Solidarity and Punishment
An Experiment on the Merits and Perils of Centralized Enforcement

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Analytische Soziologie: Theorie und empirische Anwendungen, 20.11.2017
Solidarity and Punishment

- Punishment sustains social order in laboratory experiments
  Chaudhuri (2011); Fehr & Gintis (2007); Gächter (2014); Kosfeld et al. (2009)

- Efficiency
  - Functional Integration
  - Vergesellschaftung

  ... held together by the coordination of instrumental interests to achieve individual ends.

- Solidarity
  - Social Integration
  - Vergemeinschaftung

  ... built upon a shared notion of togetherness and a mutual concern for the well-being of others.

*How does centralized punishment affect solidarity?*
Punishment sustains social order in laboratory experiments
Chaudhuri (2011); Fehr & Gintis (2007); Gächter (2014); Kosfeld et al. (2009)

Disagreement on whether punishment undermines or facilitates solidarity
Mulder et al. (2006); Bowles & Polania-Reyes (2012); Li et al. (2009); Herreros (2008); Molm (1994); Stagnaro et al. (2017)

Implications of punishment differ across social spheres of interaction
Paskov (2016); Fukuyama (2000)

Does the impact of punishment differ between public goods and reciprocal helping?
Solidarity and Punishment

- Punishment sustains social order in laboratory experiments
  Chaudhuri (2011); Fehr & Gintis (2007); Gächter (2014); Kosfeld et al. (2009)

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...replicates the standard setting of a punishment experiment. ...assesses whether punishment has also induced solidarity.
Efficiency

- Repeated 4-player Prisoner’s Dilemma
  Binmore (1994); Raub et al. (2015)
  - Dichotomous Choice between Cooperation \( C_i = (s_C, p_C) \) and Defection \( D_i = (s_D, p_D) \).
  - \( p_D > p_C \), but \( s_C + p_C > s_D + p_D \)
Efficiency

- **Repeated n-player Prisoner’s Dilemma**
  - Binmore (1994); Raub et al. (2015)
  - Dichotomous Choice between Cooperation $C_i = (s_C, p_C)$ and Defection $D_i = (s_D, p_D)$.
  - $p_D > p_C$, but $s_C + p_C > s_D + p_D$

- **Centralized Punishment**
  - Control mechanism with inspection probability $L$ and penalty $P$ for $D_i$
Efficiency

- **Repeated n-player Prisoner’s Dilemma**  
  Binmore (1994); Raub et al. (2015)
  - Dichotomous Choice between Cooperation $C_i = (s_C, p_C)$ and Defection $D_i = (s_D, p_D)$.
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- **Centralized Punishment**
  - Control mechanism with inspection probability $L$ and penalty $P$ for $D_i$
  - $LP > p_D - p_C$
Part 2: Measurement of Solidarity

- **Affective Solidarity**: Subjective evaluation of the exchange partners and the exchange relation
  Molm et al. (2007)

- **Behavioral Solidarity** and **Solidarity Beliefs**: Dictator game with a random group member
  Baldassari (2015)
Solidarity

Proposition 1: Solidarity is higher in Reciprocal Helping than in Public Good.
Molm et al. (2007); Mauss (1925); Willer et al. (2012)

- A high **Expressive Value** facilitates solidarity.
- A high **Risk of Non-Reciprocity** facilitates solidarity.
Molm et al. (2007)
Proposition 2: Punishment

a. facilitates solidarity as it increases the frequency of cooperative actions,
b. undermines solidarity as it inhibits the expressive value and mitigates the risk of non-reciprocity.
Proposition 3: Punishment is more beneficial in Public Good than in Reciprocal Helping.
Results: Efficiency

Dots are Treatment Averages. Lines represent Three-Period Moving Averages.
Results: Affective Solidarity

Result 1: Solidarity is roughly equal in Reciprocal Helping and Public Good.
Results: Affective Solidarity

Result 2a: Punishment facilitates solidarity as it increases the frequency of cooperative actions.
**Result 2b:** Punishment undermines solidarity as it inhibits the expressive value, but facilitates solidarity as it mitigates the risk of non-reciprocity.
Results: Affective Solidarity

Result 3: Punishment is more beneficial in Reciprocal Helping than in Public Good.
Two take-home messages

- Efficient cooperation does not imply solidarity.

- Centralized punishment may enable solidarity, but also poses perils.
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3 Measures of Solidarity

Determinants of Affective Solidarity

Determinants of Behavioral Solidarity

Determinants of Solidarity Beliefs

RESULTS
n=4; Periods=16

- PG: Cooperation $C_i = (s_C=8, p_C=0)$ and Defection $D_i = (s_D=0, p_D=4)$.
- RH: Cooperation $C_i = (s_C=6, p_C=2)$ and Defection $D_i = (s_D=0, p_D=4)$.
- $p_D > p_C$, but $s_C + p_C > s_D + p_D$

- Centralized Punishment
  - Control mechanism with inspection probability $L=0.75$ and penalty $P=3$ for $D_i$
  - $LP > p_D - p_C \rightarrow 2.25 > 4 - 2$