Evaluating Policies for Countering Extortion Racket Systems: A Simulation Approach

Luis G. Nardin, Giulia Andrighetto, Áron Székely & Rosaria Conte

Societal Dimensions of Organised Crime

Rome, Italy
23rd September 2015
Extortion Racket Systems

- Extortion Racket Systems (ERSs)
  - Highly prosperous economic criminal organisations
  - Production and supply of “protection”
  - Explicit or implicit threat of violence
  - Exchange for money or other economically relevant utility

- ERSs are spreading globally, causing massive disruption to economies

- Mafia is but an example
  - Sicilian Mafia, Russian Mafia, Hong Kong Triads, and Yakuza
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• ERSs are spreading globally, causing massive disruption to economies

• Mafia is but an example
  – Sicilian Mafia, Russian Mafia, Hong Kong Triads, and Yakuza

Yet there is no good understanding of their dynamics and how they may be countered
Two Perspectives on Mafia

- **Traditional cultural perspective** (Banfield, 1958; Hess, 1973)
  - ‘Ethos’ or subculture that supports Mafias
  - Vague and denies agency

- **Modern protection perspective** (Gambetta, 1993)
  - Mafia as a business and people pay pizzo for instrumental reasons: to obtain protection or avoid harm
  - Powerful and precise framework for understanding the Mafia
  - Has essentially supplanted cultural perspective (for good reason)
Two Perspectives on Mafia

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  - Has essentially *supplanted cultural perspective* (for good reason)

But perhaps we threw out something important in our effort to be precise and include agency
Incentives and Norms

- **Protection perspective** relies on ‘carrot and stick’ approach

- Yet **people consider** more than only incentives when deciding how to behave
  
  (Fehr & Fischbacher, 2004; Fehr & Gintis, 2007)

- **Social norms** are a key factor that can motivate behaviour
  
  (Bicchieri & Xiao, 2009; Conte et al., 2013)

  - E.g., Omertà
Integrating the Two Perspectives

- **Legal norms** are *shared behavioural rules* formalised as *laws* and *enforced by specialised actors*.

- **Social norms** are *shared behavioural rules* followed because of *reciprocal expectations* and *enforced by the community* (Bicchieri, 2006; Conte et al., 2013; Elster, 1989)
  - Capture the idea of *social influence*.
  - Operationalised by **EMIL-A**, a *normative architecture* that enables agents to recognise, follow, reason about, and enforce norms (Conte et al., 2013).

  - **Norm Salience** is a measure about how much *active, legitimate, complied with, and enforced* a norm is *within a social group* in a given context from an agent’s perspective (Conte et al., 2013).
Research Questions

What are the independent and combined effects of legal and social norms approaches on countering ERSs?

1. How effective is a legal norm only approach?
2. Can a social norm only approach be effective on countering ERSs?
3. What effects occur when they are combined?
The Palermo Scenario Model

• **Computational agent-based model** including ERSs
  - Theory-driven
  - Empirically-grounded
  - Participatory modelling

• Can help us to **understand the effects** of different **policies** on countering ERSs

• **Generate data** about dynamics of ERSs especially important because in ERSs
  - There is lack of data
  - The empirical data are biased
The Palermo Scenario Model

• Empirical Data
  – The **Sicily** and **Calabria database with 600+ entries** extracted from police reports and court trials elaborated by University of Palermo
  – European and Italian **Surveys** (e.g., EVS, Eurobarometer 79.1)
  – **Libro Mastro**
  – **Literature** on the Mafia

• Participatory Modelling
  – Feedback from **an international stakeholder board** composed of 27 experts from 10 different countries
  – Discussions with **members of AddioPizzo** (2013, 2014)
  – Meetings and discussions with the **GLODERS project partners**
## The Palermo Scenario Model

### Actors

<table>
<thead>
<tr>
<th>Actor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mafia</td>
<td>A single Mafia organisation with multiple Mafiosi</td>
</tr>
<tr>
<td>Entrepreneur</td>
<td>Owners and manager of businesses</td>
</tr>
<tr>
<td>State</td>
<td>Government and law enforcement institutions</td>
</tr>
<tr>
<td>Intermediary Organisation</td>
<td>Non-governmental organisation</td>
</tr>
<tr>
<td>Consumer</td>
<td>People buying products</td>
</tr>
</tbody>
</table>
The Palermo Scenario Model

