Lectures on Economic Inequality

Warwick, Summer 2016, Slides 4

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

Uneven Growth and the Social Backlash

- Roots
- Divergence (increasing returns, imperfect credit markets)
- Sectoral change (agriculture/industry, domestic/exports)
- Globalization (sectors with comparative advantage)
- Reactions
- Occupational choice (slow, imprecise, intergenerational)
- Cross-sector percolation (demand patterns, inflation)
- Political economy (person-based votes, wealth-based lobbying)
- Conflict (Frustrated aspirations, Hirschman's tunnel)

The Salience Question

- Uneven growth $\longrightarrow$ conflict, but along what lines?
- Religion, ethnicity, geography, occupation, class?
- The Marxian answer:
- class
- example: Maoist violence in rural India
- But the argument is problematic.
- Conflict is usually over directly contested resources.

Directly Contested Resources

- Labor markets
- Ethnic or racial divisions, immigrant vs native
- Agrarian land
- Rwanda, Darfur, Chattisgarh
- Real estate
- Gujarat, Bengal
- Business resources
- Kyrgystan, Ivory Coast, Malaysia ...

- Contestation ⇒ conflict between economically similar groups
- Some counterarguments:
  - bauxite/land in Maoist violence
  - agrarian/industrial land in Singur and Nandigram.
  - ⇒ class violence, but exception rather than the rule.
- The implications of direct contestation:
  - Ethnic markers.
  - Instrumentalism as opposed to primordialism (Huntington, Lewis)

The Ubiquity of Ethnic Conflict

- WWII → 22 inter-state conflicts.
  - 9 killed more than 1000. Battle deaths 3–8m.
- 240 civil conflicts, 30 ongoing in 2010.
  - Half killed more than 1000. Battle deaths 5–10m.
  - Mass assassination of up to 25m civilians, 40 m displaced.
  - Does not count displacement and disease (est. 4x violent deaths).

- Majority of these conflicts are ethnic Doyle-Sambanis (2000)

- 1945–1998, 100 of 700 known ethnic groups participated in rebellion Fearon (2006)

- "In much of Asia and Africa, it is only modest hyperbole to assert that the Marxian prophecy has had an ethnic fulfillment." Horowitz (1985)

- Brubaker and Laitin (1998) on "eclipse of the left-right ideological axis"

- Fearon (2006), 1945–1998, approx. 700 ethnic groups known, over 100 of which participated in rebellions against the state.

Do Ethnic Divisions Matter?

- Two ways to approach this question.

- Historical study of conflicts, one by one.

- Bit of a wood-for-the-trees problem.

- Horowitz (1985) summarizes some of the complexity:

"In dispersed systems, group loyalties are parochial, and ethnic conflict is localized . . . A centrally focused system [with few groupings] possesses fewer cleavages than a dispersed system, but those it possesses run through the whole society and are of greater magnitude. When conflict occurs, the center has little latitude to placate some groups without antagonizing others."

- Statistical approach
  - (Collier-Hoeffler, Fearon-Laitin, Miguel-Satyanath-Sergenti)
- Typical variables for conflict: demonstrations, processions, strikes, riots, casualties and on to civil war.
- Explanatory variables:
  - Economic. per-capita income, inequality, resource holdings ...
  - Geographic. mountains, separation from capital city ...
  - Political. "democracy", prior war ...
  - And, of course, Ethnic. But how measured?

- Information on ethnolinguistic diversity from:
  - World Christian Encyclopedia
  - Encyclopedia Britannica
  - Atlas Narodov Mira
  - CIA FactBook
- Or religious diversity from:
  - L'Etat des Religions dans le Monde
  - World Christian Encyclopedia
  - The Statesman's Yearbook

Fractionalization

- Fractionalization index widely used:

$$F = \sum_{j=1}^{m} n_j(1 - n_j)$$

where n_j is population share of group j.

- Special case of the Gini coefficient

$$G = \sum_{j=1}^{m} \sum_{k=1}^{M} n_j n_k \delta_{ik}$$

where δ_{ik} is a notion of distance across groups.

- Fractionalization used in many different contexts:
  - growth, governance, public goods provision.
  - But it shows no correlation with conflict.
  - Collier-Hoeffler (2002), Fearon-Laitin (2003), Miguel-Satyanath-Sergenti (2004)
  - Fearon and Laitin (*APSR* 2003):

"The estimates for the effect of ethnic and religious fractionalization are substantively and statistically insignificant ... The empirical pattern is thus inconsistent with ... the common expectation that ethnic diversity is a major and direct cause of civil violence."

- And yet ... fractionalization does not seem to capture the Horowitz quote.

- Motivates the use of polarization measures.

