Modelling Extortion Rackets

Corinna Elsenbroich
CRESS, University of Surrey

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The Next 10 Min

1. Team Reasoning
2. **GLObal Dynamics of Extortion Racket Systems**
3. An ABM of Team Reasoning in Extortion Rackets
4. Conclusions
1. Team Reasoning
### Prisoner’s Dilemma

**Basic Assumptions:**

- *Individuals are rational.*
- *Individuals are rational if they maximise their utility.*
- *Individuals assume the other player(s) are rational.*
- *What is rational for one agent to do depends on what is rational for another agent.*
- *Equilibria are solution to games.*
A choice

The individual lines

The collective diagonal
Team Reasoning

Bacharach: Team reasoning is triggered by *strongly interdependent games*. A game is strongly interdependent if a Nash equilibrium is dominated by a Pareto optimal solution. Team reasoning “just happens” when the game is of the right kind, but it is conditional.

*Rationality is reinterpreted as seeing the collective diagonal in a strongly interdependent game.*

Sugden: Mutually assured team reasoning

1. (1) I am a member of S.
2. (2) I identify with S and acknowledge U as its objective.
3. (3) In S, there is reciprocal reason to believe that each member of S identifies with S and acknowledges U as the objective of S.
4. (4) In S, there is reciprocal reason to believe that each member of S endorses and acts on *mutually assured* team reasoning.
5. (5) In S, there is common reason to believe that A uniquely maximizes U.

I should choose my component of A.

*Rationality is a choice to be made given a social group situation.*
• Underlying dynamics of extortion rackets
• Societal conditions for success of extortion rackets
• Database of extortion cases in Sicily (Palermo)
• Simulation of Extortion Racket Systems (Rome)
• Qualitative data analysis of court files (Koblenz)
• Theoretical work, scenario building and testing (Surrey)
• Stakeholderboard (International Organised Crime Specialists)
Extortion and Extortion Rackets

Extortion is the extraction of money/favours from a victim using (the threat of) violence.

An extortion racket is a systematic and continuous extortion of several victims.
Extortion as a Collective Dilemma

The best thing for each *individual* is to pay and thus not to be punished but for everyone around them not to pay (and take the risk of punishment) draining the Mafia of income. The best thing for the *group* is to not pay the pizzo...
Extortion as a Collective Dilemma

The best thing for each *individual* is to pay and thus not to be punished but for everyone around them not to pay (and take the risk of punishment), draining the Mafia of income. The best thing for the *group* is to not pay the pizzo... This makes it a public goods game.
3. ABM of Extortion Racket Systems
An Existing Model

Extorters \(\xrightarrow{\text{extort, punish}}\) Entrepreneurs

Extorters \(\xleftarrow{\text{pay}}\) Entrepreneurs
An Existing Model

Extorters ➔ extort, punish ➔ pay ➔ Entrepreneurs

Individualist Model
Team Reasoning in Extortion Rackets

Extorters

Entrepreneurs

Collective
(e.g. Addio Pizzo)

stop paying

conceptual change

understand oneself as a member

extort, punish
pay
Team Reasoning in Extortion Rackets

- Extorters
- Entrepreneurs: Collectivists or Individualists

If $\text{punishment-probability} \times \text{possible-damage} < \text{pizzo}$ refuse.
If $\text{punishment-probability} \times \text{possible-damage} < \text{group-wealth} + \text{group-pizzo}$ refuse.

