

# **Cultural Differences, Behavior and Assimilation: Player Nationality and Penalties in Football**

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# Outline

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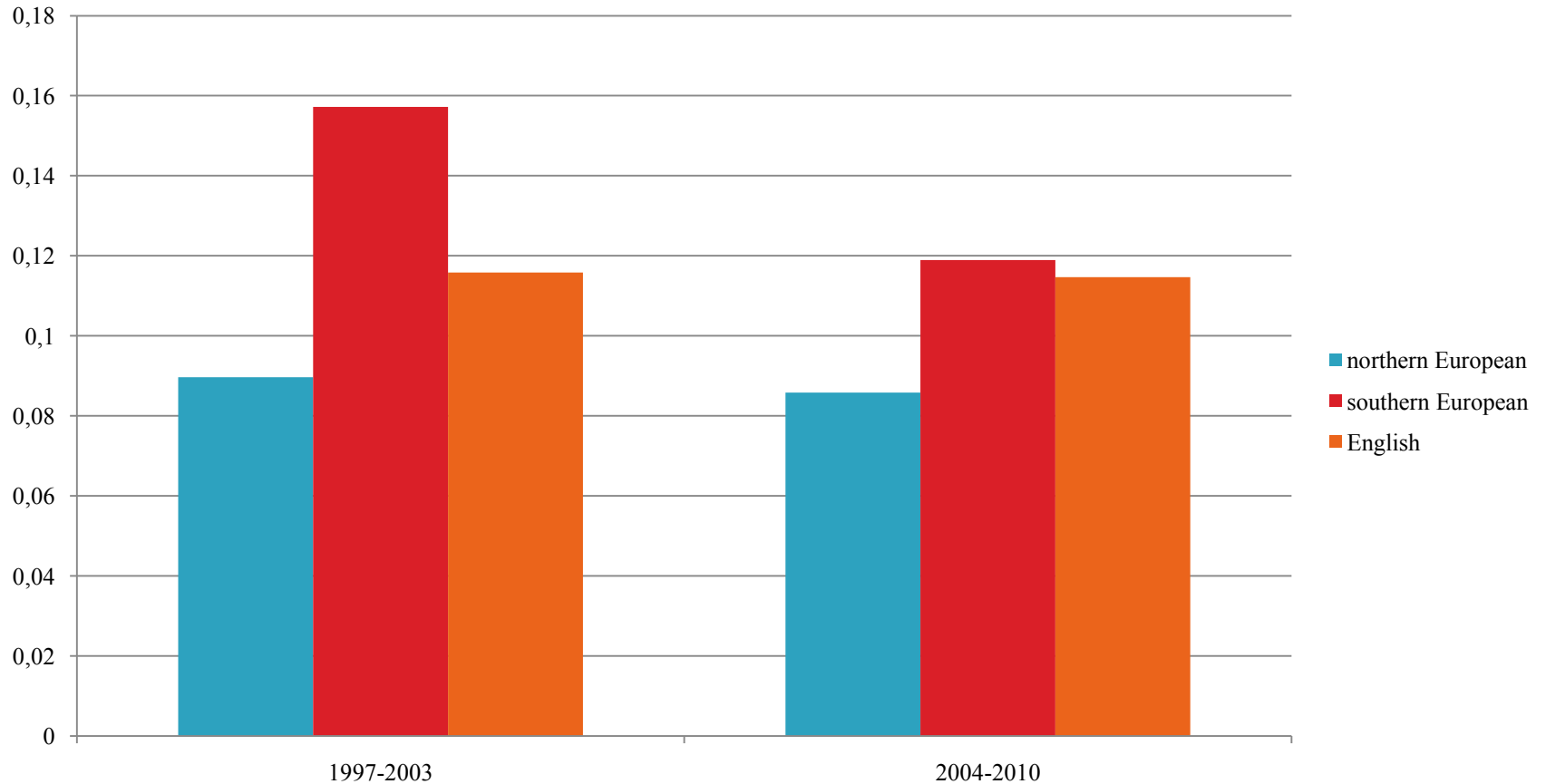
# 1. Introduction