The Identity-Alienation Framework

- Society is divided into "groups" (economic, social, religious, spatial...)
- Identity. There is "homogeneity" within each group.
- Alienation. There is "heterogeneity" across groups.
- Esteban and Ray (1994) presumed that such a situation is conflictual:

"We begin with the obvious question: why are we interested in polarization? It is our contention that the phenomenon of polarization is closely linked to the generation of tensions, to the possibilities of articulated rebellion and revolt, and to the existence of social unrest in general . . . "

Measuring Polarization

(adapted from Duclos, Esteban and Ray, 2003)

- Space of densities (cdfs) on income, political opinion, etc.
- Each individual located at "income" x feels
- Identification with people of "similar" income (the height of density $n(x)$ at point x.)
- Alienation from people with "dissimilar" income (the income distance $|y - x|$ of y from x.)
- Effective Antagonism of x towards y depends on x's alienation from y *and* on x's sense of identification.

$$T(i, a)$$

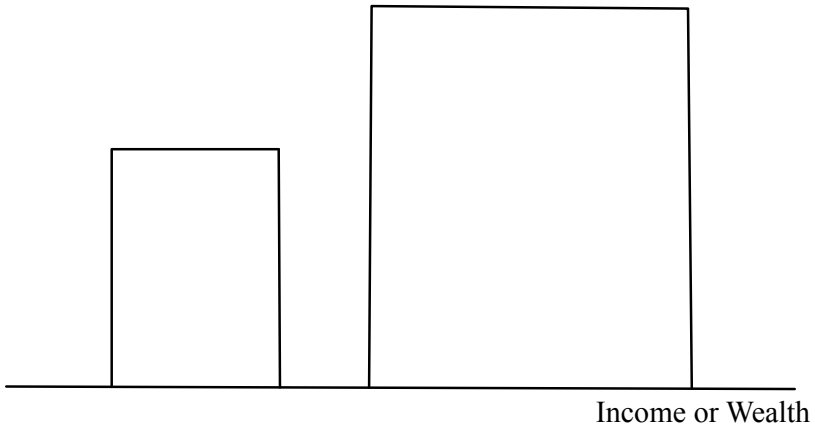
where $i = n(x)$ and $a = |x - y|$.

- View polarization as the "sum" of all such antagonisms

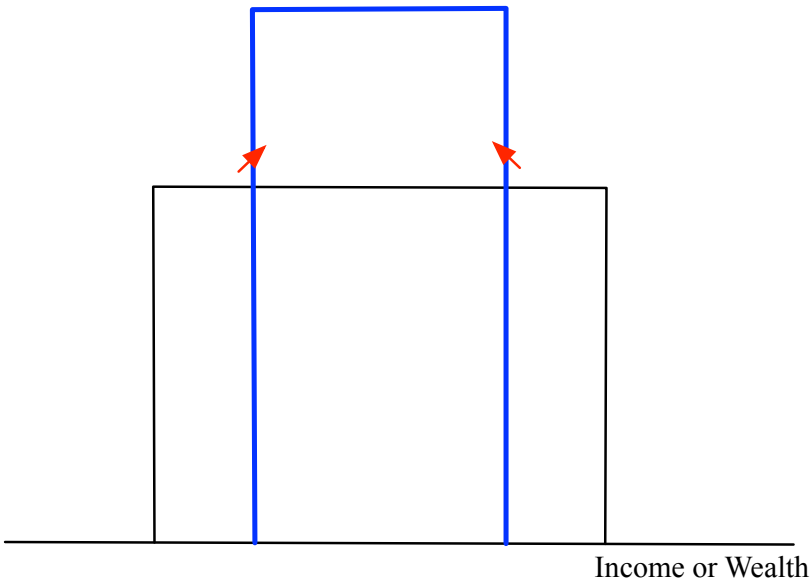
$$P(f) = \int \int T\left(n(x), |x-y|\right) n(x)n(y)dxdy$$

- Not very useful as it stands. Axioms to narrow down P.

