)

- Features of social organization
- Trust, norms and networks that can improve the efficiency of society

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- **Social capital and generalized aggressive behavior in society**
 - Akcomak and ter Weel (2008), and Lederman et al. (2002): low levels of social capital can lead to high crime prevalence
 - Uslaner (2004) and Bjornskov (2003): low levels of social capital are associated with high levels of corruption
 - Paccagnella and Sestito (2014), and Lucifora and Tonello (2015): social capital is inversely related to the degree of cheating in school tests done by teachers and students

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Implications

- Social capital is highly relevant as a behavioral determinant
- Sporting activities, like soccer, are not isolated from social dynamics
 - Smith (1979a, 1979b), Weinstein et al. (1995) and Levitt (2002) use hockey to study violence
 - Price and Wolfers (2007) use basketball to study racial discrimination
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- Soccer specific papers:
 - Chiappori et al. (2002) study mixed-strategy equilibria using penalty kicks
 - Milanovic (2005) studies the effects of globalization on efficiency and inequality
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- Miguel et al. (2008) and Cuesta and Bohórquez (2012)
 - Use yellow and red cards but look at individual player data rather than game aggregates

Related Literature

- Miguel et al. (2008) find a strong correlation between the history of civil conflict in a player's home country and his propensity to violent behavior in the field (English, French, German, Italian, Spanish and UEFA leagues)
- Cuesta and Bohórquez (2012) use data from the 2008 *Libertadores* Cup and find the opposite result

- Caruso and Di Domizio (2013), and Caruso, Di Domizio and Savage (2015, 2017)
 - Use yellow and red cards at the game level
 - Focus on national teams, rather than league teams
 - Find that political hostility and national identity are associated with aggressive soccer play

- My contribution:
 - I study aggressive soccer play in domestic leagues rather than in foreign leagues via exported players
 - I focus on league teams rather than national teams (the important condition is “the way you live”)
 - I use unique additional alternative measures of rule of law and include a measure of the quality of the league as a control variable
 - Scope: 43 to 62 different national leagues depending on the specification

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Empirical Strategy

- Regress the average number of cards per game against indicators of the two components of social capital as defined by Coleman (1998): rule of law and generalized trust
- Control for a series of variables that could potentially be associated with aggressive play
- Worry about endogeneity?

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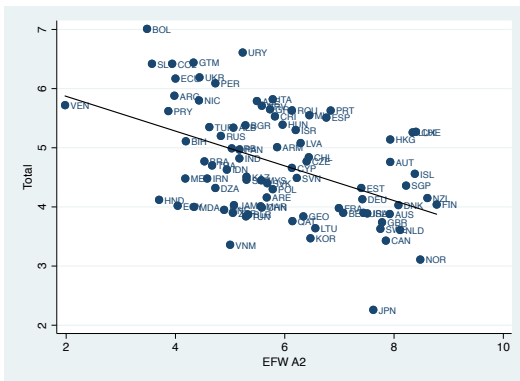
- Dependent variables: Total and red
- Independent variables:
 - Rule of law:
 - IEF Rule of Law Area: property rights, judicial effectiveness, government integrity
 - IEF Regulatory Efficiency: business freedom (regulatory and infrastructure environment constraining the efficient operation of businesses)

The Data

- EFWI Legal System and Property Rights, Area 2 (index combining judicial independence, impartial courts, protection of property rights, military interference in rule of law and politics, integrity of the legal system, legal enforcement of contracts, regulatory costs of the sale of real property, reliability of police, and business costs of crime)
- Generalized trust:
 - WVS: Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?