- ▶ Behavior individuals corresponds to cultural influences and expectations
- ▶ Cultural differences affect the (economic) assimilation of immigrants
- ▶ Football interesting case: migration increased largely over the last decade
- ▶ Impact of a different cultural background: football penalties
- ▶ Anecdotal evidence

# 1. Introduction

- ▶ Results:
  - ✓ SE players collect on average more yellow and red cards as compared to their NE colleagues
  - ✓ The initially more football violent behavior displayed by SE players converges towards the local average, the longer their experience in the Premier League

## 2. Empirical Hypotheses



## 2. Empirical Hypotheses

- ▶ **Hypothesis 1:** *Southern European football players in the English Premier League collect on average more football penalties than northern European football players in the English Premier League, ceteris paribus.*
- ▶ **Hypothesis 2:** *The initially higher number of football penalties incurred by southern European players converges towards the local average, the longer their experience in the English Premier League.*

### 3. Sample, Variables and Data

- ▶ SE and NE football players in the Premier League
- ▶ SE = Italy, Portugal, Spain
- ▶ NE = Denmark, Finland, Iceland, Norway and Sweden (Nordic countries)
- ▶ Panel data: 1996/97 season until 2009/10 season
- ▶ 131 SE players, 160 NE players

### 3. Sample, Variables and Data

- ▶ Dependent variable: disciplinary points  
Yellow card = one point, red card = two points
- ▶ Culture variables:  
Hypothesis 1: dummy for SE players  
Hypothesis 2: interaction term between a player's experience and the dummy for SE players

### 3. Sample, Variables and Data

- ▶ Control variables, in line with the literature:
  - Number of games played as a starter and as a substitute
  - Seasonal rule changes
  - Position
  - Experience
  - Age
  - Home advantage
  - Team quality
- ▶ No control for referee effects
  - Reilly and Witt (2011)

### 3. Sample, Variables and Data

Variables	Mean	Max.	Min.	Std. Dev.
<i>Disciplinary points</i>	2.217	14	0	2.56
<i>Southern European</i>	0.39	1	0	0.488
<i>Started</i>	16.064	38	0	11.733
<i>Substitute</i>	3.513	23	0	3.968
<i>Goalkeeper</i>	0.12	1	0	0.326
<i>Defender</i>	0.325	1	0	0.469
<i>Midfielder</i>	0.294	1	0	0.456
<i>Forward</i>	0.261	1	0	0.439
<i>Experience</i>	3.115	12	1	2.329
<i>Age</i>	27.039	39	17	4.059
<i>Percentage home games</i>	0.493	1	0	0.142
<i>Ranking</i>	9.863	20	1	5.831

## 4. Empirical Specifications

- ▶ To test hypothesis 1, we estimate the following equation:

$$DP_{i,t} = \beta_1 SE_i + \beta_2 Started_{i,t} + \beta_3 Substitute_{i,t} + \beta_4 Gk_i + \beta_5 Df_i + \beta_6 Mf_i + \beta_7 Experience_{i,t} + \beta_8 Age_{i,t} + \beta_9 Home_{i,t} + \beta_{10} Ranking_{i,t} + \gamma_t + u_{i,t} \quad (1)$$

- ▶ To test hypothesis 2, we estimate the following equation:

$$DP_{i,t} = \beta_1 Experience_{i,t} + \beta_2 Experience_{i,t} * SE_{i,t} + \beta_3 Started_{i,t} + \beta_4 Substitute_{i,t} + \beta_5 Home_{i,t} + \beta_6 Ranking_{i,t} + \alpha_i + \gamma_t + u_{i,t} \quad (2)$$

- ▶ Count data: Poisson
- ▶ Negative binomial rejected by likelihood ratio testing