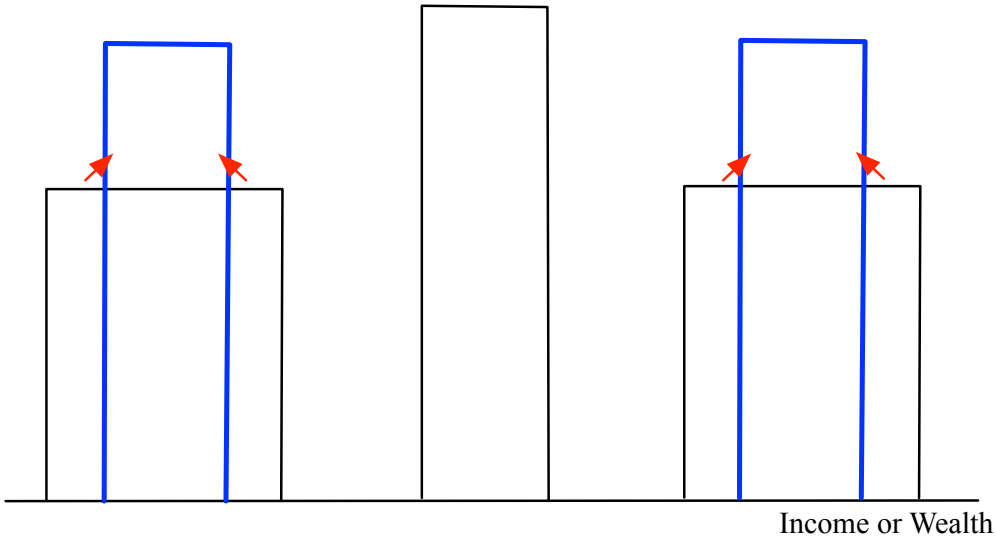
- Based on special distributions, built from uniform kernels.



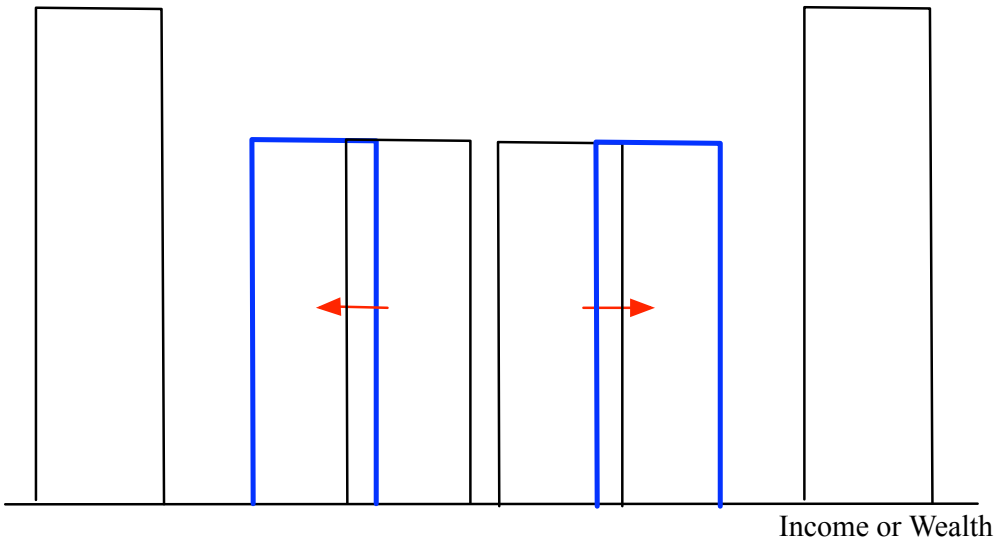
- Axiom 1. If a distribution is just a single uniform density, a "global compression" cannot increase polarization.



■ Axiom 2. If a symmetric distribution is composed of three uniform kernels, then a compression of the side kernels cannot reduce polarization.



■ Axiom 3. If a symmetric distribution is composed of four uniform kernels, then a symmetric slide of the two middle kernels away from each other must increase polarization.



- Axiom 4. [Population Neutrality.] Polarization comparisons are unchanged if both populations are scaled up or down by the same percentage.

- Theorem. A polarization measure satisfies Axioms 1–4 if and only if it is proportional to

$$\int \int n(x)^{1+\alpha} n(y)|y-x|dydx,$$

where α lies between 0.25 and 1.

- Compare with the Gini coefficient / fractionalization index:

$$\text{Gini } = \int \int n(x)n(y)|y-x|dydx,$$

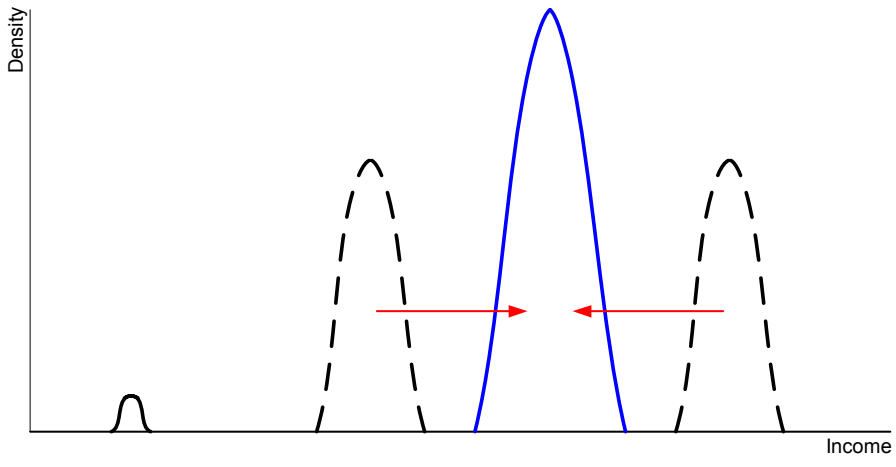
- It's α that makes all the difference.