Dynamics

Social Norms Spreading

Entrepreneur

State

Investigate

Social Norms Spreading

Mafia

Extort

Pay

Benefit

Punish

Social Norms Spreading

Intermediary Organisation

Social Norms Spreading

Consumer

Social Norms Spreading

Buy

Social Norms Spreading

Social Norms Spreading
The Palermo Scenario Model Dynamics

State

Consumer → Entrepreneur → Mafia

Buy → Pay → Extort → Punish → Benefit

Intermediary Organisation
The Palermo Scenario Model Dynamics

State

Consumer → Entrepreneur
Buy

Entrepreneur → Pay
Extort

Mafia
Punish
Benefit

Mafia-Entrepreneur Interactions

Intermediary Organisation
The Palermo Scenario Model Dynamics

• Entrepreneurs Paying decision-making
  – Based on **Instrumental** and **Normative** factors

\[ \text{Prob}_{pay} = (1 - \alpha)\text{Instrumental} + \alpha\text{Normative} \]

<table>
<thead>
<tr>
<th>Decision Factors</th>
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<tbody>
<tr>
<td><strong>Instrumental</strong></td>
</tr>
<tr>
<td>Amount of the Mafia request</td>
</tr>
<tr>
<td>Punishment by the Mafia</td>
</tr>
<tr>
<td>Benefit from the Mafia</td>
</tr>
<tr>
<td>Benefit from the State</td>
</tr>
<tr>
<td>Social norms and their relative salience (based on EMIL-A)</td>
</tr>
</tbody>
</table>
The Palermo Scenario Model Dynamics

- Consumer
  - Buy
  - Intermediary Organisation
- Entrepreneur
  - Pay
- Mafia
  - Punish
  - Benefit
- State
  - Investigate
  - Assist
  - Report

Actions:
- Buy
- Pay
- Extort
- Punish
- Benefit
- Investigate
- Assist
- Report
The Palermo Scenario Model Dynamics

Consumer → Entrepreneur → Mafia

State

Legal Norms approach

Assist → Investigate

Buy → Report

Extort → Pay

Punish → Benefit

Intermediary Organisation
The Palermo Scenario Model Dynamics

Social Norms Spreading

Consumer

Entrepreneur

Mafia

State

Intermediary Organisation

Social Norms Spreading

Buy

Social Norms Spreading

Extort

Pay

Investigate

Report

Assist

Benefit

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Social Norms Spreading

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The Palermo Scenario Model Dynamics

Social Norms approach

Entrepreneur

Consumer

State

Mafia

Intermediary Organisation

Social Norms Spreading

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Social Norms Spreading

Investigate

Assist

Report

Extort

Pay

Punish

Benefit

Buy

Social Norms Spread

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The Palermo Scenario Model Dynamics

Social Norms approach

Consumer → Entrepreneur

State

Legal Norms approach

Mafia

Intermediary Organisation

Social Norms Spreading

Investigate

Assist

Report

Pay

Extort

Punish

Benefit

Mafia-Entrepreneur Interactions
# The Palermo Scenario Model Norms

<table>
<thead>
<tr>
<th>Set of Norms</th>
<th>TRADITIONAL</th>
<th>NEW</th>
</tr>
</thead>
</table>

## Legal Norms

<table>
<thead>
<tr>
<th>State</th>
<th>Social Norms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investigate Mafia activity</td>
<td>Pay pizzo</td>
</tr>
<tr>
<td>Imprison Mafiosi</td>
<td>Do not pay pizzo</td>
</tr>
<tr>
<td>Confiscate Mafia’s resources</td>
<td>Do not report pizzo</td>
</tr>
<tr>
<td>Assist punished Entrepreneurs</td>
<td>Report pizzo</td>
</tr>
</tbody>
</table>

## Social Norms

<table>
<thead>
<tr>
<th>Entrepreneur</th>
<th>Consumer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pay pizzo</td>
<td>Avoid pizzo paying Entrepreneurs</td>
</tr>
<tr>
<td>Do not pay pizzo</td>
<td>Do not report pizzo</td>
</tr>
<tr>
<td>Do not report pizzo</td>
<td>Report pizzo</td>
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</tbody>
</table>
Experiments

1. Effects of Legal Norms
2. Effects of Social Norms
3. Effects of Legal and Social Norms
Experiment 1
Effects of Legal Norms

What effects does a legal norms approach alone have on

1. Strength of the Mafia?
2. Actions of Mafiosi?
3. Entrepreneurs’ behaviours?
4. Salience of the social norms?

<table>
<thead>
<tr>
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<th>L3</th>
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<tbody>
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<td>Hidden Mafia</td>
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Experiment 1: Legal Norms
Strength of the Mafia

<table>
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![Graph](image.png)

Number of mafiosi imprisoned

Time units
# Experiment 1: Legal Norms

## Actions of Mafiosi

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**Graphs:**

- **Left Graph:** Number of punishments per condition.
- **Right Graph:** Proportion of punishments per condition.

