

Match Rigging in Professional Soccer: Determinants of Corruption and Economic Methods

Tito Boeri

IGIER-Bocconi University & fRDB

Battista Severgnini

Copenhagen Business School

INTERPOL

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Introduction

This presentation will illustrate our research studies based on the the Italian case of *Calciopoli* in 3 steps:

1. **Into the Black Box:** we study the determinants of match fixing
2. **Investigation Toolbox:** we show the effectiveness of economic and econometric tools for *detecting* rigged matches in Championships
3. **Agents and Career concerns:** we study the linkages between rigged matches, referees' careers, and managers in professional soccer

Why Sport & Match Rigging is so Important in Economics?

Observe the Unobservables:

1. professional soccer has economic relevance in European countries (about 1% of GDP)
2. in professional sports possible to measure productivity (of players, referees and coaches)
3. very high frequency data (one observation per match day)

Furthermore, in Italy:

- ▶ In May 2006 a scandal was uncovered by Italian prosecutors after tapping phone conversations
- ▶ possibility to observe rigging episodes and test predictive power of our models

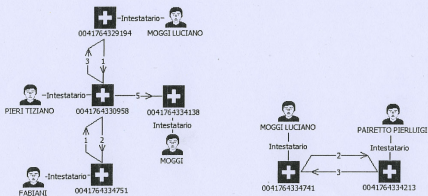
The Scandal of **Calciopoli**: A Case Study

1. Corruption is not a new phenomenon in Italy:
 - ▶ 1927: bribery episode and championship revoked
 - ▶ 1982: gambling
2. 2004-2005 Championship: *Juventus*, *A.C. Milan*, *Fiorentina*, *Lazio Rome* and *Reggina* involved in rigging matches and manipulating news.
3. In May 2006 the scandal was uncovered by Italian prosecutors after tapping phone conversations in relation with an investigation on the use of doping at *Juventus*.
4. Sportive justice: *Juventus* was relegated to the 2nd Division; point penalizations for the other teams.
5. this scandal does not seem to involve betting activities

Police Investigations: Tapped Phone Calls

R.O.N.O. Carabinieri di Roma
2^a Sezione
Allegati utenza 0041764330958
Pagina 7 di 15

GIORNATA DI CAMPIONATO	DATA E ORA INCONTRO	DATA E LUOGO SORTEGGIO	INCONTRO	VALIDITA'	ARBITRO 1 [^] ASSISTENTE 2 [^] ASSISTENTE IV [^] UFFICIALE	PERIODO TRAFFICO
15 ^a GIORNATA ANDATA	GIOVEDÌ 12.12.04 20,30	VENERDÌ 10.12.05 MILANO	BOLOGNA JUVE 0-1	SERIE A	PIERI MITRO AMBROSINO BRIGHI	DAL 07.12.04 AL 13.12.04



Into the Black Box: The Determinants and Agents of Match Rigging

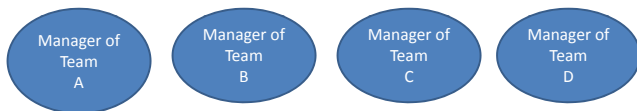
Two main questions:

1. What are the main determinants of match rigging?
2. Which agents are most likely to be involved in the fixing?

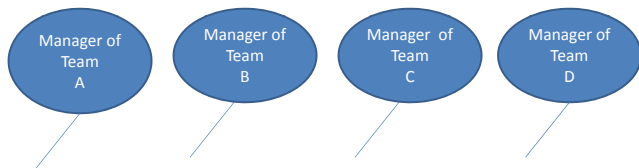
Main Problems:

- ▶ in general, corruption is not observable. (but not in our case)
- ▶ other non sportive forces different from corruption:
 1. unconscious social pressure \implies referees' bias
 2. other uncertain events

