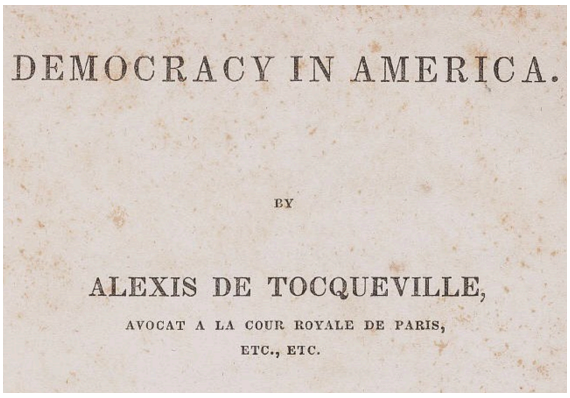
Lectures on Economic Inequality

Warwick, Summer 2017, Slides 5

Debraj Ray

- Overview: Convergence and Divergence
- Inequality and Divergence: Economic Factors
- Inequality and Divergence: Psychological Factors
- Inequality, Polarization and Conflict

Small and Large Groups in Conflict


DEMOCRACY IN AMERICA.

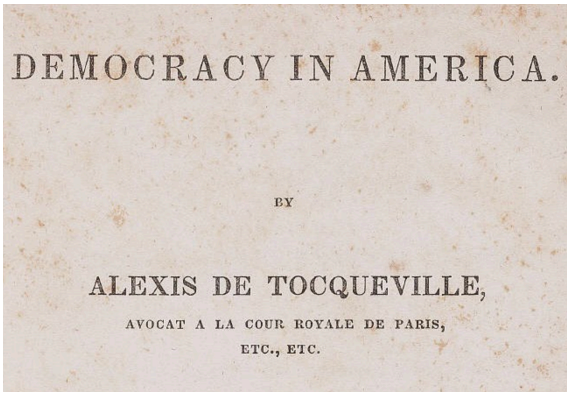
BY

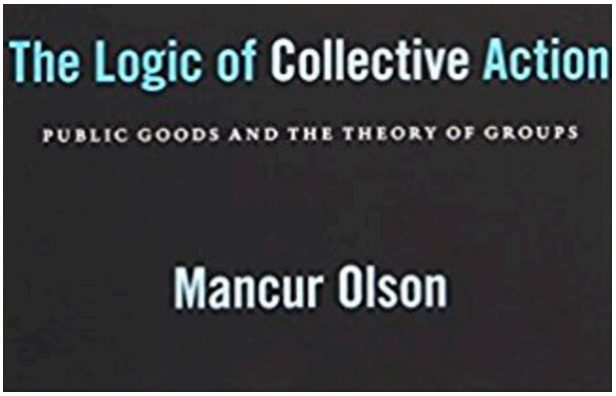
ALEXIS DE TOCQUEVILLE,

AVOCAT A LA COUR ROYALE DE PARIS,
ETC., ETC.

- Tyranny of the majority (Tocqueville 1835, Mill 1959) "Society . . . practices a social tyranny more formidable than many kinds of political oppression . . . [imposing] its own ideas and practices as rules of conduct on those who dissent from them . . ." Mill 1859

III. Small and Large Groups in Conflict





- Tyranny of the majority (Tocqueville 1835, Mill 1959) "Society . . . practices a social tyranny more formidable than many kinds of political oppression . . . [imposing] its own ideas and practices as rules of conduct on those who dissent from them . . ." Mill 1859

Tyranny of the minority (Pareto 1927, Olson 1965): "[A] protectionist measure provides large benefits to a small number of people, and causes a very great number of consumers a slight loss. This circumstance makes it easier to put a protection measure into practice." Pareto 1927

Two Related Themes

I. The persistence of inefficient conflict

- *Incomplete Information*: Myerson-Satterthwaite (1983), Fearon (1995), Esteban and Ray (2001), Bester and Warneryd (2006), Sánchez-Pagés (2008).

- *Limited Commitment*: Fearon (1995), Slantchev (2003), Garfinkel and Skaperdas (2000), Jackson and Morelli (2007), Powell (2007), Leventoglu and Slantchev (2007).

II. Multiple threats to peace

- salience of different markers
- geography, religion, occupation, caste, class . . .
- our specific focus: small versus large groups.
- We show how group size in conflict is related to the nature of conflict payoffs.
- We empirically test our predictions.

Relationship to Last Lecture

- In last lecture, I wrote down a model of conflict:
- assuming that the decision to participate in conflict has already been made
- In this lecture I study the participation decision explicitly
- But in a simpler setting.

A Model

- Set of individuals $[0,1]$.
- Contestable surplus v to be allocated
- Important later just how the surplus is generated.
- Status-quo allocation: $\mathbf{x} = \{x(i)\}$ on $[0,1]$;
- $\int x(i)di = v$.
- Group (ethnicity, class, religion, location ...)
- Comes from some given collection of subsets of $[0,1]$
- Can initiate conflict against its complement (the defender or "State").

Conflict

- Initiator size m, defender size $\overline{m}$ ($m+\overline{m}=1$).
  - per-capita prizes π and $\overline{\pi}$.
  - Winner gets to allocate prize the way they want.
  - v, π, $\overline{\pi}$
- Initiator spends r per capita, defender spends $\overline{r}$ per capita.
  - Cost $c(r)=(1/\alpha)r^{\alpha}$, $\alpha>1$.
  - Win probability $p=mr/R$, where $R=mr+\overline{mr}$.

- Net payoff per capita $\pi\dfrac{mr}{R}-c(r)$.
  - First-order condition for initiator:

$$\pi\left[\frac{m}{R}-\frac{m^2r}{R^2}\right]=c'(r)=r^{\alpha-1}$$

- Payoff $\pi \frac{mr}{R} - c(r)$.

- First-order condition for initiator:

$$\pi \frac{m}{R}\left[1 - \frac{mr}{R}\right] = c'(r) = r^{\alpha-1}$$

- Payoff $\pi \frac{mr}{R} - c(r)$.

- First-order condition for initiator:

$$\pi \frac{m}{R}\frac{\overline{mr}}{R} = c'(r) = r^{\alpha-1}$$

- Payoff $\pi \dfrac{mr}{R} - c(r)$.