<table>
<thead>
<tr>
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<th>L3</th>
<th>L4</th>
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<tbody>
<tr>
<td><img src="image1" alt="Graph Image" /></td>
<td><img src="image2" alt="Graph Image" /></td>
<td><img src="image3" alt="Graph Image" /></td>
<td><img src="image4" alt="Graph Image" /></td>
</tr>
</tbody>
</table>

25
Experiment 1: Legal Norms
Behaviour of Entrepreneurs

<table>
<thead>
<tr>
<th>L1</th>
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</table>

Proportion of paid extortion

Proportion of pizzo requests reported
### Experiment 1: Legal Norms

#### Salience of the Social Norms

<table>
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<td>Violent Mafia</td>
<td>Violent Mafia</td>
<td>Hidden Mafia</td>
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</table>

<table>
<thead>
<tr>
<th>PROPORTION OF ENTREPRENEURS</th>
<th>Traditional</th>
<th>Only 'Do not pay pizzo'</th>
<th>Only 'Report pizzo'</th>
<th>New</th>
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</thead>
<tbody>
<tr>
<td>L1</td>
<td>100.0%</td>
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<tr>
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<td>L3</td>
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<td>0.0%</td>
</tr>
<tr>
<td>L4</td>
<td>98.4%</td>
<td></td>
<td>1.6%</td>
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</table>
Experiment 2
Effects of the Social Norms

What **effects** does a **social norms** approach alone have on

1. Strength of the Mafia?
2. Actions of Mafiosi?
3. Entrepreneurs’ behaviours?
4. Salience of the social norms?

<table>
<thead>
<tr>
<th></th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
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</tr>
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<tbody>
<tr>
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</table>
## Experiment 2: Social Norms
### Strength of the Mafia

<table>
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<tr>
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<tr>
<td>Mafia</td>
<td>Violent Mafia</td>
<td>Violent Mafia</td>
<td>Hidden Mafia</td>
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</tr>
</tbody>
</table>

**Graph:**

- X-axis: Time units
- Y-axis: Number of mafiosi imprisoned

The graph shows the number of mafiosi imprisoned over time for different conditions of legal and social norms, with distinct colors for each scenario (S1, S2, S3, S4).
## Experiment 2: Social Norms

### Actions of Mafiosi

<table>
<thead>
<tr>
<th></th>
<th>S1</th>
<th>S2</th>
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### Graph

![Graph showing number of punishments](image-url)
### Experiment 2: Social Norms

#### Behaviour of Entrepreneurs

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Legal Norms</th>
<th>Social Norms</th>
<th>Mafia Type</th>
</tr>
</thead>
<tbody>
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<td><strong>S1</strong></td>
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<td>No</td>
<td>Violent</td>
</tr>
<tr>
<td><strong>S2</strong></td>
<td>Weak</td>
<td>Social</td>
<td>Violent</td>
</tr>
<tr>
<td><strong>S3</strong></td>
<td>Weak</td>
<td>No</td>
<td>Hidden</td>
</tr>
<tr>
<td><strong>S4</strong></td>
<td>Weak</td>
<td>Social</td>
<td>Hidden</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Proportion of paid extortion</th>
<th>Proportion of pizza requests reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>85</td>
<td>5</td>
</tr>
<tr>
<td>80</td>
<td>5</td>
</tr>
<tr>
<td>75</td>
<td>5</td>
</tr>
<tr>
<td>70</td>
<td>5</td>
</tr>
<tr>
<td>65</td>
<td>0</td>
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**Graphical Representation:**

- S1: Weak Legal Norms, No Social Norms, Violent Mafia
- S2: Weak Legal Norms, Social Norms, Violent Mafia
- S3: Weak Legal Norms, No Social Norms, Hidden Mafia
- S4: Weak Legal Norms, Social Norms, Hidden Mafia
### Experiment 2: Social Norms

#### Salience of the Social Norms

<table>
<thead>
<tr>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>S4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weak Legal Norms</td>
<td>Weak Legal Norms</td>
<td>Weak Legal Norms</td>
<td>Weak Legal Norms</td>
</tr>
<tr>
<td>No Social Norms</td>
<td>Social Norms</td>
<td>No Social Norms</td>
<td>Social Norms</td>
</tr>
<tr>
<td>Violent Mafia</td>
<td>Violent Mafia</td>
<td>Hidden Mafia</td>
<td>Hidden Mafia</td>
</tr>
</tbody>
</table>

**PROPORTION OF ENTREPRENEURS**

- **Traditional**: 100.0%
- **Only 'Do not pay pizzo'**: 0.0%
- **Only 'Report pizzo'**: 0.0%
- **New**: 0.0%