Agents and Career concerns: The Case of *Calciopoli*

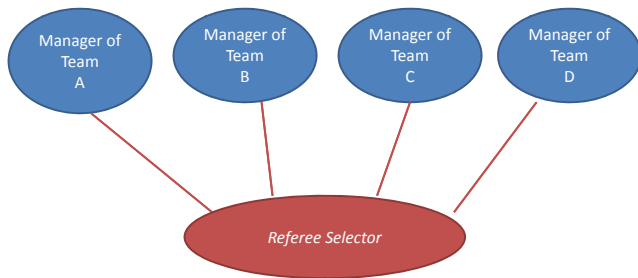


Agents and Career concerns: The Case of *Calciopoli*



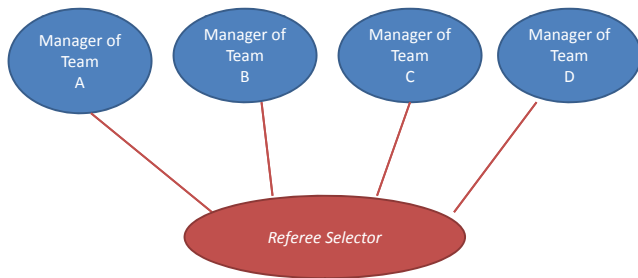
Allowed Actions

Agents and Career concerns: The Case of *Calciopoli*



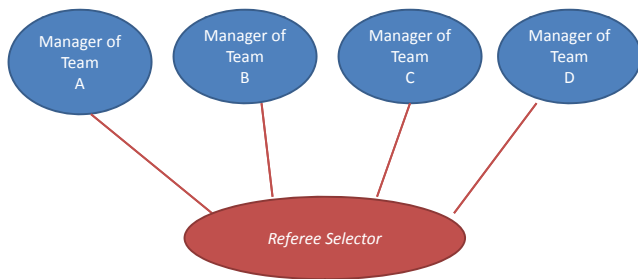
Pressures on Referee Selector

Agents and Career concerns: The Case of *Calciopoli*

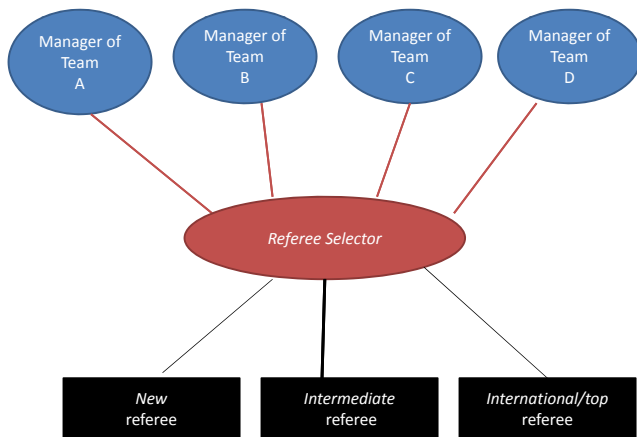


Pressures on Referee Selector

Agents and Career concerns: The Case of *Calciopoli*



Agents and Career concerns: The Case of *Calciopoli*

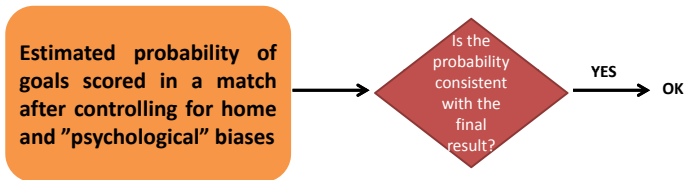


Evaluations and Pressures on Referees

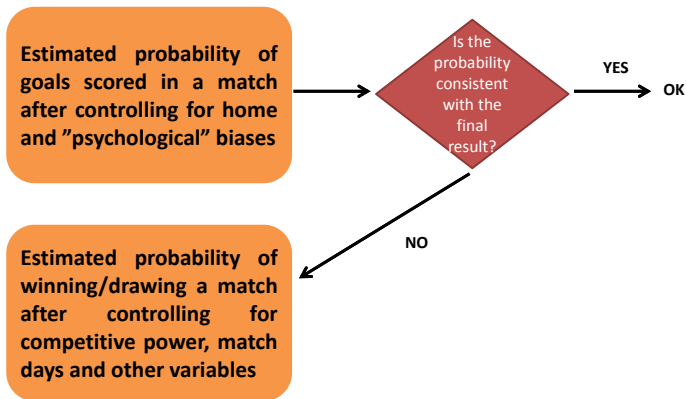
Investigation Toolbox: Our Approach

Estimated probability of goals scored in a match after controlling for home and "psychological" biases

