

# Endogenous Social Change

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# Outline

- 1 Introduction
  - Motivation
  - Existing Literature
  - Contribution
  - Findings
- 2 Theoretical Analysis
  - Model Environment
  - Sequence of Events
  - Inter-Group Dynamics
  - Intra-Group Dynamics
- 3 Empirical Relevance
  - Case Studies
- 4 Conclusion
  - Summary
  - Limitations & Future Work

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# Social Movements and Social Change

- Social movements are a type of collective group action
  - These are aimed at effecting economic, political, social, or cultural change
  - Examples include protests, demonstrations, strikes, civil war, genocide, politicide, and interstate conflict
- More generally, social change occurs when social movements bring about changes in policy
  - This involves the successful coordination of both intra- and inter-group activity

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# Pervasiveness of Social Movements

- Social movements arise in both developed and developing countries
  - These may have been peaceful or violent
  - They have typically changed the complexion of the societies in which they arose
- Key questions to ponder
  - What leads to the formation of social movements?
  - How are these movements affected by exogenous shocks and incentives?

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# Models of Social Movements

- Resource mobilization models (Acemoglu & Robinson 2001; Grossman 1991) [▶ Details](#)
  - Involve a conflict between old and new collective actors in the allocation of economic and political goods
  - Elite action is necessary for policy change through social movements
- Single collectivity models (Kim & Bearman 1997; Marwell & Oliver 1993) [▶ Details](#)
  - Involve boundedly rational agents acting collectively, giving rise to thresholds and discontinuities
  - Group decisionmaking processes rely on less than full rationality

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# Models of Group Decisionmaking

- Network formation models (Murphy & Shleifer 2004; Sbrljcinovic, Penzar, Rodik & Kardov 2003) [▶ Details](#)
  - Networks lead to convergence of initially distinct prior beliefs over core issue
  - Complex social network dynamics through agent-based interactions

# Endogenous Social Change

- Objectives of this paper
  - Address shortcomings of existing literature on social movements and social change
  - Develop a model of social movement and change that:
    - Is not critically dependent on elite interactions
    - Maintains strategic behavior among movement actors at both inter- and intra-group levels

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# Primary Contributions

- Develop model with two-level social interactions that is flexible enough to incorporate range of extensions
- Include in model multiple ways that group interactions can rely on negative and positive selective incentives, hence solving the Olson free-rider problem
- Emphasize role of preference heterogeneity within movement as a force for collective action

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# Preview of Main Findings

- Groups participate in a social movement by balancing:
  - The increased expected utility from obtaining a policy closer to the group's ideal policy
  - The increased disutility from exerting a greater amount of effort required to achieve that goal
- Individuals participate in groups either due to:
  - Transfer mechanisms that act as reward structures (positive selective incentives)
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# Agents: Groups, Individuals, Movements I

- Characteristics of groups
  - **Approximate homogeneity:** Comprise individuals with sufficiently similar policy preferences
  - **Group representation:** Groups simply aggregate their members' preferences
  - Utility

$$U_j(e_j, e) = Eu_j[x_j(e), e_j(\xi_j)]$$

- Characteristics of individuals
  - Lifetime utility

$$V_{ik,0}(q_{i,t}, q_{k,t}) = \sum_{t=0}^{\infty} \sum_{k=1}^{n_j-1} (\delta_i)^t v_{ik,t}(q_{i,t}, q_{k,t})$$

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  - **Political entrepreneur:** Movements are coordinated by agents that maximize the weighted sum of groups' welfare
- Social movements are a collective demand by a subset of the population to effect a policy

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# Sequence of Events

- 1 Groups form
- 2 Groups choose whether to participate in the social movement
- 3 Groups expend effort in their participation in the social movement
- 4 Political entrepreneurs establish the movement's preferred policy

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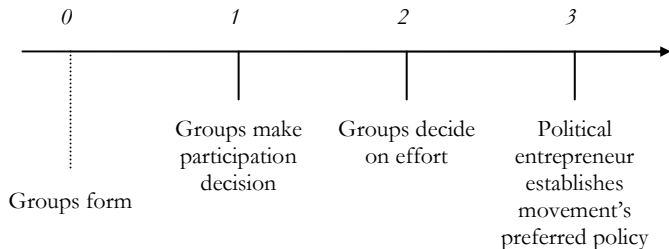
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# Social Movement Formation I