<table>
<thead>
<tr>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>S4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0%</td>
<td>80.8%</td>
<td>100.0%</td>
<td>72.1%</td>
</tr>
<tr>
<td>0.0%</td>
<td>17.1%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>0.0%</td>
<td>0.4%</td>
<td>0.0%</td>
<td>17.7%</td>
</tr>
</tbody>
</table>
Experiment 3
Combined Effects of Legal and Social Norms

What effects does combined legal and social norms approach have on

1. Strength of the Mafia?
2. Actions of Mafiosi?
3. Entrepreneurs’ behaviours?
4. Salience of the social norms?

<table>
<thead>
<tr>
<th>LS1</th>
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<th>LS3</th>
<th>LS4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong Legal Norms</td>
<td>Strong Legal Norms</td>
<td>Strong Legal Norms</td>
<td>Strong Legal Norms</td>
</tr>
<tr>
<td>No Social Norms</td>
<td>Social Norms</td>
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<td>Social Norms</td>
</tr>
<tr>
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<td>Violent Mafia</td>
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</tr>
</tbody>
</table>
## Experiment 3: Legal and Social Norms
### Strength of the Mafia

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<td>Violent Mafia</td>
<td>Hidden Mafia</td>
</tr>
</tbody>
</table>

### Graph

- **Y-axis**: Number of mafiosi imprisoned
- **X-axis**: Time units
- Different lines represent different conditions:
  - Green: LS1 (Strong Legal Norms, No Social Norms, Violent Mafia)
  - Red: LS2 (Strong Legal Norms, Social Norms, Violent Mafia)
  - Blue: LS3 (Strong Legal Norms, No Social Norms, Hidden Mafia)
  - Green: LS4 (Strong Legal Norms, Social Norms, Hidden Mafia)
Experiment 3: Legal and Social Norms
Actions of Mafiosi

<table>
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<tr>
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<th>LS4</th>
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<td>Strong Legal Norms</td>
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<td>Violent Mafia</td>
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</tr>
</tbody>
</table>
## Experiment 3: Legal and Social Norms
### Behaviour of Entrepreneurs

<table>
<thead>
<tr>
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<th>LS3</th>
<th>LS4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong Legal Norms</td>
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<td>Strong Legal Norms</td>
<td>Strong Legal Norms</td>
</tr>
<tr>
<td>No Social Norms</td>
<td>Social Norms</td>
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<td>Social Norms</td>
</tr>
<tr>
<td>Violent Mafia</td>
<td>Violent Mafia</td>
<td>Hidden Mafia</td>
<td>Hidden Mafia</td>
</tr>
</tbody>
</table>

### Box Plots

- **Proportion of paid extortion**
- **Proportion of pizza requests reported**
### Experiment 3: Legal and Social Norms

**Salience of the Social Norms**

<table>
<thead>
<tr>
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<td>Strong Legal Norms</td>
</tr>
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</tbody>
</table>

<table>
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<th>PROPORTION OF ENTREPRENEURS</th>
<th>LS1</th>
<th>LS2</th>
<th>LS3</th>
<th>LS4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional</td>
<td>100.0%</td>
<td>41.6%</td>
<td>98.4%</td>
<td>57.5%</td>
</tr>
<tr>
<td>Only 'Do not pay pizzo'</td>
<td>0.0%</td>
<td>9.6%</td>
<td>0.0%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Only 'Report pizzo'</td>
<td>0.0%</td>
<td>9.0%</td>
<td>0.0%</td>
<td>8.6%</td>
</tr>
<tr>
<td>New</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>30.4%</td>
</tr>
</tbody>
</table>
Resilience

• In the **Legal** and **Social Norms** approaches alone, Entrepreneurs’ behaviours are **vulnerable to sudden changes**
  – No to limited number of Entrepreneurs shifting from the **TRADITIONAL** to the **NEW** set of norms

• In the **combined Legal and Social Norms approach**, Entrepreneurs change their behaviours and are resistant to sudden changes
  – Large number of Entrepreneurs shifting from the **TRADITIONAL** to the **NEW** set of norms
Resilience

Proportion of paid extortion

Period

P1 P2 P3 P4 P5
Conclusions

• Legal Norms approach only
  – **Effective** in imprisoning Mafiosi
  – **Vulnerable** to sudden changes

• Social Norms approach only
  – **Partially effective** in changing Entrepreneurs’ behaviours
  – **Dangerous** to the Entrepreneurs

• Combined Social and Legal Norms approach
  – **Effective** in imprisoning Mafiosi
  – **Effective** in changing Entrepreneurs’ behaviours
  – **Resilient** to sudden changes
References

Thank you