Some Properties

- 1. Not Inequality. See Axiom 2.

- 2. Bimodal. Polarization maximal for bimodal distributions, but defined of course over all distributions.

- 3. Contextual. Same movement can have different implications.



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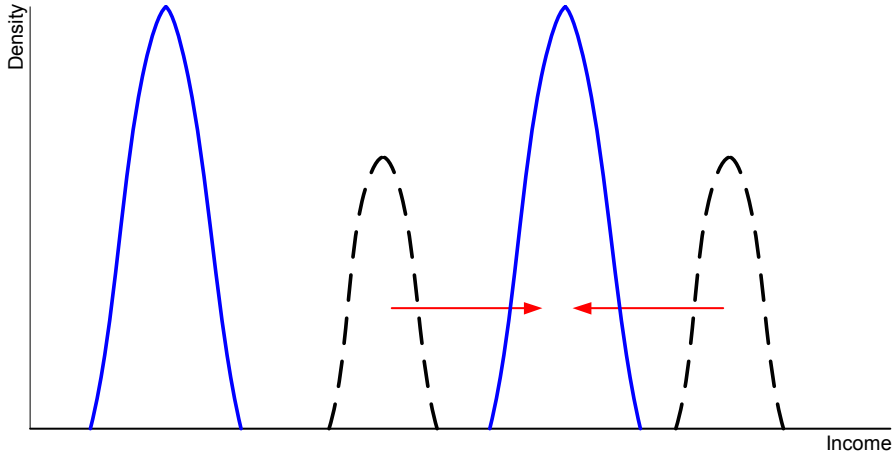
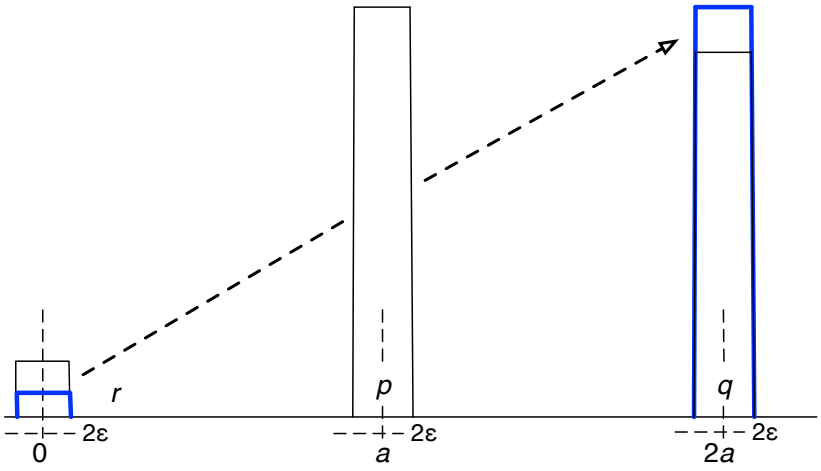


More on α

$$\text{Pol} = \int \int n(x)^{1+\alpha} n(y)|y-x|dydx,$$

where α lies between 0.25 and 1.

- Axiom 5. If $p > q$ but $p - q$ is small and so is r, a small shift of mass from r to q cannot reduce polarization.



Theorem. Under the additional Axiom 5, it must be that $\alpha = 1$, so the unique polarization measure that satisfies the five axioms is proportional to

$$\int \int n(x)^2 n(y)|y-x|dydx.$$

- Easily applicable to ethnolinguistic or religious groupings.
- Say m "social groups", n_j is population proportion in group j.
- If all inter-group distances are binary, then

$$\text{Pol} = \sum_{j=1}^{M}\sum_{k=1}^{M} n_j^2 n_k = \sum_{j=1}^{M} n_j^2(1-n_j).$$

- Compare with $F = \sum_{j=1}^{M} n_j(1-n_j)$.

Polarization and Conflict: Behavior

- Axiomatics suggest (but cannot establish) a link between polarization and conflict.
- Two approaches:
- Theoretical. Write down a "natural" theory which links conflict with these measures.
- Empirical.Take the measures to the data and see they are related to conflict.

We discuss the theory first (based on Esteban and Ray, 2011).