- First-order condition for initiator:

$$\pi m \overline{m} = R^2 \frac{r^{\alpha-1}}{\overline{r}}$$

- Likewise, for the defender:

$$\overline{\pi} m \overline{m} = R^2 \frac{\overline{r}^{\alpha-1}}{r}$$

- So relative per-capita contribution by initiator is

$$\frac{r}{\overline{r}} = \left(\frac{\pi}{\overline{\pi}}\right)^{1/\alpha} \equiv \gamma.$$

- Now obtain a closed form for payoff.

- Manipulate first-order condition

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$$\pi p - (1/\alpha) r^{\alpha}$$

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$$\pi p - (1/\alpha)\pi p \overline{p}$$

- Now obtain a closed form for payoff.
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$$\pi p \overline{p} = r^{\alpha}$$

- So expected payoff from conflict given by

$$\pi p - (1/\alpha)\pi p(1-p)$$

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- So expected payoff from conflict given by

$$\pi p - (1/\alpha)\pi p(1-p)$$

$$= \pi[kp + (1-k)p^2],$$

  where $k \equiv (\alpha - 1)/\alpha \in (0,1)$.

- And the win probability p is given by

$$p = \frac{mr}{mr + (1-m)\overline{r}}$$

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- And the win probability p is given by

$$p = \frac{m(r/\overline{r})}{m(r/\overline{r}) + (1-m)}$$

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$$p = \frac{m(r/\overline{r})}{m(r/\overline{r}) + (1-m)} = \frac{m\gamma}{m\gamma + (1-m)},$$

where $\gamma = (r/\overline{r}) = (\pi/\overline{\pi})^{1/\alpha}$.

Summary So Far

- Nash equilibrium of this game has three components:

1. *Relative resource* contribution:

$$\gamma \equiv \frac{r}{\overline{r}} = \left(\frac{\pi}{\overline{\pi}}\right)^{1/\alpha}.$$

2. *Win probability* for the group:

$$p = \frac{m\gamma}{m\gamma + (1-m)}.$$

3. *Expected per-capita payoff* to group:

$$\pi\left[kp + (1-k)p^2\right], \text{ where } k \equiv \frac{\alpha - 1}{\alpha}.$$

Threats to Peace

- A peaceful allocation $\mathbf{x} \in V$ is blocked if for some initiator G

$$\pi[kp + (1-k)p^2] > \int_G x(i).$$

- A society is
  - Prone to conflict if the "unbiased" status quo $x(i) = v$ is blocked.
  - Actively conflictual if every peaceful allocation, unbiased or not, is blocked.

Private Prize (total value v so that $\pi = v/m$ and $\overline{\pi} = v/\overline{m}$)

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Unbiased peacetime per-capita payoff: v

Proposition 1. There is $m^* \in (0, 1/2)$ such that a society with groups of size $m < m^*$ will be conflict-prone.

- Need $\frac{v}{m}\left[kp + (1-k)p^2\right] > v$, where $p = \frac{m^k}{m^k + (1-m)^k}$.

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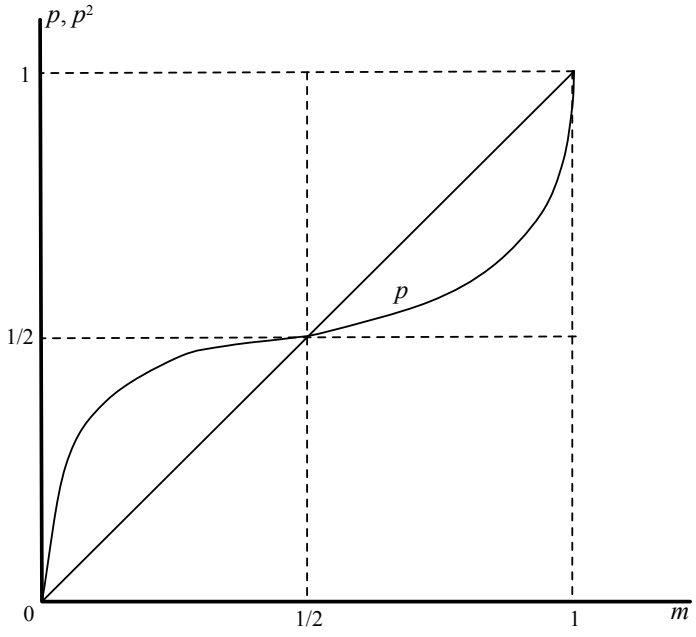

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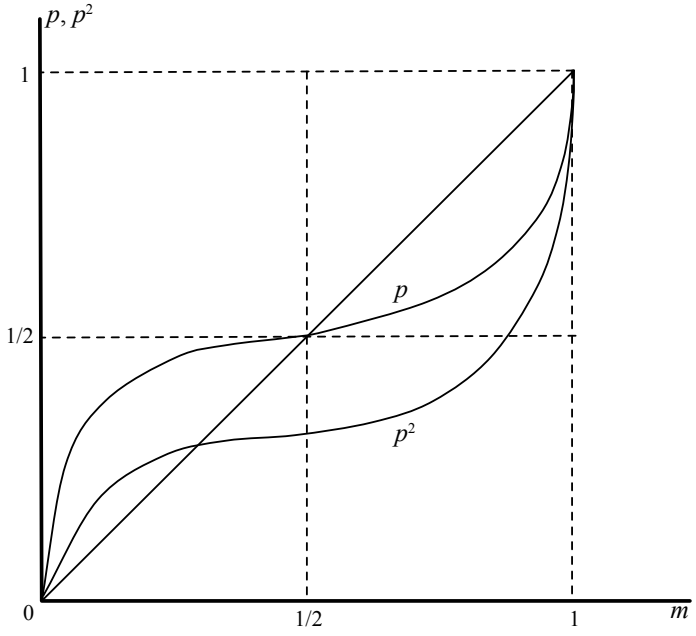