- Control variables
 - Education (primary completion rate)
 - Crime (intentional homicide per rate per 100,000)
 - Index of ethnic fractionalization
 - Percent population between 15 and 29 years of age
 - Degree of democracy (Polity5)
 - GDPpc
 - Gini coefficient
 - Inflation
 - League rank (<https://www.kickalgor.com/>)
 - Latin dummy

The Data



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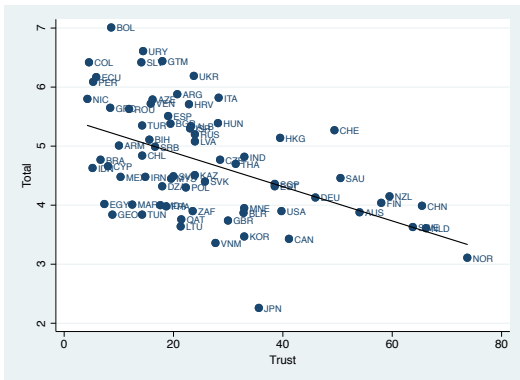


Figure: Average total cards per game vs. Trust

Results

Table: Robust Regression Results

Dependent Variable: Total (Part 1)

	[1]	[2]	[3]	[4]	[5]	[6]
IEF PR	-0.038***	-0.026*				
IEF JE			-0.023**	-0.018		
IFR GI					-0.033***	-0.03**
PCR	-0.002	0.001	0.002	0.007	0.004	0.016
Crime	-0.001	0.001	-0.001	0.003	0.001	0.01
Frac	0.324	0.609	0.29	0.432	0.007	0.197
Perc 15-29	-0.066	-0.096*	-0.055	-0.092	-0.061	-0.093*
Polity5	0.035	0.028	0.019	0.008	0.041	0.033
GDPpc	0.194	-0.095	0.092	-0.12	0.296	0.065
Gini	0.002	-0.006	0.002	-0.004	0.003	-0.003
Inflation	-0.006	-0.006	0.010	0.003	0.008	0.002
Latind	1.035**	1.293***	1.119***	1.339***	1.306***	1.48***
LRank		0.054		0.047		0.103
Constant	6.434**	8.305**	5.533*	7.255*	3.943	4.597
N	62	50	62	50	62	50

Statistical significance: * < 0.1, ** < 0.05, *** < 0.01

Results

Table: Robust Regression Results

Dependent Variable: Total (Part 2)

	[1]	[2]	[3]	[4]	[5]	[6]
EFW A2	-0.514***	-0.507**				
IEF BF			-0.039***	-0.041***		
Trust					-0.031**	-0.036***
PCR	-0.006	-0.001	-0.002	0.006	-0.012	-0.020
Crime	-0.034**	-0.003	-0.002	0.004	0.006	0.005
Frac	0.330	0.881	0.175	0.369	-0.118	-0.393
Perc 15-29	-0.054	-0.071	-0.059	-0.071	-0.071	-0.157**
Polity5	0.045*	0.049	0.017	0.010	-0.01	-0.073
GDPpc	0.199	0.105	-0.047	-0.168	0.225	0.491**
Gini	0.014	-0.02	0.006	-0.004	0.009	0.029
Inflation	-0.004	-0.004	-0.008	-0.014	-0.004	-0.012
Latind	1.000**	1.080**	1.190***	1.320***	1.680***	2.299***
LRank		0.029		0.138		-0.193
Constant	6.665***	7.931**	8.783***	8.406**	5.536**	7.624**
N	61	50	62	50	55	43

Statistical significance: * < 0.1, ** < 0.05, *** < 0.01

Results

Table: Robust Regression Results

Dependent Variable: Red (Part 1)