- Inter-group dynamics are modeled with an organized aggregation mechanism: Consistent with empirical reality
- Political entrepreneurs solve the program

$$\max_{\mathbf{x}} \sum_{j=1}^H \omega_j \cdot Eu_j [x_j(e), e_j(\xi_j)]$$

given

$$p(e) u_j [x_j(e), e_j(\xi_j)] + [1 - p(e)] u_j [\bar{x}_j, e_j(\xi_j)] \geq$$

$$p(\tilde{e}) u_j [x_j(\tilde{e}), 0] + [1 - p(\tilde{e})] u_j [\bar{x}_j, 0] \quad \forall j \in H,$$

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# Social Movement Formation II

## Proposition (Social movement formation)

*A group  $j$  will participate in a social movement if and only if*

▶ Proof

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# Social Movement Formation III

- Assume a specific functional forms for

- Utility:

$$U_j(e_j, e) = -\frac{1}{2}E \left[ x_j(e)^2 + \frac{e_j^2}{\xi_j} \right]$$

- Probability:

$$Prob = \frac{e}{\bar{e}}$$

# Social Movement Formation IV

## Result

With completely symmetric agents, all groups will participate in the social movement

- Intuition:
  - When groups are all symmetric, the policy implemented is that of the representative group
  - With complete symmetry, there is no distinction between preferred and implemented policy
  - With endogenous effort, each group exerts a small amount of effort in equilibrium to change policy

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## Result

With asymmetry of only preferences, *equilibrium* effort levels are increasing in shock magnitude and difference from *status quo* and *optimal* effort levels (given other groups' effort) is decreasing in minimal aggregate effort for movement success

$$\frac{\partial e_j^*}{\partial \xi_j} > 0, \frac{\partial e_j^*}{\partial \bar{x}_j} > 0, \frac{\partial e_j}{\partial \bar{e}} < 0$$

### ● Intuition:

- Larger shocks  $\Rightarrow$  Lower opportunity cost of effort provision
- Greater distance from *status quo*  $\Rightarrow$  Higher cost of remaining in *status quo*
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# Social Movement Formation VI

- Assume parameterizations for  $\hat{x}_i$ ,  $\xi_i$ ,  $\bar{x}$ ,  $\bar{e}$  and a 2-group, 1-dimensional policy space [▶ Details](#)

## Result

Social movement formation dependent on policy preferences, magnitude of shocks, and *status quo* policy

- Treatments
  - Panel (a): Preferred policies equivalent, close to *status quo*
  - Panel (b): Preferred policies differ, sufficiently different from *status quo*
  - Panel (c): Preferred policies slightly different, control has initially larger shock
  - Panel (d): Preferred policies on different sides of *status quo*

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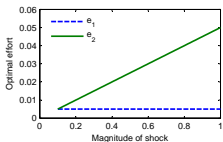
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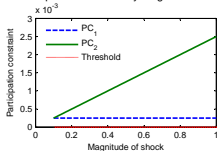


## Inter-Group Dynamics

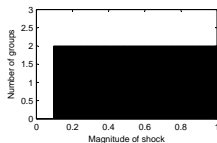
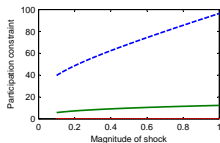
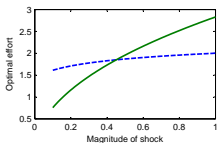
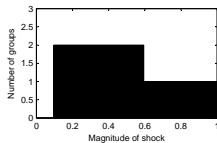
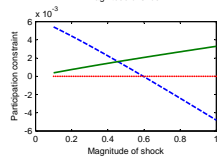
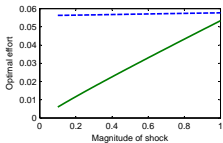
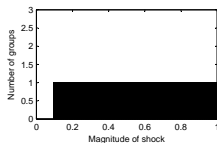
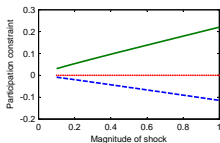
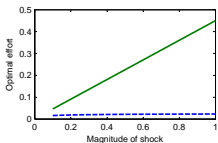
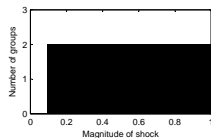
Optimal effort levels by magnitude of shock