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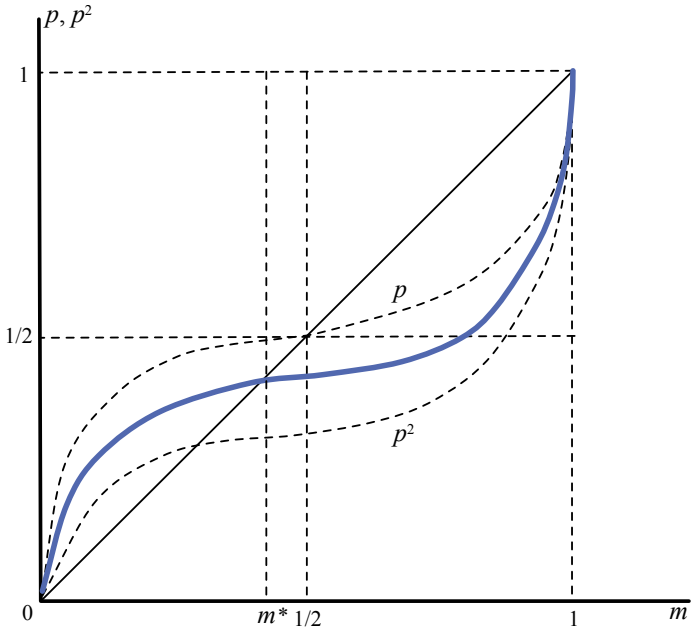


- Of course, there is some allocation that will appease the initiator:
  - after all, conflict is inefficient.

- But that allocation will need to vary with the potential threat.
  - If there are several potential initiators, this could be hard.
  - Formalize this idea:

- Balanced collection is finite set $\mathscr{C}$ of potential initiators:
  - There are weights $\lambda(G) \in [0, 1]$, one for each $G \in \mathscr{C}$, such that

$$\sum_{G \in \mathscr{C}, i \in G} \lambda(G) = 1 \text{ for every } i \text{ in society}$$

What Does Balancedness Mean?

- Essentially, that there are no central subgroups of individuals.
- Example: $\mathscr{C}$ only contains subgroups of society that contain $[0,1/2]$.
- Suppose there are "balancing weights" $\{\lambda(G)\}$.
- Then entire set of weights add to 1:

$$\sum_{G\in\mathscr{C}} \lambda(G) = 1.$$

- Now pick any G' with $\lambda(G') > 0$. There is $j \notin G'$. So we must have

$$\sum_{G\in\mathscr{C}, j\in G} \lambda(G) < 1,$$

which contradicts balancedness.

Proposition 2.

- Suppose there is a balanced collection $\mathscr{C}$ of initiators, each with $m < m^*$.
- Then society is actively conflictual.
- Proof. Suppose there is indeed a peaceful allocation $\mathbf{x}$.
- For every initiator $G \in \mathscr{C}$ of size m_G,

$$\int_{i\in G} x(i) \quad \geq \quad v[kp(m_G) + (1-k)p(m_G)^2] \quad > \quad vm_G$$

[appeasement] **[$m < m^*$]**

- So

$$\int_{i\in N} x(i) = \sum_{G\in\mathscr{C}} \lambda(G) \int_{i\in G} x(i) > \sum_{G\in\mathscr{C}} \lambda(G) m_G v = v,$$

(changing order of summation and integrals). Contradiction.

- Corollary.
- Suppose society can be partitioned into markers of size $m < m^*$.
- Then society is actively conflictual.

- Even stronger results possible.
- E.g. quadratic costs: then $m^* = 1/4$.
- If $m = 10\%$, actively conflictual with six such pairwise disjoint groups.
- Yet not balanced.

Public Goods

- Unit budget; can only be used to produce public goods 1-1.

- Several public goods, one (or one mix) for each group; e.g.:
- support of religion
- provision of public health care or education
- different weights on tariffs vs liberalization

- Per-capita payoff from G-good: Ψ if $i \in G$, 0 otherwise.
- This is stark but not needed.

Monetizable Public Goods

- Peacetime. Pick any maximal group of size m_1; only produce that good.
  - Make side-payments to everyone else.
  - Overall worth v equals Ψm_1, fully TU.
- Conflict. If an initiator G of size m wins:
  - uses budget to produce only the G-good.
  - payoff per-capita $\pi = \Psi$.
- If defender wins:
  - produces for its largest group, say of size m'.
  - payoff per-capita $\overline{\pi} = \mu\Psi$, where $\mu = m'/(1-m)$.

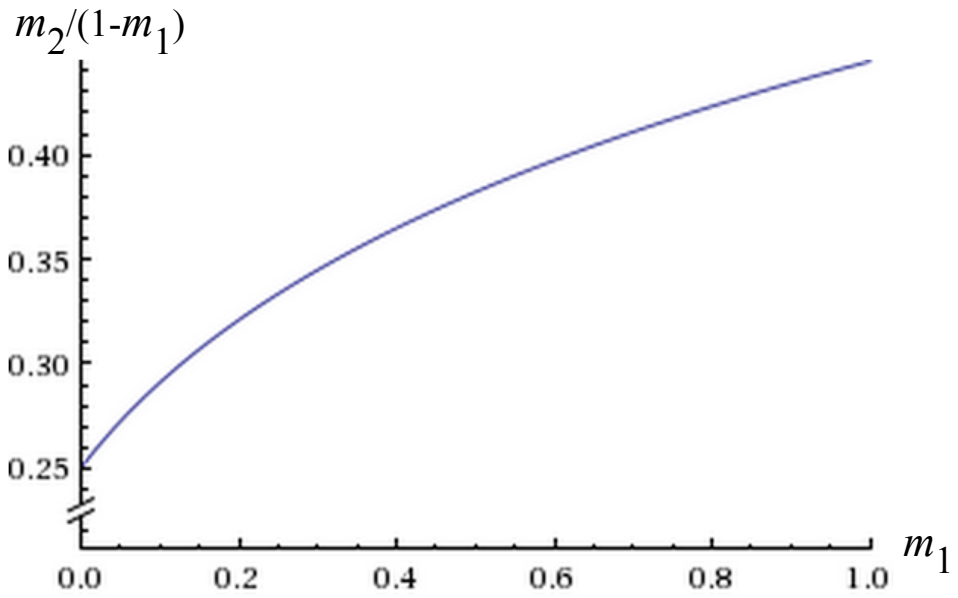
- Proposition 3.
  - Assume that the prize is public.
  - Let $m_1 \geq m_2$ be largest and second largest group sizes in society.
  - Then society is conflict-prone if and only if

$$m_1 > \frac{1-\mu_1^{-1/\alpha}k}{(\mu_1^{-1/\alpha}-1)^2},$$

    where $\mu_1 = m_2/(1-m_1)$.
  - In this case, the largest group prefers conflict to unbiased allocation.
- Condition more likely to hold when $\mu_1 = m_2/(1-m_1)$ is small.
  - One large group with a relatively fragmented opposition.
  - E.g., if there are two groups, condition never holds.