A Theory that Informs an Empirical Specification

- m groups engaged in conflict.
- N_i in group i, $\sum_{i=1}^{m} N_i = N$.
- Public prize: π per-capita scale [πu_{ij}]
- (religious dominance, political control, hatreds, public goods)
- Private prize μ per-capita [$\mu N / N_i = \mu / n_i$]
- Oil, diamonds, scarce land

Theory, contd.

- Individual resource contribution r at convex utility cost $c(r)$.
- (more generally $c(r, y_i)$).
- R_i is total contributions by group i. Define

$$R = \sum_{i=1}^{m} R_i.$$

- Probability of success given by

$$p_j = \frac{R_j}{R}$$

- R/N our measure of overall conflict.

Payoffs (per-capita)

- $\pi u_{ii} + \mu/n_i$

(in case i wins the conflict), and

- πu_{ij}

(in case j wins).

- Net expected payoff to an individual k in group i is

$$\Psi_i(k) = \sum_{j=1}^{m} p_j \pi u_{ij} + p_i \frac{\mu}{n_i} - c\left(r_i(k)\right).$$

pub priv cost

Contributing to Conflict (how R_i is determined)

- One extreme: individuals maximize own payoff.
- Another: individual acts (as if) to maximize group payoffs.
- More generally: define k's extended utility (Sen 1964) by

$$(1-\alpha)\Psi_i(k) + \alpha \sum_{\ell \in i} \Psi_i(\ell)$$

- α: (i) intragroup concern or altruism (ii) group cohesion.
- Equilibrium: Every k unilaterally maximizes her extended utility.
- Theorem 1. An equilibrium exists. If $c'''(r) \geq 0$, it is unique.

The Key Parameters and Variables

- Distances: $d_{ij} \equiv u_{ii} - u_{ij}$.
- Relative Publicness $\lambda \equiv \pi/(\pi + \mu)$
- Group Cohesion: α.
- Demographics: n_i
- Behavior: contributions, or equivalently p_i

- p_i related to n_i, but not the same thing
- For the approximation theorem today, I will ignore joint impact of p_i/n_i.

Approximation Theorem

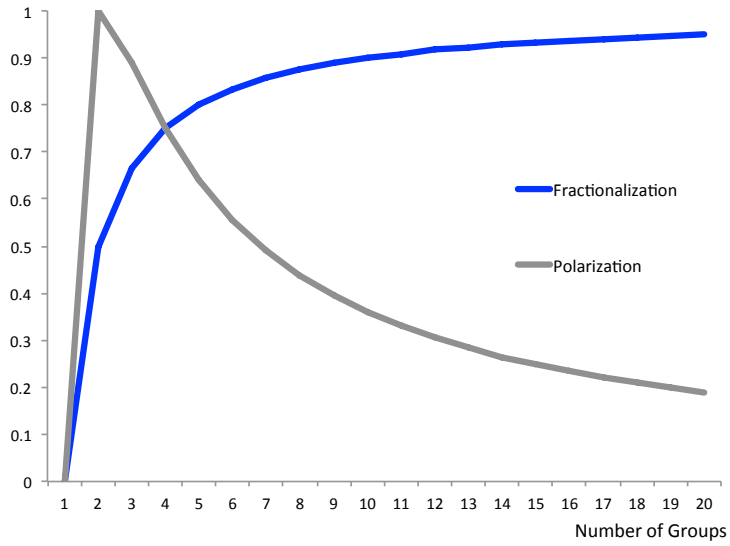
- Theorem 2. $\rho = R/N$ "approximately" solves

$$\begin{aligned} \frac{c'(\rho)\rho}{\pi + \mu} &= \alpha\left[\lambda P + (1-\lambda)F\right] + (1-\alpha)\lambda\frac{G}{N} + \frac{\text{Constant}}{N} \\ &\simeq \alpha\left[\lambda P + (1-\lambda)F\right] \text{ for large } N. \end{aligned}$$

- $\lambda \equiv \pi/(\pi + \mu)$ is relative publicness of the prize.
- P is squared polarization: $\sum_i \sum_j n_i^2 n_j d_{ij}$
- F is fractionalization: $\sum_i n_i(1 - n_i)$.
- G is Greenberg-Gini: $\sum_i \sum_j n_i n_j d_{ij}$.

Polarization and Fractionalization

- With $n_i = 1/m$, P maxed at $m = 2$, F increases in m:



How Good is the Approximation?