Participation decisions by magnitude of shock



Movement formation by magnitude of shock



# Social Movement Formation VII

- Assume parameterizations for  $\hat{x}_i, \xi_i, \bar{x}, \bar{e}$  and a 2-group, 1-dimensional policy space [▶ Details](#)

## Result

Magnitude of shock, interacting with policy preferences, influences group participation in the social movement

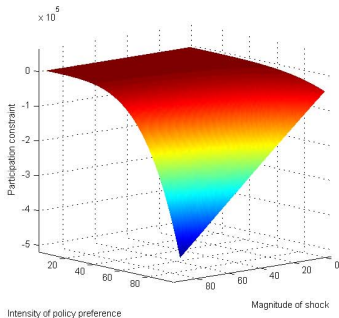
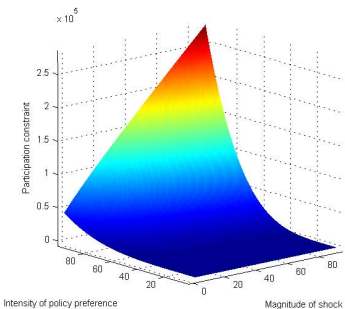
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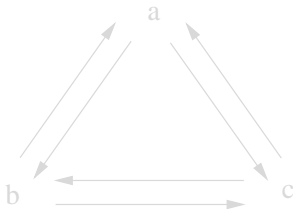
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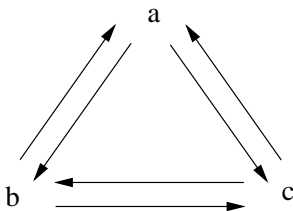
# Group Formation I

- Intra-group dynamics are modeled with an endogenous enforcement mechanism: Pervasive free-riding problem in groups
- Groups of three agents  $A = \{a, b, c\}$  interacting in bilateral relationships over an infinite horizon



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# Group Formation II

- Assume specific game structure

- Strategies:

$$q_{i,t}, q_{k,t} = \{y, z\}$$

- Payoffs:

$$v_{ik,0}(z, y) > v_{ik,0}(y, y) > v_{ik,0}(z, z) > v_{ik,0}(y, z)$$

$$\beta_{ik} > \beta_{ik} - e_{ik} > -e_{ik} > -2e_{ik}$$

# Agents: Groups, Individuals, Movements III

- Further characteristics of groups
  - **Limited enforceability:** Bilateral relationships involve only unidirectional incentive problems
  - **Collective formation:** One pair of relationships within the group faces no bilateral incentive problems
  - **Nash reversion strategy:** Agents employ a trigger strategy for their interactions over the infinite horizon

# Group Formation II

## Proposition (Group formation)

*For  $0 < \delta_i < 1$ ,  $A = \{a, b, c\}$ , and relations of the form  $a \leftrightarrow b$  and  $a \leftrightarrow c$ , for  $0 < \delta_i < 1$ , there exist Nash reversion strategies for sufficiently large transfers  $\tau > 0$  such that group formation is sustainable, even if one incentive compatibility constraint is violated.*

► Proof

- Individuals enter into groups either due to transfer mechanisms (positive selective incentives): Failing to enter leads to social exclusion

# Group Formation III

## Result

With symmetric discount factors, group formation is sustainable if

$$\frac{\delta}{1 - \delta} (\beta_{c,ab}^e + \beta_{ab}) \geq e_{ab}$$

- Intuition:
  - A sufficient condition for sustainable group formation is when the next-period discounted value of the stream of both externality and actual benefits exceeds the value of effort
  - Individuals participate in groups since they receive not just the benefits of their own relationship with others in the group, but also from the existence of relationships between others in the group

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# Social Change Equilibrium

## Proposition (Social change)

*For a social movement where each group has an equal ability to influence policy through effort, a group  $j$  will participate in a social movement if there exists an individual  $\tilde{i} \in j$  for which*