Conflict-Proneness

- Largest group (m_1) vs share of second group in remainder ($m_2/(1-m_1)$)



$\alpha = 2$

Arbitrary Peacetime Allocations and Active Conflict

- Illustration.

- Society is partitioned into $M \geq 2$ groups. each of equal size.

- Claim. There is a unique $\hat{M}$, such that

$$(M-1)^{1-k} - 2 > (M-1)^k - kM$$

iff $M \geq \hat{M}$. Note: $\hat{M} \geq 3$.

- Proposition 4.

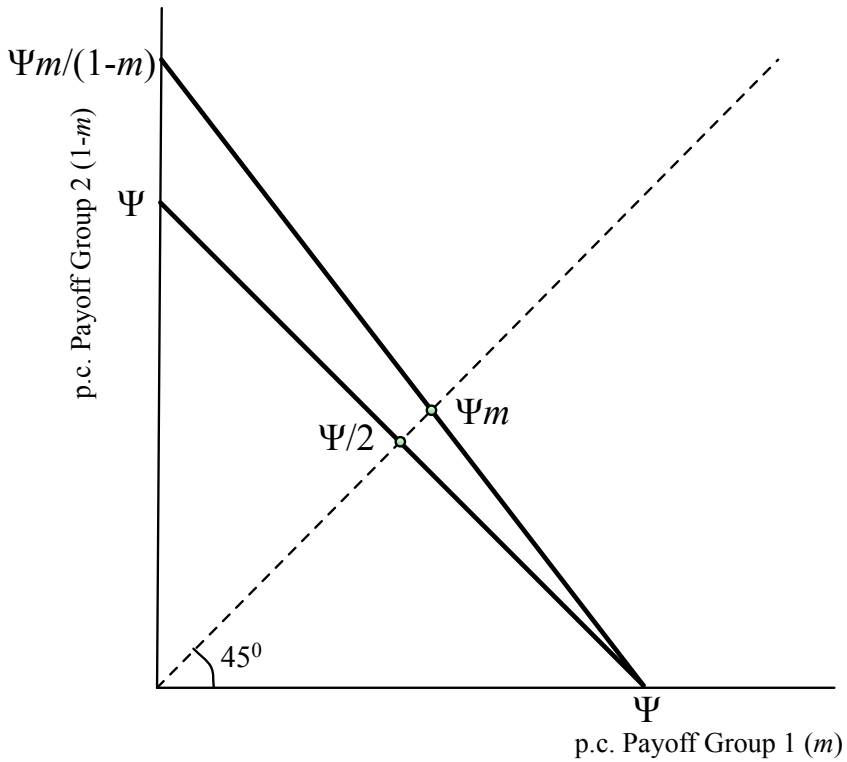
- Suppose that $M \geq \hat{M}$. Then a society partitioned into potential initiators of equal size is actively conflictual.

- Proof: simply verify the conflict-proneness condition for $M \geq \hat{M}$:

$$\frac{1}{M} > \frac{1-(M-1)^{1/\alpha}k}{[(M-1)^{1/\alpha}-1]^2}.$$

Non-Transferability and Public Prizes

- Public goods are not like oil revenues.
- Think of ethnic or religious representation, or the sharing of political power.
- May be impossible to conceive of "compensating" financial transfers.
- No sidepayments. Allocate the budget to different goods.



Limited Transferability

- Two groups of size m_1 and $1-m_1$.
- Say $\sigma \in (0,1)$ of the budget freely allocated using financial transfers.
- Remainder can only be "transferred" by reallocating the budget.
- Unbiased peacetime payoff per person is given by

$$\Psi\left[\sigma m_1 + (1-\sigma)\frac{1}{2}\right],$$

where m_1, as before, is the size of the larger group.

- If only budget transferability, payoff drops to $\Psi/2$

(as opposed to Ψm_1 with financial transfers).

Proposition 5.

- Public prize, limited transferability (σ), two groups.
- Then there is $m^*(\sigma) \in (0.5,1)$ such that society is conflict-prone if and only if $m_1 \geq m^*(\sigma)$.
- Note. $m^*(\sigma) \to 1$ as $\sigma \to 1$.
- Examples:
- Two groups, quadratic cost, $\sigma = 0$, $m_1 > 61.8\%$.
- Three groups, $\sigma = 0$, $\alpha = 1.2$, $m_1 > 39.7\%$.
- The intuition that larger groups matter continues to hold.

Empirics

- Groups and Conflict

- Geo-referenced ethnic groups (GREG); Weidman, Rod and Cederman 2010.

  digitized version of Atlas Narodov Mira 1964.

- 145 countries, homelands of 929 ethnic groups as in ANM 1964

  Split by country: 1475 group-country units.

- Our study runs from 1960-2006, but homelands are fixed as in ANM 1964.

- Group-level conflict data from Cederman, Buhaug and Rod 2009.

- Subset of UCDP/PRIO Armed Conflict Dataset.

- Incidence: armed conflict against State with 25+ battle deaths.

- Onset: if armed conflict against State with 25+ deaths starts that year

- Prizes:

- Private prize. Based on oil availability in ethnic homeland:

- $\ln$(ethnic homeland area covered by oil '000km^2)$\times$ international oil price.

- Merges GREG with geo-ref'd PETRODATA; Lujala, Rod and Thieme 2007.

- *Robustness*: land, minerals.

- Public prize. Autocracy index from Polity IV: "derived from codings of the competitiveness of political participation, the regulation of participation, the openness and competitiveness of executive recruitment, and constraints on the chief executive."