# 5. Regression Results

Variables	Dependent variable		Disciplinary points				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Southern European</i>	<b>0.412***</b> (0.000)	<b>0.431***</b> (0.000)	<b>0.416***</b> (0.000)	<b>0.417***</b> (0.000)	<b>0.419***</b> (0.000)	<b>0.41***</b> (0.000)	<b>0.471***</b> (0.000)
<i>Started</i>	<b>0.065***</b> (0.000)	<b>0.066***</b> (0.000)	<b>0.067***</b> (0.000)	<b>0.067***</b> (0.000)	<b>0.067***</b> (0.000)	<b>0.067***</b> (0.000)	<b>0.068***</b> (0.000)
<i>Substitute</i>	<b>0.049***</b> (0.000)	<b>0.049***</b> (0.000)	<b>0.048***</b> (0.000)	<b>0.048***</b> (0.000)	<b>0.049***</b> (0.000)	<b>0.049***</b> (0.000)	<b>0.054***</b> (0.000)
<i>Goalkeeper</i>			<b>-0.964***</b> (0.000)	<b>-0.966***</b> (0.000)	<b>-0.974***</b> (0.000)	<b>-0.97***</b> (0.000)	<b>-0.928***</b> (0.000)
<i>Defender</i>			<b>0.406***</b> (0.001)	<b>0.406***</b> (0.001)	<b>0.397***</b> (0.002)	<b>0.408***</b> (0.001)	<b>0.433***</b> (0.001)
<i>Midfielder</i>			<b>0.476***</b> (0.000)	<b>0.476***</b> (0.000)	<b>0.484***</b> (0.000)	<b>0.492***</b> (0.000)	<b>0.5***</b> (0.000)
<i>Experience</i>				0.002 (0.919)	-0.011 (0.588)	-0.012 (0.546)	-0.005 (0.782)
<i>Age</i>					0.013 (0.272)	0.014 (0.268)	0.007 (0.581)
<i>Percentage home games</i>						0.338 (0.326)	0.284 (0.414)
<i>Ranking</i>							<b>0.019***</b> (0.001)
Time Fixed Effects	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	797	797	797	797	797	797	797
Players	291	291	291	291	291	291	291

## 5. Regression Results

- ▶ Statistically significant coefficients for the dummy that compares football violent behavior of SE players and NE players in all specifications
- ▶ Signs and significance of the control variables (almost) in line with the literature
- ▶ Interpretation: SE players will collect on average 60% more disciplinary points more than NE players

## 5. Regression Results

Variables	Disciplinary points			
	(1)	(2)	(3)	(4)
<i>Experience</i>	-0.005 (0.834)	0.071 (0.268)	0.075 (0.238)	0.057 (0.365)
<i>Experience*southern European</i>	-0.037 (0.257)	<b>-0.054*</b> (0.056)	<b>-0.057**</b> (0.041)	<b>-0.049*</b> (0.069)
<i>Started</i>	0.059*** (0.000)	0.062*** (0.000)	0.061*** (0.000)	0.062*** (0.000)
<i>Substitute</i>	0.041*** (0.000)	0.041*** (0.000)	0.04*** (0.000)	0.045*** (0.000)
<i>Percentage home games</i>			0.445 (0.285)	0.099 (0.821)
<i>Ranking</i>				0.018** (0.04)
Player Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	No	Yes	Yes	Yes
Observations	635	635	635	635
Players	148	148	148	148

## 5. Regression Results

- ▶ Negative and significant estimated coefficients of the interaction term in specifications (2)-(4)
- ▶ Evidence of cultural assimilation of SE players
- ▶ Interpretation: one additional year of Premier League experience reduces the disciplinary points for SE players by 5% on average, as opposed to the reference category of NE players
- ▶ Premier League experience does not affect the average disciplinary points collected by NE players
- ▶ Signs and significance of the control variables in line with previous results

## 6. Extensions and Robustness Checks

1. Results driven by reputational effects?
  - ▶ Include a lag of the number of disciplinary points
  - ▶ Note that we cannot replicate this robustness check for model (2)