► Proof

$$\beta_{i,kl}^e \geq \hat{\tau}_{ik} + \sigma_k (e_k \mid \Pi(\mathbf{x}^*, e_j^*) \geq 0),$$

where  $\Pi(\mathbf{x}^*, e_j^*) \equiv PC$

- Intuition: If there exists an individual in a group who benefits disproportionately from the group social relationships, this individual can pay the majority to stay in the group and provide their share of effort; this benefit depends on group size, preferred policy, effort, and the shock

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# Extensions to the Model

- 1 Alternative social relationship mechanisms
  - Linked games
  - Punishments
- 2 Interactions with elites
  - Elites respond to the same or different exogenous variables that groups in the movement respond to
  - Elite behavior changes may be derived as a response to group behavior changes
  - Elites can induce a more favorable status quo, thus lowering the status quo deviation, and thereby possibly buying off some groups
  - Regime may have or accrue special information or capabilities which make it costly to remove
- 3 Informational imperfections
  - Shocks are now private information
  - Allow groups move sequentially in the participation stage

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# The Asian Crisis and the Indonesian Revolution

- The dissenting groups in *Reformasi* movement failed to challenge Soeharto until the crisis struck
- Crisis worsened *status quo* and lowered the opportunity cost of effort
- Evidence of opposition groups in same movement acting strategically to curtail each other's influence (Aspinall 2005)—cooperation with rivals.
- A grassroots phenomenon: Little evidence of elite initiatives to overthrow Soeharto
- But effective coordinating leadership

# Uprisings Against Mobutu in the Congo

- Mobutu not seriously challenged till 1996
- Regime then attacked by loose coalition (opposition groups, separatists, pro-democracy activists) led by Congolese Tutsis
- Tutsis (and Hutus) in the DRC long subjected to discrimination and violence—a poor *status quo*
- Massive refugee inflows from neighboring Rwanda led to increased discrimination and threats from regrouping *interahamwe* militia and Congolose Hutus served as shock
- Kabila emerged as effective leader

# Outline

- 1 Introduction
  - Motivation
  - Existing Literature
  - Contribution
  - Findings
- 2 Theoretical Analysis
  - Model Environment
  - Sequence of Events
  - Inter-Group Dynamics
  - Intra-Group Dynamics
- 3 Empirical Relevance
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- 4 Conclusion
  - Summary
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# Summary of Main Findings

- Developed a theoretical model of intra- and inter-group formation in the context of social movements and social change
- Model captures endogenous movement formation in the presence of an exogenous shock and positive and negative selective incentives
- Extensions to the model allow alternative social relationship mechanisms, elite interaction, and information imperfections

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# Primary Problems of Current Study

- Theoretical issues
  - Simulations of inter-group formation limited to two-group case (ACE?)
  - Model may potentially be simplified, but at some loss of generality
- Empirical issues
  - Econometric testing using village-level data from RAND IFLS2 and IFLS3
  - Experimental testing of both inter- and intra-group formation propositions

# Selected References



Marwell, Gerald & Pamela E. Oliver (1993). *The Critical Mass in Collective Action: A Micro-Social Theory*. New York, NY: Cambridge University Press



Acemoglu, K. Daron & James A. Robinson (2001). "A Theory of Political Transitions". *American Economic Review* 91(4) (September): 838–863



Kim, Hyojoung & Peter S. Bearman (1997). "The Structure and Dynamics of Movement Participation". *American Sociological Review* 62(1) (February): 70–93



Grossman, Herschel I. (1991). "A General Equilibrium Theory of Insurrections". *American Economic Review* 84(3) (September): 912–921



Murphy, Kevin M. & Andrei Shleifer (2004). "Persuasion in Politics". *American Economic Review* 94(2) (May): 435–439



Srblijinovic, Armano, Drazen Penzar, Petra Rodik & Kruno Kardov (2003). "An Agent-Based Model of Ethnic Mobilization". *Journal of Artificial Societies and Social Simulation* 6(1) (January): Article 1