- Use pre-sample information exclusively.

- *Robustness*:

- Other measures of publicness: exclusion, religious freedoms, EMR (2012)

- Everything not private (as defined above) is public: more on this later.

Controls

- Country and time fixed effects throughout
- Population and population density
- Existence of diamond mines
- Mountainous terrain
- Group's distance to country capital
- Number of years since last group-level onset
- Lagged conflict incidence
- GDP per capita
- Whether the ethnic group is represented in power
- Whether the ethnic group is partitioned across countries

Specification

- Baseline: $\text{INCIDENCE}_{c,g,t} = \beta_1 \text{SIZE}_{c,g} + \beta_2 \text{SIZE}_{c,g} \times \text{OIL}_{c,g,t} + \beta_3 \text{OIL}_{c,g,t} + \beta_4 \text{SIZE}_{c,g} \times \text{AUTOC}_c + X'_{c,g,t}\alpha + Y'_{c,t}\delta + Z'_c\gamma + W'_t\eta + \varepsilon_{c,g,t}$,
- for countries $c = 1,\ldots,C$, groups $g = 1,\ldots,G_c$, and dates $t = 1,\ldots,T$.
- Prediction: (narrow view of public goods): $\beta_2 < 0$, $\beta_3 > 0$.
- ("anything not private is public"): $\beta_2 < 0$, and $\beta_1 > 0$ when we impose $\beta_4 = 0$.
- linear probability model

  Interpreting interactions in other models nontrivial; Ai and Norton 2003.

  statistical conclusions still valid for nonlinear models.

  robust standard errors clustered at the group level.

Group Size and Conflict Incidence

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
SIZE	-0.002	0.003	0.007***	0.007***	-0.003	-0.005**	-0.002	0.003
	(0.307)	(0.101)	(0.001)	(0.001)	(0.116)	(0.014)	(0.328)	(0.156)
OIL	0.448**	0.684***	0.830***	0.795***		0.446**	0.606**	0.762**
	(0.040)	(0.009)	(0.002)	(0.008)		(0.040)	(0.012)	(0.010)
SIZE×OIL		-1.363***	-1.528***	-1.521***				-1.390***
		(0.000)	(0.000)	(0.000)				(0.000)
SIZE× AUTOC					0.008**	0.008**	0.009***	0.009**
					(0.012)	(0.011)	(0.006)	(0.015)
GIP			-0.003**	-0.003*			-0.003**	-0.003*
			(0.033)	(0.057)			(0.040)	(0.057)
GROUPAREA			0.000	0.000			-0.000	0.000
			(0.369)	(0.214)			(0.543)	(0.219)
SOILCONST			-0.001*	-0.000			-0.000	-0.000
			(0.097)	(0.518)			(0.152)	(0.472)
DISTCAP			0.001***	0.002***			0.001***	0.002***
			(0.000)	(0.000)			(0.000)	(0.000)
MOUNT			0.002*	0.002			0.002	0.002
			(0.080)	(0.111)			(0.109)	(0.130)
PARTITIONED			-0.001	-0.001			-0.001	-0.001
			(0.553)	(0.288)			(0.487)	(0.243)
GDP				0.001				0.003***
				(0.140)				(0.006)
POP				0.001				0.001
				(0.556)				(0.710)
LAG	0.895***	0.895***	0.894***	0.893***	0.899***	0.899***	0.898***	0.898***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
c	-0.002	-0.005***	-0.009***	-0.034	0.011***	0.013***	0.010***	-0.041
	(0.207)	(0.006)	(0.000)	(0.411)	(0.000)	(0.000)	(0.001)	(0.319)
R^2	0.844	0.844	0.844	0.846	0.849	0.849	0.849	0.851
Obs	64839	64839	64839	57559	62650	62650	62650	55383

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		(0.000)	(0.000)	(0.000)				(0.000)
SIZE× AUTOC					0.008**	0.008**	0.009***	0.009**
					(0.012)	(0.011)	(0.006)	(0.015)
GIP			-0.003**	-0.003*			-0.003**	-0.003*
			(0.033)	(0.057)			(0.040)	(0.057)
GROUPAREA			0.000	0.000			-0.000	0.000
			(0.369)	(0.214)			(0.543)	(0.219)
SOILCONST			-0.001*	-0.000			-0.000	-0.000
			(0.097)	(0.518)			(0.152)	(0.472)
DISTCAP			0.001***	0.002***			0.001***	0.002***
			(0.000)	(0.000)			(0.000)	(0.000)
MOUNT			0.002*	0.002			0.002	0.002
			(0.080)	(0.111)			(0.109)	(0.130)
PARTITIONED			-0.001	-0.001			-0.001	-0.001
			(0.553)	(0.288)			(0.487)	(0.243)
GDP				0.001				0.003***
				(0.140)				(0.006)
POP				0.001				0.001
				(0.556)				(0.710)
LAG	0.895***	0.895***	0.894***	0.893***	0.899***	0.899***	0.898***	0.898***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
c	-0.002	-0.005***	-0.009***	-0.034	0.011***	0.013***	0.010***	-0.041
	(0.207)	(0.006)	(0.000)	(0.411)	(0.000)	(0.000)	(0.001)	(0.319)
R^2	0.844	0.844	0.844	0.846	0.849	0.849	0.849	0.851
Obs	64839	64839	64839	57559	62650	62650	62650	55383