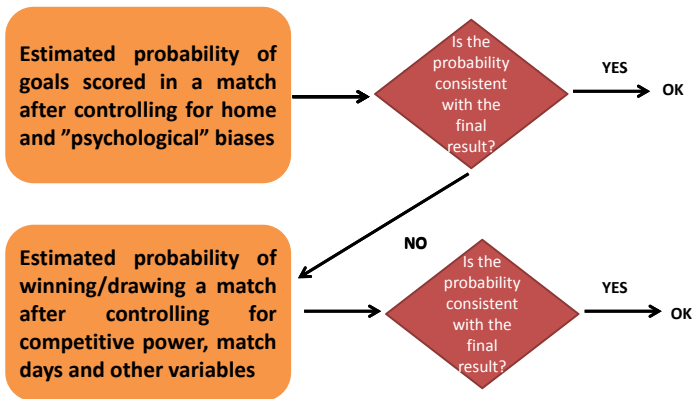
Investigation Toolbox: Our Approach



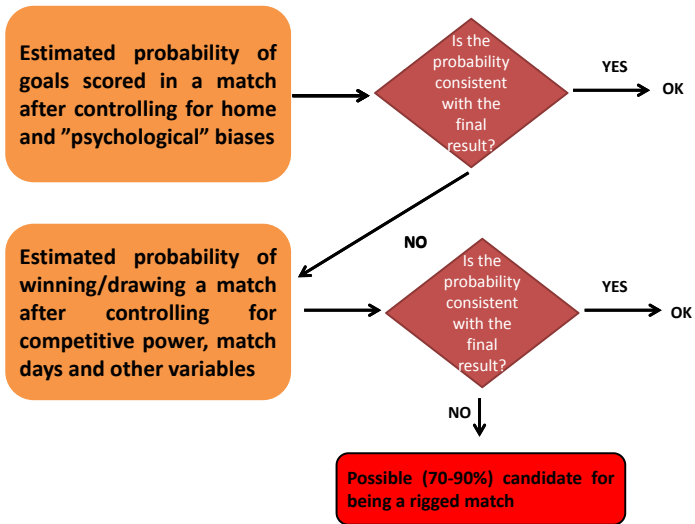
Investigation Toolbox: Our Approach



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Investigation Toolbox: Our Approach



Investigation Toolbox: Indicator of Match Rigging

What are the main drivers for deciding to fix a particular match instead of another?

1. **competitive balance**: the more equilibrate the championship, the higher is the probability to fix a match
2. **time**: Match rigging should preferably involve the central days of the tournament
3. **nature of matches**: Matches targeted for corruption should be rather balanced
4. **referees' career**

Competitive Power and Match Rigging

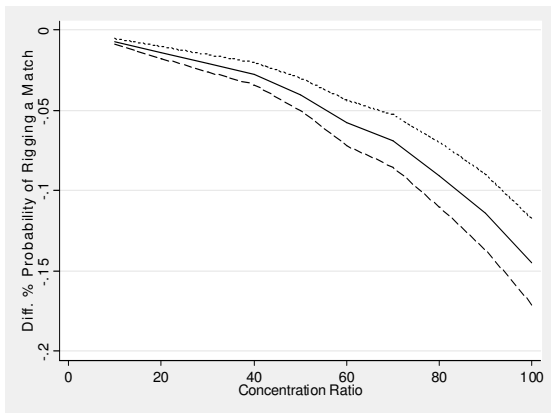


Figure: $\Delta\%$ Probability of Rigging a Match and Juventus Competitive Power (Concentration Ratio) according to the Model Estimates