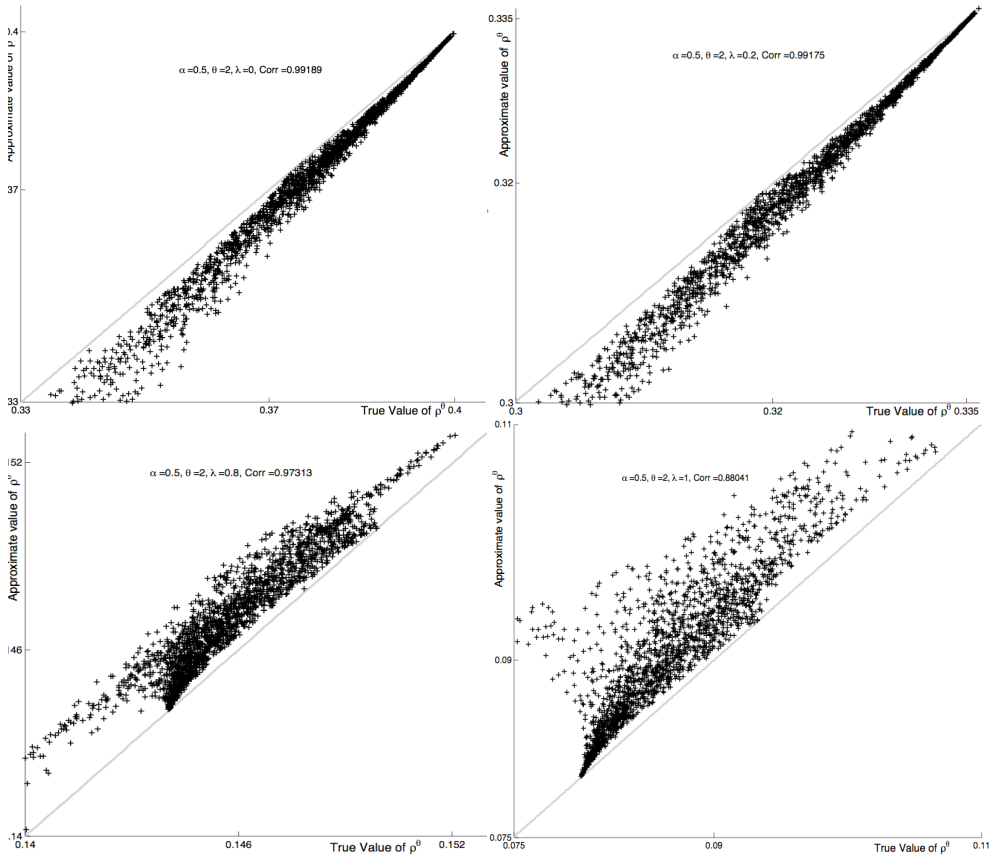
- Holds exactly when there are just two groups and all goods are public.

- Holds exactly when all groups the same size and public goods losses are symmetric.

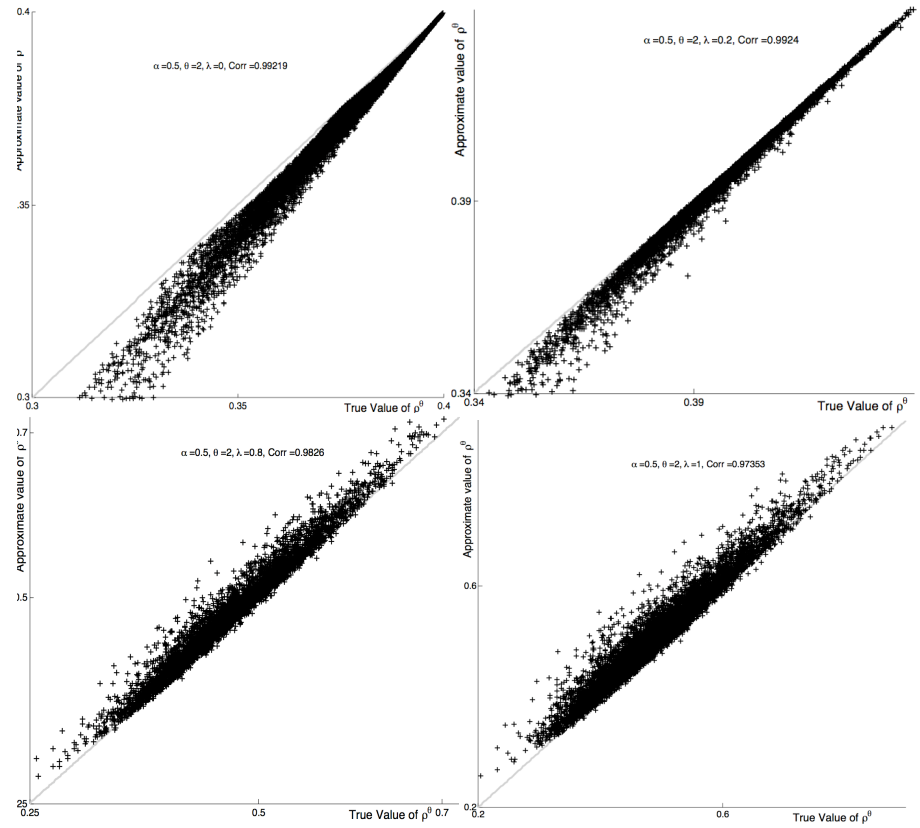
- Holds almost exactly for contests when conflict is high enough.