Group Size and Conflict Incidence

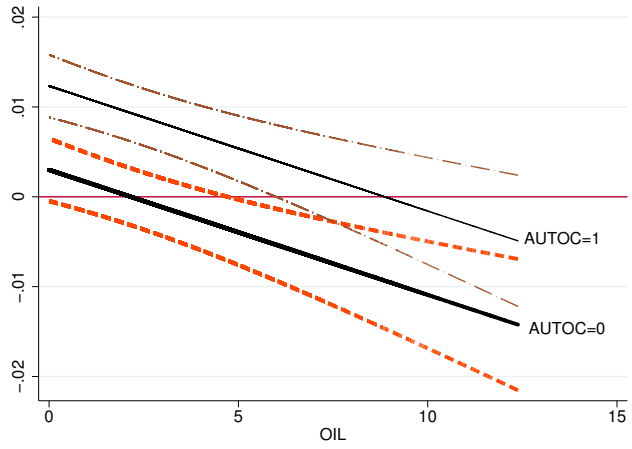
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
SIZE	-0.002	0.003	0.007***	0.007***	-0.003	-0.005**	-0.002	0.003
	(0.307)	(0.101)	(0.001)	(0.001)	(0.116)	(0.014)	(0.328)	(0.156)
OIL	0.448**	0.684***	0.830***	0.795***		0.446**	0.606**	0.762**
	(0.040)	(0.009)	(0.002)	(0.008)		(0.040)	(0.012)	(0.010)
SIZE×OIL		-1.363***	-1.528***	-1.521***				-1.390***
		(0.000)	(0.000)	(0.000)				(0.000)
SIZE×AUTOC					0.008**	0.008**	0.009***	0.009**
					(0.012)	(0.011)	(0.006)	(0.015)
GIP			-0.003**	-0.003*			-0.003**	-0.003*
			(0.033)	(0.057)			(0.040)	(0.057)
GROUPAREA			0.000	0.000			-0.000	0.000
			(0.369)	(0.214)			(0.543)	(0.219)
SOILCONST			-0.001*	-0.000			-0.000	-0.000
			(0.097)	(0.518)			(0.152)	(0.472)
DISTCAP			0.001***	0.002***			0.001***	0.002***
			(0.000)	(0.000)			(0.000)	(0.000)
MOUNT			0.002*	0.002			0.002	0.002
			(0.080)	(0.111)			(0.109)	(0.130)
PARTITIONED			-0.001	-0.001			-0.001	-0.001
			(0.553)	(0.288)			(0.487)	(0.243)
GDP				0.001				0.003***
				(0.140)				(0.006)
POP				0.001				0.001
				(0.556)				(0.710)
LAG	0.895***	0.895***	0.894***	0.893***	0.899***	0.899***	0.898***	0.898***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
c	-0.002	-0.005***	-0.009***	-0.034	0.011***	0.013***	0.010***	-0.041
	(0.207)	(0.006)	(0.000)	(0.411)	(0.000)	(0.000)	(0.001)	(0.319)
R^2	0.844	0.844	0.844	0.846	0.849	0.849	0.849	0.851
Obs	64839	64839	64839	57559	62650	62650	62650	55383

Group Size and Conflict Incidence

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
SIZE	-0.002	0.003	0.007***	0.007***	-0.003	-0.005**	-0.002	0.003
	(0.307)	(0.101)	(0.001)	(0.001)	(0.116)	(0.014)	(0.328)	(0.156)
OIL	0.448**	0.684***	0.830***	0.795***		0.446**	0.606**	0.762**
	(0.040)	(0.009)	(0.002)	(0.008)		(0.040)	(0.012)	(0.010)
SIZE×OIL		-1.363***	-1.528***	-1.521***				-1.390***
		(0.000)	(0.000)	(0.000)				(0.000)
SIZE×AUTOC					0.008**	0.008**	0.009***	0.009**
					(0.012)	(0.011)	(0.006)	(0.015)
GIP			-0.003**	-0.003*			-0.003**	-0.003*
			(0.033)	(0.057)			(0.040)	(0.057)
GROUPAREA			0.000	0.000			-0.000	0.000
			(0.369)	(0.214)			(0.543)	(0.219)
SOILCONST			-0.001*	-0.000			-0.000	-0.000
			(0.097)	(0.518)			(0.152)	(0.472)
DISTCAP			0.001***	0.002***			0.001***	0.002***
			(0.000)	(0.000)			(0.000)	(0.000)
MOUNT			0.002*	0.002			0.002	0.002
			(0.080)	(0.111)			(0.109)	(0.130)
PARTITIONED			-0.001	-0.001			-0.001	-0.001
			(0.553)	(0.288)			(0.487)	(0.243)
GDP				0.001				0.003***
				(0.140)				(0.006)
POP				0.001				0.001
				(0.556)				(0.710)
LAG	0.895***	0.895***	0.894***	0.893***	0.899***	0.899***	0.898***	0.898***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
c	-0.002	-0.005***	-0.009***	-0.034	0.011***	0.013***	0.010***	-0.041
	(0.207)	(0.006)	(0.000)	(0.411)	(0.000)	(0.000)	(0.001)	(0.319)
R^2	0.844	0.844	0.844	0.846	0.849	0.849	0.849	0.851
Obs	64839	64839	64839	57559	62650	62650	62650	55383

Magnitudes

- Set AUTOC low, and OIL high:
- Group size ↑ 1SD ⇒ incidence ↓ by 4.2% (onset ↓ 23.2%)
- Set AUTOC high, and OIL low:
- Group size ↑ 1SD ⇒ incidence ↑ by 9.5% (onset ↑ 69.8%)



Variations

- Alternative measures of conflict
- Other proxies for the private prize
- Other proxies for the public prize
- Group- (rather than country-) fixed effects
- Alternative estimation strategies (logit)
- Coalitions across ethnic groups
- Clustering of errors at the country and at the country-group level
- Robustness to dropping different regions of the world
- Potential confounding role of ethnic fractionalization and polarization.