	[1]	[2]	[3]	[4]	[5]	[6]
IEF PR	-0.003**	-0.002				
IEF JE			-0.001	-0.001		
IFR GI					-0.002**	-0.003**
PCR	-0.001	-0.002	-0.001	-0.001	-0.001	-0.001
Crime	0.001	0.001	0.001	0.001	0.000	0.001
Frac	-0.045	-0.016	-0.048	-0.043	-0.066	-0.075
Perc15-29	-0.004	-0.01*	-0.004	-0.009*	-0.003	-0.007*
Polity5	-0.002	-0.006	-0.003	-0.007*	-0.002	-0.006*
GDPpc	0.018	0.002	-0.001	-0.000	0.029	0.036
Gini	0.001	-0.001	0.000	-0.000	0.001	0.000
Inflation	-0.002	-0.002	-0.001	-0.002	-0.001	-0.002
Latind	0.161***	0.21***	0.181***	0.216***	0.18***	0.208***
LRank		-0.000		-0.001		-0.001
Constant	0.379	0.779**	0.421	0.678*	0.224	0.351
N	62	50	62	50	62	50

Statistical significance: * <0.1 , ** <0.05 , *** <0.01

Results

Table: Robust Regression Results

Dependent Variable: Red (Part 2)

	[1]	[2]	[3]	[4]	[5]	[6]
EFW A2	-0.035**	-0.034*				
IEF BF			-0.003**	-0.003**		
Trust					-0.004***	-0.002**
PCR	-0.001	-0.001	-0.001	-0.003	-0.001	-0.002
Crime	0.000	0.001	0.000	0.000	0.000	0.000
Frac	-0.043	-0.023	-0.051	-0.008	-0.113*	-0.126
Perc15-29	-0.003	-0.008	-0.003	-0.007	0.001	-0.009
Polity5	-0.001	-0.004	-0.003	-0.006*	-0.004	-0.009**
GDPpc	0.016	0.007	0.003	-0.002	0.048***	0.032
Gini	-0.001	-0.002	0.000	-0.002	0.000	0.002
Inflation	-0.002	-0.002	-0.002	-0.003	-0.002	-0.003
Latind	0.165***	0.19***	0.169***	0.217***	0.197***	0.266***
LRank		0.001		0.002		-0.011
Constant	0.476**	0.703**	0.573**	0.936***	0.008	0.541*
N	62	50	62	50	55	43

Statistical significance: * <0.1 , ** <0.05 , *** <0.01

■ Endogeneity

- Using the absolute value of geographical latitude of the capital city in each country to instrument Trust
- Geographical latitude is highly correlated with Trust but there is no reason to think that it can be a determinant of aggressive soccer play
- See Lee (2013), Hall and Jones (1999), Ahlerup et al. (2009) and Roman (2012)

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Results

Table: Two-Stage Least Squares Regression Results

Dependent Variable: Total

	1st Stage Trust	2nd Stage Total	1st Stage Trust	2nd Stage Total
Trust		-0.053*		-0.043**
PCR	0.032	-0.012	0.100	-0.010
Crime	0.133	0.012	0.147	0.015
Frac	-3.574	-0.149	5.467	0.324
Perc15-29	1.233**	-0.050	1.903*	-0.119**
Polity5	-0.467	-0.008	0.633	-0.014
GDPpc	10.397***	0.376	9.418***	0.196
Gini	-0.208	-0.014	-0.132	-0.009
Inflation	-0.197	0.003	0.029	0.003
Latind	-4.016	1.254***	-5.819	1.503***
LRank			-0.001	-0.001
Latitude	0.395**		0.716***	
Constant	-105.344***	4.856	-142.31***	7.318**
N	55	55	43	43

Conclusion

- Soccer players play the way they live: aggressive soccer play (cards) is robustly associated with low levels of social capital
- For example, a 10% increase in EFW A2 leads to a 10.74% decrease in the combined number of cards per game, and a 14.16% decrease in the number of red cards per game, for the average league

Conclusion

- Soccer players play the way they live: aggressive soccer play (cards) is robustly associated with low levels of social capital
- For example, a 10% increase in EFW A2 leads to a 10.74% decrease in the combined number of cards per game, and a 14.16% decrease in the number of red cards per game, for the average league

Conclusion

- A 10% increase in Trust leads to a 7.6% decrease in the combined number of cards per game, and an 8.33% decrease in the number of red cards per game, for the average league