- Income, $\text{Pizzo}$, Punishment Cost, Damages (kept constant)
- Extorter Radius
- Neighbourhood Radius
- Group Radius
- Number of Entrepreneurs
  - Ratio of Collectivists and Individualists
- Number of Extorters
Team Reasoning in Extortion Rackets

- Extorters
- Entrepreneurs: Collectivists or Individualists

\[
\text{If } \text{punishment-probability} \times \text{possible-damage} < \text{pizzo} \text{ refuse.} \\
\text{If } \text{punishment-probability} \times \text{possible-damage} < \text{group-wealth} + \text{group-pizzo} \text{ refuse}
\]

- Income, Pizzo, Punishment Cost, Damages (kept constant)
- Extorter Radius
- Neighbourhood Radius
- Group Radius
- Number of Entrepreneurs
  - Ratio of Collectivists and Individualists
- Number of Extorters
## Analysis

<table>
<thead>
<tr>
<th>Extorter Radius</th>
<th>0% Collectivists</th>
<th>50% Collectivists</th>
<th>100% Collectivists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>Low resistance, low punishment</td>
<td>Increased resistance, low punishment</td>
<td>High resistance, low punishment</td>
</tr>
<tr>
<td>Extorter Radius</td>
<td>Increases lead to resistance increase and punishment increase</td>
<td>Increases lead to resistance and punishment increases but less pronounced</td>
<td>Increases increases resistance only for high neighbourhood radii</td>
</tr>
<tr>
<td>Neighbourhood Radius</td>
<td>Increases lead to resistance decrease and punishment decrease</td>
<td>Similar but for low extorter radii increases lead to increased resistance</td>
<td>Increases lead to resistance increase</td>
</tr>
<tr>
<td>Group Radius</td>
<td>n/a</td>
<td>Increases lead to increased resistance</td>
<td>Increases lead to increased resistance</td>
</tr>
</tbody>
</table>
Scenario: Bottom-Up and Top-Down

• Bottom-up: Grass Roots Movement of Addio Pizzo
  Entrepreneurs joining together in no longer paying the pizzo
  About a 10% point reduction in pizzo payments since 2004
  **In Model:** Increasing numbers of Collectivists

• Top-down: Italian State fighting the Mafia
  Wealth confiscated
  Mafioso imprisoned
  **In Model:** Decreasing extorter radius (reduced step by step)
  Mafiosi can no longer punish (taken out one by one)
## Typical Runs - Resistance Levels

<table>
<thead>
<tr>
<th></th>
<th>EX 5 NR 5</th>
<th>EX 5 NR 10</th>
<th>EX 10 NR 5</th>
<th>Ex 10 NR 10</th>
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<tbody>
<tr>
<td><strong>GR 5</strong></td>
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<td><img src="image8" alt="Graph" /></td>
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<td><strong>GR 15</strong></td>
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<td><img src="image11" alt="Graph" /></td>
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<td><strong>GR 20</strong></td>
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<td><img src="image14" alt="Graph" /></td>
<td><img src="image15" alt="Graph" /></td>
<td><img src="image16" alt="Graph" /></td>
</tr>
</tbody>
</table>
Typical Runs - Bottom-Up and Top-Down

Extorter Radius Constant (10)

0%  50%  100%

Neighbourhood Radius 10, Group Radius 10
Typical Runs - Bottom-Up and Top-Down

Extorter Radius Constant (10)

Extorter Radius Decreasing (20-1)

Neighbourhood Radius 10, Group Radius 10
Typical Runs - Bottom-Up and Top-Down

- **Extorter Radius Constant (10)**
  - 0%
  - 50%
  - 100%

- **Extorter Radius Decreasing (20-1)**
  - 0%
  - 50%
  - 100%

- **Decreasing number of active Mafiosi (1/200 steps)**
  - 0%
  - 50%
  - 100%

Neighbourhood Radius 10, Group Radius 10
Conclusions and Future Work

Conclusions

• Conceptualising ERS as collective dilemmas can give a societal explanation
• Applying Team Reasoning shows that collective solutions are possible
• Scenario: Collectives increase resistance
• Resistance increases become particularly pronounced when collective action is combined with judicial measures
  • A decreasing radius curbing extorter territory
  • Increasing the Mafiosi on strict surveillance so they can extort but no longer punish

Future Work

• Generalise the model to implement Team Reasoning as a genuine decision mechanism (Collective Reasoning as a Moral Point of View)
Thanks!