Group Size and Conflict Onset

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
SIZE	-0.001	0.003**	0.005***	0.005***	-0.000	-0.001	-0.001	0.003*
	(0.333)	(0.025)	(0.001)	(0.001)	(0.853)	(0.668)	(0.668)	(0.053)
OIL	0.652***	0.870***	0.966***	0.937***		0.791***	0.791***	0.957***
	(0.002)	(0.001)	(0.000)	(0.001)		(0.002)	(0.002)	(0.001)
SIZE×OIL		-1.221***	-1.171***	-1.149***				-1.079***
		(0.000)	(0.000)	(0.000)				(0.000)
SIZE×AUTOC					0.005*	0.006**	0.006**	0.005*
					(0.052)	(0.043)	(0.043)	(0.069)
GIP			-0.002*	-0.002*		-0.002	-0.002	-0.002*
			(0.076)	(0.078)		(0.100)	(0.100)	(0.092)
GROUPAREA			-0.000	-0.000		-0.000*	-0.000*	-0.000
			(0.376)	(0.659)		(0.074)	(0.074)	(0.613)
SOILCONST			-0.000	-0.000		-0.000	-0.000	-0.000
			(0.102)	(0.479)		(0.603)	(0.603)	(0.466)
DISTCAP			0.001***	0.001***		0.001***	0.001***	0.001***
			(0.001)	(0.003)		(0.005)	(0.005)	(0.004)
MOUNT			0.002**	0.002**		0.002*	0.002*	0.002*
			(0.017)	(0.048)		(0.063)	(0.063)	(0.055)
PARTITIONED			-0.000	-0.001		-0.001	-0.001	-0.001
			(0.716)	(0.407)		(0.340)	(0.340)	(0.328)
GDP				0.001		0.002**	0.002**	0.002**
				(0.301)		(0.041)	(0.041)	(0.045)
POP				0.002		0.002	0.002	0.002
				(0.263)		(0.206)	(0.206)	(0.237)
PEACEYRS	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
c	0.070***	0.067***	0.012***	0.009	0.039***	-0.016	-0.016	-0.012
	(0.000)	(0.000)	(0.001)	(0.795)	(0.000)	(0.520)	(0.520)	(0.618)
R^2	0.030	0.031	0.031	0.033	0.032	0.034	0.034	0.034

Group Size and Conflict Onset

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
SIZE	-0.001	0.003**	0.005***	0.005***	-0.000	-0.001	-0.001	0.003*
	(0.333)	(0.025)	(0.001)	(0.001)	(0.853)	(0.668)	(0.668)	(0.053)
OIL	0.652***	0.870***	0.966***	0.937***		0.791***	0.791***	0.957***
	(0.002)	(0.001)	(0.000)	(0.001)		(0.002)	(0.002)	(0.001)
SIZE×OIL		-1.221***	-1.171***	-1.149***				-1.079***
		(0.000)	(0.000)	(0.000)				(0.000)
SIZE×AUTOC					0.005*	0.006**	0.006**	0.005*
					(0.052)	(0.043)	(0.043)	(0.069)
GIP			-0.002*	-0.002*		-0.002	-0.002	-0.002*
			(0.076)	(0.078)		(0.100)	(0.100)	(0.092)
GROUPAREA			-0.000	-0.000		-0.000*	-0.000*	-0.000
			(0.376)	(0.659)		(0.074)	(0.074)	(0.613)
SOILCONST			-0.000	-0.000		-0.000	-0.000	-0.000
			(0.102)	(0.479)		(0.603)	(0.603)	(0.466)
DISTCAP			0.001***	0.001***		0.001***	0.001***	0.001***
			(0.001)	(0.003)		(0.005)	(0.005)	(0.004)
MOUNT			0.002**	0.002**		0.002*	0.002*	0.002*
			(0.017)	(0.048)		(0.063)	(0.063)	(0.055)
PARTITIONED			-0.000	-0.001		-0.001	-0.001	-0.001
			(0.716)	(0.407)		(0.340)	(0.340)	(0.328)
GDP				0.001		0.002**	0.002**	0.002**
				(0.301)		(0.041)	(0.041)	(0.045)
POP				0.002		0.002	0.002	0.002
				(0.263)		(0.206)	(0.206)	(0.237)
PEACEYRS	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
c	0.070***	0.067***	0.012***	0.009	0.039***	-0.016	-0.016	-0.012
	(0.000)	(0.000)	(0.001)	(0.795)	(0.000)	(0.520)	(0.520)	(0.618)
R^2	0.030	0.031	0.031	0.033	0.032	0.034	0.034	0.034

Variations in the Private Prize

	Oil Alternatives and Land Abundance					
	[1]	[2]	[3]	[4]	[5]	[6]
SIZE	***0.006	0.002	***0.005	0.001	***0.018	***0.015
	(0.004)	(0.338)	(0.009)	(0.647)	(0.003)	(0.005)
OIL(AREA)	**0.002	**0.002				
	(0.012)	(0.019)				
SIZE × OIL(AREA)	***-0.003	***-0.003				
	(0.001)	(0.003)				
OIL(SHARE)			*0.010	*0.010		
			(0.078)	(0.087)		
SIZE × OIL(SHARE)			**-0.021	*-0.016		
			(0.019)	(0.057)		
AREA(SHARE)					**0.021	**0.021
					(0.032)	(0.043)
SIZE × AREA(SHARE)					***-0.042	***-0.040
					(0.000)	(0.000)
SIZE × AUTOC		**0.009		**0.010		*0.007
		(0.018)		(0.011)		(0.063)
CONTROLS, LAG	Y	Y	Y	Y	Y	Y
R^2	0.846	0.851	0.846	0.851	0.846	0.851
Obs	57559	55383	57559	55383	56756	54580

Variations in the Private Prize

	Oil Alternatives and Land Abundance					
	[1]	[2]	[3]	[4]	[5]	[6]
SIZE	***0.006	0.002	***0.005	0.001	***0.018	***0.015
	(0.004)	(0.338)	(0.009)	(0.647)	(0.003)	(0.005)
OIL(AREA)	**0.002	**0.002				
	(0.012)	(0.019)				
SIZE × OIL(AREA)	***-0.003	***-0.003				
	(0.001)	(0.003)				
OIL(SHARE)			*0.010	*0.010		
			(0.078)	(0.087)		
SIZE × OIL(SHARE)			**-0.021	*-0.016		
			(0.019)	(0.057)		
AREA(SHARE)					**0.021	**0.021
					(0.032)	(0.043)
SIZE × AREA(SHARE)					***-0.042	***-0.040
					(0.000)	(0.000)
SIZE × AUTOC		**0.009		**0.010		*0.007
		(0.018)		(0.011)		(0.063)
CONTROLS, LAG	Y	Y	Y	Y	Y	Y
R^2	0.846	0.851	0.846	0.851	0.846	0.851
Obs	57559	55383	57559	55383	56756	54580