## 6. Extensions and Robustness Checks

Variables	Dependent variable	Disciplinary points
<i>Southern European</i>		<b>0.361***</b> (0.004)
<i>Started</i>		0.066*** (0.000)
<i>Substitute</i>		0.048*** (0.000)
<i>Goalkeeper</i>		-1.059*** (0.000)
<i>Defender</i>		0.236 (0.141)
<i>Midfielder</i>		0.422*** (0.006)
<i>Experience</i>		-0.004 (0.879)
<i>Age</i>		0.003 (0.849)
<i>Percentage home games</i>		0.567 (0.237)
<i>Ranking</i>		0.014* (0.074)
<i>Lagged disciplinary points</i>		0.037** (0.012)
<b>Time Fixed Effects</b>		<b>Yes</b>
<b>Observations</b>		<b>462</b>
<b>Players</b>		<b>153</b>

## 6. Extensions and Robustness Checks

2. Results driven by players with minimal playing time?
  - ▶ Exclude players that did not start in at least 3 games (134 players, 556 obs.)

## 6. Extensions and Robustness Checks

Variables	Dependent variable	Disciplinary points
<i>Southern European</i>		<b>0.508***</b> (0.000)
<i>Started</i>		<b>0.056***</b> (0.000)
<i>Substitute</i>		<b>0.04***</b> (0.000)
<i>Goalkeeper</i>		<b>-0.885***</b> (0.000)
<i>Defender</i>		<b>0.403***</b> (0.001)
<i>Midfielder</i>		<b>-0.502***</b> (0.000)
<i>Experience</i>		0.004 (0.823)
<i>Age</i>		-0.006 (0.666)
<i>Percentage home games</i>		-0.307 (0.556)
<i>Ranking</i>		<b>0.019***</b> (0.001)
<b>Time Fixed Effects</b>		Yes
<b>Observations</b>		663
<b>Players</b>		236

## 6. Extensions and Robustness Checks

Variables	Dependent variable	Disciplinary points
<i>Experience</i>		0.055 (0.419)
<i>Experience*southern European</i>		<b>-0.062**</b> (0.017)
<i>Started</i>		0.054*** (0.000)
<i>Substitute</i>		0.034*** (0.006)
<i>Percentage home games</i>		-0.184 (0.743)
<i>Ranking</i>		0.017** (0.041)
Player Fixed Effects		Yes
Time Fixed Effects		Yes
Observations		556
Players		134

## 6. Extensions and Robustness Checks

3. Result concerning cultural assimilation also driven by a process of aging?
  - ▶ Estimation model (2) replacing experience by age:

$$DP_{it} = \beta_1 Age_{it} + \beta_2 Age_{it} * SE_{it} + \beta_3 Started_{it} + \beta_4 Substitute_{it} + \beta_5 Home_{it} + \beta_6 Ranking_{it} + \alpha_i + \gamma_t + u_{it}. \quad (3)$$

## 6. Extensions and Robustness Checks

Variables	Dependent variable	Disciplinary points
<i>Age</i>		0.017 (0.419)
<i>Age * southern European</i>		-0.04* (0.051)
<i>Started</i>		0.062*** (0.000)
<i>Substitute</i>		0.044*** (0.000)
<i>Percentage home games</i>		0.315 (0.462)
<i>Ranking</i>		0.02** (0.013)
<b>Player Fixed Effects</b>		Yes
<b>Time Fixed Effects</b>		Yes
<b>Observations</b>		635
<b>Players</b>		148

## 6. Extensions and Robustness Checks

4. Results driven by specific metrics for the definition of the dependent variable?
  - ▶ Red cards one point
  - ▶ Red cards three points

## 6. Extensions and Robustness Checks

Variables	Disciplinary points	
	(1)	(2)
<i>Southern European</i>	0.477*** (0.000)	0.472*** (0.000)
<i>Started</i>	0.069*** (0.000)	0.067*** (0.000)
<i>Substitute</i>	0.054*** (0.000)	0.055*** (0.000)
<i>Goalkeeper</i>	-1.025*** (0.000)	-0.842*** (0.000)
<i>Defender</i>	0.413*** (0.001)	0.447*** (0.000)
<i>Midfielder</i>	0.492*** (0.000)	0.498*** (0.000)
<i>Experience</i>	-0.001 (0.951)	-0.01 (0.617)
<i>Age</i>	0.007 (0.583)	0.008 (0.543)
<i>Percentage home games</i>	0.242 (0.495)	0.293 (0.392)
<i>Ranking</i>	0.019*** (0.001)	0.019*** (0.001)
Player Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes
Observations	797	797
Players	291	291