# Resource Mobilization Models

- Acemoglu & Robinson (2001), “A Theory of Political Transitions”, *AER*
  - Analyze political transitions premised on a dynamic commitment problem
  - Groups in power are unable to credibly commit to a particular tax rate that would avert a costly coup, since there is exogenous probability that the economy enters into recession/expansion, which leads to renegeing on earlier promises concerning taxes.
  - Problems: (a) Requires elite interaction for social movement formation
- Grossman (1991), “Resource Mobilization and Social Movements”, *AER*
  - General equilibrium framework that models interaction between ruler and peasants, conditioned by possibility of insurrection
  - Policy choices maximizes expected income of clientele, given the constraints imposed by peasant choices
  - Equilibrium probability of an insurrection depends on parameter values corresponding to the underlying insurrection technology Problems: (a) Requires ruler interaction for social movement formation

# Single Collectivity Models

- Kim & Bearman (1997), "Resource Mobilization and Social Movements", *Am Jnl Soc*
  - Interdependent preferences allow resource mobilizations
  - Interpersonal relationships to exert an impact such that the neighbors of an individual exert upward or downward influence on his or her level of interest in an issue
  - Problems: (a) Boundedly rational framework
- Marwell & Oliver (1993), *The Critical Mass in Collective Action*
  - Heterogeneous groups with individual actors that differ from typical group members
  - Simulation as well as more standard regression techniques
  - Parameters such as the costs of organization, extent of resourcefulness, network density, and the degree of network centralization affect threshold level for mobilization
  - Problems: (a) Should never observe smooth, linear buildups of social movements, which is contrary to empirical record

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# Network Formation Models

- Murphy & Shleifer (2004), “Persuasion in Politics”, *AER*
  - Existence networks lead to a convergence of initially distinct (though sufficiently similar) prior beliefs held over a core issue
  - Equilibrium coalitions formation depends on the size and influence of these networks
  - Problems: (a) Model considers only network formation and not social movement formation
- Srbljinovic, Penzar, Rodik & Kardov (2003), “An Agent-Based Model of Ethnic Mobilization”, *Jnl Art Soc and Soc Sim*
  - Agent-based model of complex social networks
  - Explains differences in ethnic mobilization levels in the former Yugoslavia
  - Problems: (a) Complex network formation does not allow introduction of common exogenous shocks

# Proof of Proposition 1 (Sketch)

- Stage 3: Take total effort as given and choose policy  $\mathbf{x}$  in UMP

$$\sum_H \omega_j \frac{\partial Eu_j [x_j(e), e_j(\xi_j)]}{\partial x_m} = 0 \quad \forall m \in M$$

- Stage 2: Take into account policy  $\mathbf{x}$  and choose  $e_j$  in ICC

$$\max_{e_j} \{p(e) u_j [x_j^*(e), e_j(\xi_j)] + [1 - p(e)] u_j [\bar{x}_j, e_j(\xi_j)]\}$$

- Stage 1: Substitute policy  $\mathbf{x}$  and effort  $e_j$  into PC

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## Proof of Proposition 2 (Sketch)

- Establish lemma on folk theorem
- Establish lemma on existence of Nash reversion strategies with transfers  $\tau$  that sustain group cooperation
- Demonstrate exhaustion of all possible cases

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# Proof of Proposition 3 (Sketch)

- Make assumptions on equal effort and at least one incentive slack
- Combine assumptions with Proposition 1 yields result

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# Parameterization Values

Parameter/Variable	Values	Parameter/Variable	Values
$\hat{x}_1$	2, 2.5	$\xi_1$	0.1, 0.5
$\hat{x}_2$	[2, 100]	$\xi_2$	[0.1, 1.0]
$\bar{x}$	1, 19	$J$	2
$\bar{e}$	10	$M$	1

- Panel (a):  $\hat{x}_1 = \hat{x}_2 = 2, \bar{x} = 1$
- Panel (b):  $\hat{x}_1 = 2, \hat{x}_2 = 4, \bar{x} = 1$
- Panel (c):  $\hat{x}_1 = 2, \hat{x}_2 = 2.5, \bar{x} = 1, \xi_1 = 0.5$
- Panel (d):  $\hat{x}_1 = 2, \hat{x}_2 = 20, \bar{x} = 19$

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