More Variations in the Private Prize

	Minerals							
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
SIZE	**0.007	0.003	**0.008	0.004	**0.007	0.003	**0.008	0.004
	(0.020)	(0.349)	(0.015)	(0.269)	(0.022)	(0.378)	(0.016)	(0.290)
MINES	0.000	0.000						
	(0.830)	(0.881)						
SIZE × MINES	-0.002**	-0.001**						
	(0.021)	(0.049)						
MINES+OIL			0.000	0.000				
			(0.592)	(0.635)				
SIZE × MINES+OIL			-0.002**	-0.002**				
			(0.012)	(0.029)				
MINES(UNWEIGH.)					0.000	0.000		
					(0.862)	(0.909)		
SIZE × MINES(UNWEIGH.)					-0.001**	-0.001*		
					(0.023)	(0.056)		
MINES+OIL(UNWEIGH.)							0.000	0.000
							(0.625)	(0.666)
SIZE × MINES+OIL(UNWEIGH.)							-0.002**	-0.001**
							(0.013)	(0.033)
SIZE × AUTOC		0.009**		0.008**		0.009**		0.008**
		(0.029)		(0.037)		(0.030)		(0.038)
R^2	0.836	0.836	0.836	0.836	0.836	0.836	0.836	0.836
Obs	35265	34887	35265	34887	35265	34887	35265	34887

More Variations in the Private Prize

	Minerals							
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
SIZE	**0.007	0.003	**0.008	0.004	**0.007	0.003	**0.008	0.004
	(0.020)	(0.349)	(0.015)	(0.269)	(0.022)	(0.378)	(0.016)	(0.290)
MINES	0.000	0.000						
	(0.830)	(0.881)						
SIZE × MINES	-0.002**	-0.001**						
	(0.021)	(0.049)						
MINES+OIL			0.000	0.000				
			(0.592)	(0.635)				
SIZE × MINES+OIL			-0.002**	-0.002**				
			(0.012)	(0.029)				
MINES(UNWEIGH.)					0.000	0.000		
					(0.862)	(0.909)		
SIZE × MINES(UNWEIGH.)					-0.001**	-0.001*		
					(0.023)	(0.056)		
MINES+OIL(UNWEIGH.)							0.000	0.000
							(0.625)	(0.666)
SIZE × MINES+OIL(UNWEIGH.)							-0.002**	-0.001**
							(0.013)	(0.033)
SIZE × AUTOC		0.009**		0.008**		0.009**		0.008**
		(0.029)		(0.037)		(0.030)		(0.038)
R^2	0.836	0.836	0.836	0.836	0.836	0.836	0.836	0.836
Obs	35265	34887	35265	34887	35265	34887	35265	34887

Variations in the Public Prize

	Exclusion, EMR Measure, Religious Freedoms						
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
SIZE	-0.000	0.007***	0.003	0.004	0.001	**0.005	-0.001
	(0.985)	(0.001)	(0.337)	(0.166)	(0.815)	(0.010)	(0.882)
OIL	**0.695	0.795***	**0.760	***0.777	**0.719	***0.790	**1.162
	(0.039)	(0.008)	(0.011)	(0.010)	(0.032)	(0.008)	(0.025)
SIZE × OIL	-1.217**	-1.521***	-1.371***	-1.555***	-1.143**	-1.369***	-2.138***
	(0.012)	(0.000)	(0.001)	(0.000)	(0.016)	(0.000)	(0.002)
SIZE × AUTOC(1960-80)	0.008**						
	(0.039)						
EXCLUDED		0.003*	0.002				
		(0.057)	(0.354)				
SIZE × EXCLUDED			0.008*				
			(0.067)				
EXCLUDED(1945-60)				0.002			
				(0.363)			
SIZE × EXCLUDED(1945-60)				0.005			
				(0.148)			
EXCLUDED(1960-80)					0.002		
					(0.465)		
SIZE × EXCLUDED(1960-80)					0.012**		
					(0.015)		
SIZE × PUB(EMR)						0.009***	
						(0.002)	
RELIGFREEDOM						***0.043	
						(0.007)	
SIZE × RELIGFREEDOM							0.021*
							(0.086)
R^2	0.836	0.846	0.846	0.846	0.836	0.846	0.763
Obs	34887	57559	57559	57559	34965	57559	22166

Variations in the Public Prize

	Exclusion, EMR Measure, Religious Freedoms						
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
SIZE	-0.000	0.007***	0.003	0.004	0.001	**0.005	-0.001
	(0.985)	(0.001)	(0.337)	(0.166)	(0.815)	(0.010)	(0.882)
OIL	**0.695	0.795***	**0.760	***0.777	**0.719	***0.790	**1.162
	(0.039)	(0.008)	(0.011)	(0.010)	(0.032)	(0.008)	(0.025)
SIZE × OIL	-1.217**	-1.521***	-1.371***	-1.555***	-1.143**	-1.369***	-2.138***
	(0.012)	(0.000)	(0.001)	(0.000)	(0.016)	(0.000)	(0.002)
SIZE × AUTOC(1960-80)	0.008**						
	(0.039)						
EXCLUDED		0.003*	0.002				
		(0.057)	(0.354)				
SIZE × EXCLUDED			0.008*				
			(0.067)				
EXCLUDED(1945-60)				0.002			
				(0.363)			
SIZE × EXCLUDED(1945-60)				0.005			
				(0.148)			
EXCLUDED(1960-80)					0.002		
					(0.465)		
SIZE × EXCLUDED(1960-80)					0.012**		
					(0.015)		
SIZE × PUB(EMR)						0.009***	
						(0.002)	
RELIGFREEDOM						***0.043	
						(0.007)	
SIZE × RELIGFREEDOM							0.021*
							(0.086)
R^2	0.836	0.846	0.846	0.846	0.836	0.846	0.763
Obs	34887	57559	57559	57559	34965	57559	22166

Other Material in the Paper

- More variations:
  - Group fixed effects
  - Nonlinear specifications
  - Alliances in Conflict

Summary

- Small groups initiate when the prize is private.
- Large groups initiate when the prize is public.
- Society may be actively conflictual, depending on the variety of threats.
- The data significantly support the predictions of the theory.

Two Remarks on Salience

- Dynamics.
  - Institutional sluggishness versus speed of marker formation.
- Multiple Identities.
  - Sen's argument.
  - Ideologies and cultures versus resource-grabbing.