## 6. Extensions and Robustness Checks

Variables	Dependent variable	
	(1)	(2)
<i>Experience</i>	0.053 (0.411)	0.061 (0.339)
<i>Experience * southern European</i>	-0.049* (0.063)	-0.047 (0.11)
<i>Started</i>	0.063*** (0.000)	0.061*** (0.000)
<i>Substitute</i>	0.045*** (0.000)	0.046*** (0.000)
<i>Percentage home games</i>	0.303 (0.474)	0.327 (0.459)
<i>Ranking</i>	0.019** (0.022)	0.021** (0.014)
Player Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes
Observations	635	635
Players	148	148

## 6. Extensions and Robustness Checks

5. Results driven by players with a double nationality?
  - ▶ Exclude players with a double nationality (142 players, 615 obs.)

## 6. Extensions and Robustness Checks

Variables	Dependent variable	Disciplinary points
<i>Southern European</i>		0.475*** (0.000)
<i>Started</i>		0.067*** (0.000)
<i>Substitute</i>		0.053*** (0.000)
<i>Goalkeeper</i>		-0.907*** (0.000)
<i>Defender</i>		0.449*** (0.000)
<i>Midfielder</i>		0.497*** (0.000)
<i>Experience</i>		-0.006 (0.766)
<i>Age</i>		0.006 (0.637)
<i>Percentage home games</i>		0.327 (0.349)
<i>Ranking</i>		0.019*** (0.001)
<b>Time Fixed Effects</b>		<b>Yes</b>
<b>Observations</b>		<b>768</b>
<b>Players</b>		<b>279</b>

## 6. Extensions and Robustness Checks

Variables	Dependent variable	Disciplinary points
<i>Experience</i>		0.052 (0.416)
<i>Experience*southern European</i>		-0.048* (0.077)
<i>Started</i>		0.061*** (0.000)
<i>Substitute</i>		0.044*** (0.000)
<i>Percentage home games</i>		0.441 (0.303)
<i>Ranking</i>		0.018** (0.028)
Player Fixed Effects		Yes
Time Fixed Effects		Yes
Observations		615
Players		142

# 6. Extensions and Robustness Checks

## 6. Extension sample

- ▶ Underrepresentation of SE players
- ▶ Include players from the other SE member states of the EU: Bulgaria, Cyprus, Greece, Romania and Slovenia (163 players, 693 obs.)

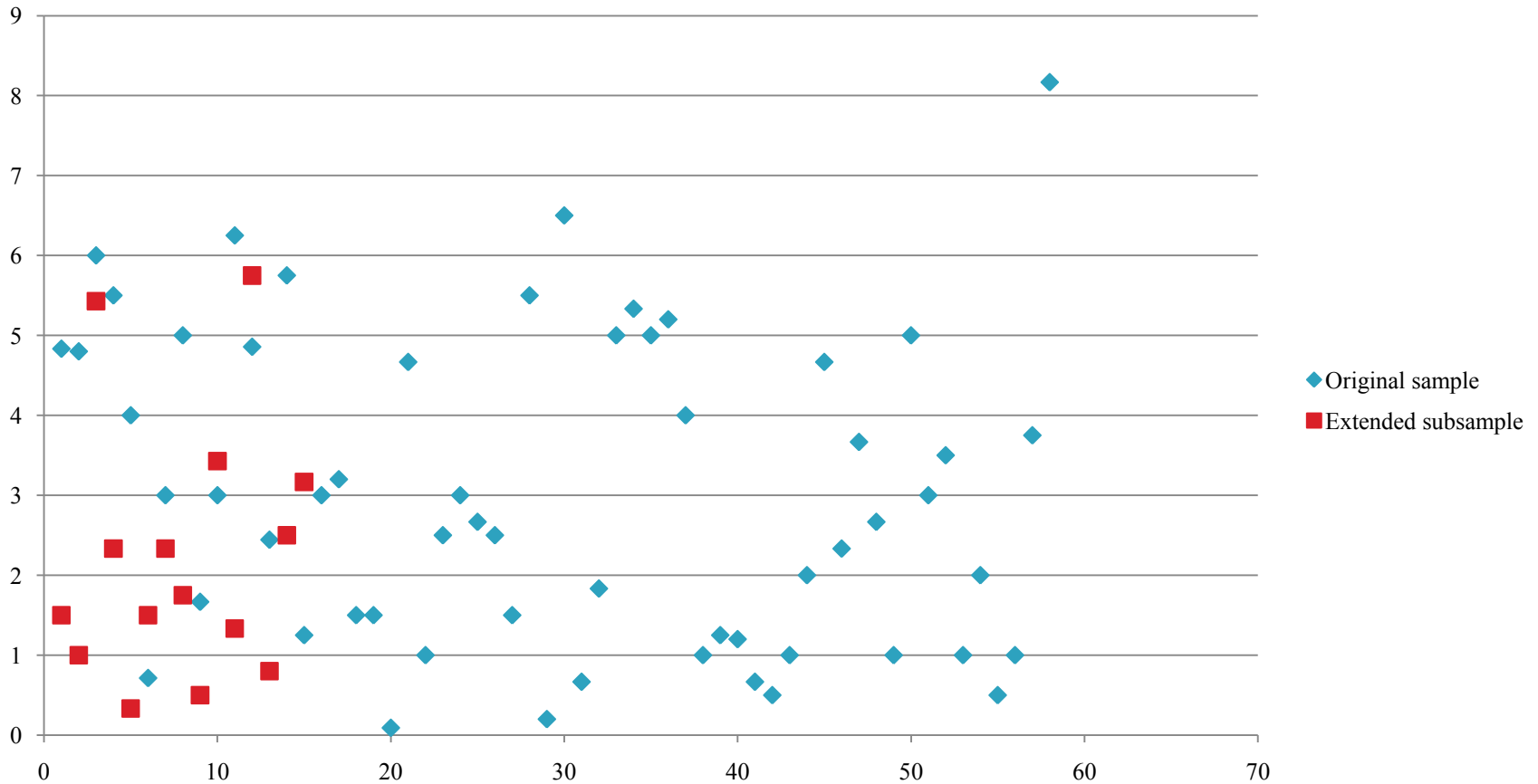
## 6. Extensions and Robustness Checks

Variables	Dependent variable	Disciplinary points
<i>Southern European</i>		0.424*** (0.000)
<i>Started</i>		0.068*** (0.000)
<i>Substitute</i>		0.051*** (0.000)
<i>Goalkeeper</i>		-0.944*** (0.000)
<i>Defender</i>		0.436*** (0.000)
<i>Midfielder</i>		0.485*** (0.000)
<i>Experience</i>		-0.009 (0.636)
<i>Age</i>		0.007 (0.352)
<i>Percentage home games</i>		0.161 (0.615)
<i>Ranking</i>		0.017*** (0.002)
Time Fixed Effects		Yes
Observations		873
Players		324

## 6. Extensions and Robustness Checks

Variables	Dependent variable	Disciplinary points
<i>Experience</i>		0.066 (0.285)
<i>Experience*southern European</i>		-0.045 (0.128)
<i>Started</i>		0.063*** (0.000)
<i>Substitute</i>		0.046*** (0.000)
<i>Percentage home games</i>		0.322 (0.403)
<i>Ranking</i>		0.018** (0.02)
<b>Player Fixed Effects</b>		Yes
<b>Time Fixed Effects</b>		Yes
<b>Observations</b>		693
<b>Players</b>		163

# 6. Extensions and Robustness Checks



# 7. Conclusion

- ▶ Two main findings:
  - ✓ SE players collect on average more yellow and red cards than NE players
  - ✓ These differences decrease over time, largely driven by a process of gradual assimilation of behavior of SE players