- Can numerically simulate to see how good the approximation is.

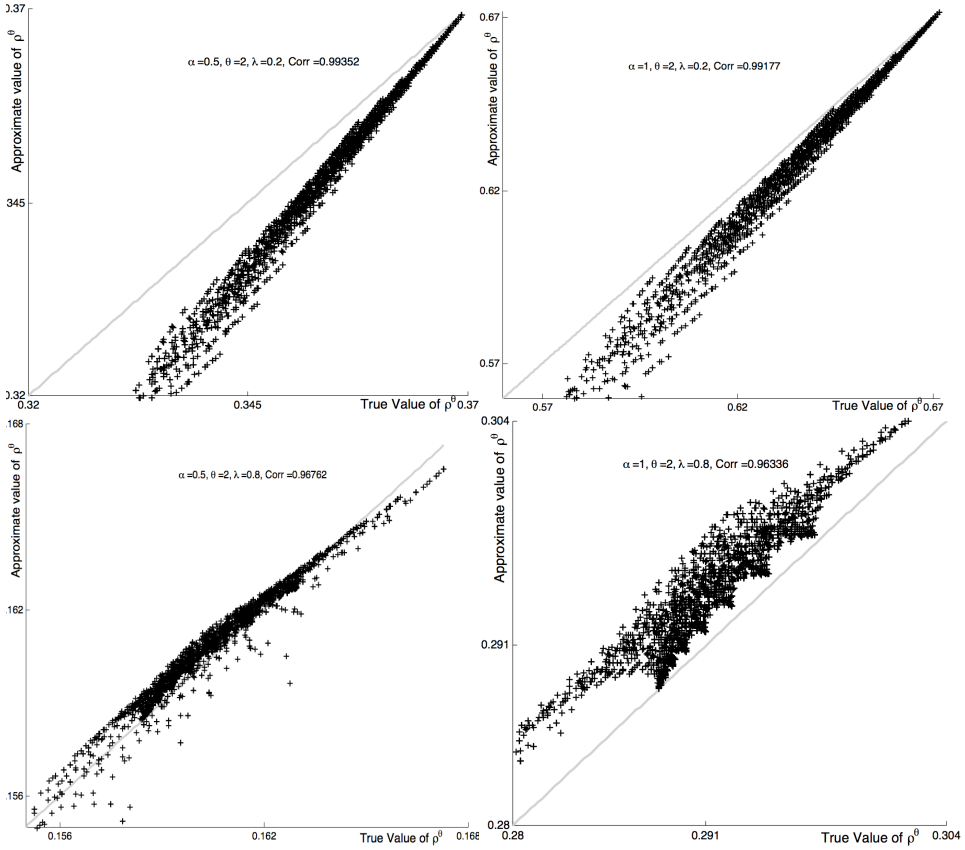
Contests, quadratic costs, large populations, λ various:



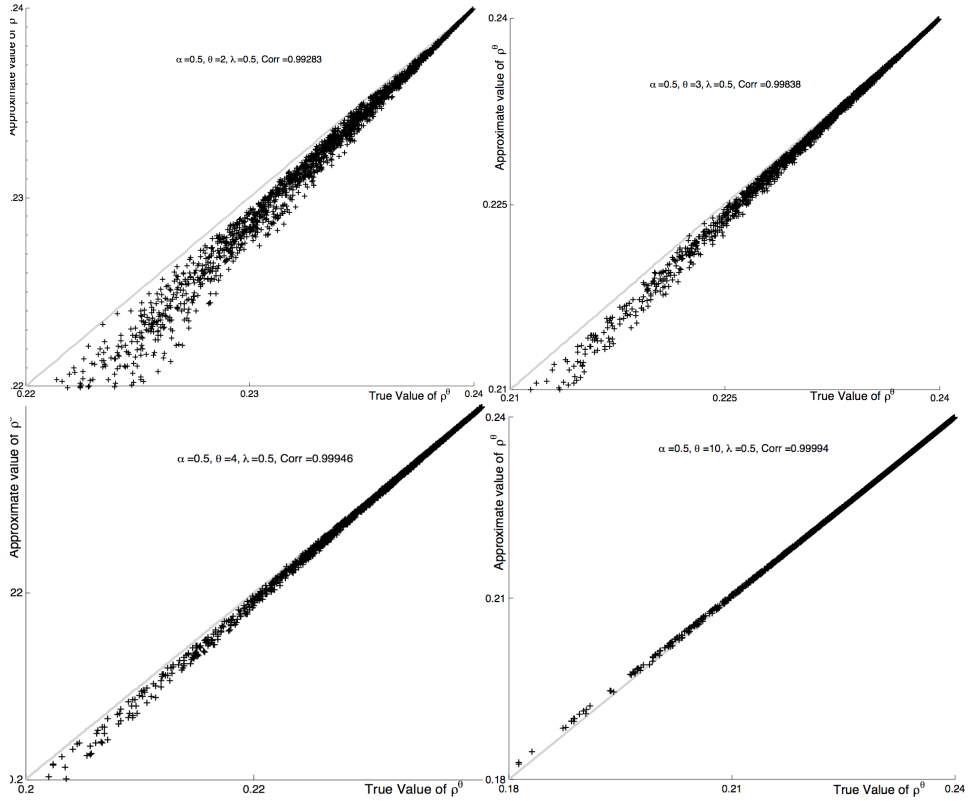
Distances, quadratic costs, large populations, λ various:



Small populations, λ various:



Nonquadratic costs, large populations, λ various:



Empirical Investigation

(Esteban, Mayoral and Ray *AER* 2012, *Science* 2012)

- 138 countries over 1960–2008 (pooled cross-section).
- PRIO25: 25+ battle deaths in the year. [Baseline]
- PRIOCW: PRIO25 + total exceeding 1000 battle-related deaths.
- PRIO1000: 1,000+ battle-related deaths in the year.
- PRIOINT: weighted combination of above.
- ISC: Continuous index, Banks (2008), weighted average of 8 different manifestations of coflict.

Groups

- Fearon database: "culturally distinct" groups in 160 countries.
- based on ethnolinguistic criteria.
- *Ethnologue*: information on linguistic groups.
- 6,912 living languages + group sizes.

Preferences and Distances

- We use linguistic distances on language trees.
- E.g., all Indo-European languages in common subtree.
- Spanish and Basque diverge at the first branch; Spanish and Catalan share first 7 nodes. Max: 15 steps of branching.
- Similarity $s_{ij} = \frac{\text{common branches}}{\text{maximal branches down that subtree}}$.
- Distance $\kappa_{ij} = 1 - s_{ij}^{\delta}$, for some $\delta \in (0, 1]$.
- Baseline $\delta = 0.05$ as in Desmet et al (2009).

Additional Variables and Controls

- Among the controls:
- Population
- GDP per capita
- Dependence on oil
- Mountainous terrain
- Democracy
- Governance, civil rights
- Also:
- Indices of publicness and privateness of the prize
- Estimates of group concern from *World Values Survey*

- Want to estimate

$$\rho c'(\rho)_{it} = X_{1ti}\beta_1 + X_{2it}\beta_2 + \varepsilon_{it}$$

- X_{1it} distributional indices.
- X_{2it} controls (including lagged conflict)
- With binary outcomes, latent variable model:

$$P(\text{prio}x_{it} = 1|Z_{it}) = P(\rho c'(\rho) > W^*|Z_{it}) = H(Z_{it}\beta - W^*)$$

- where $Z_{it} = (X_{1i}, X_{2it})$
- Baseline: uses max likelihood logit (results identical for probit).
- p-values use robust standard errors adjusted for clustering.

- Baseline with prio25, Fearon groupings [α, λ]

Var	[1]	[2]	[3]	[4]	[5]	[6]
P	*** 6.07 (0.002)	*** 6.90 (0.000)	*** 6.96 (0.001)	*** 7.38 (0.001)	*** 7.39 (0.001)	*** 6.50 (0.004)
F	*** 1.86 (0.000)	** 1.13 (0.029)	** 1.09 (0.042)	** 1.30 (0.012)	** 1.30 (0.012)	** 1.25 (0.020)
pop	** 0.19 (0.014)	** 0.23 (0.012)	** 0.22 (0.012)	0.13 (0.141)	0.13 (0.141)	0.14 (0.131)
gdppc	-	***- 0.40 (0.001)	***- 0.41 (0.002)	***- 0.47 (0.001)	***- 0.47 (0.001)	**- 0.38 (0.011)
oil/diam	-	-	0.06 (0.777)	0.04 (0.858)	0.04 (0.870)	- 0.10 (0.643)
mount	-	-	-	0.01 (0.134)	0.01 (0.136)	0.01 (0.145)
ncont	-	-	-	** 0.84 (0.019)	** 0.85 (0.018)	*** 0.90 (0.011)
democ	-	-	-	-	- 0.02 (0.944)	0.02 (0.944)
excons	-	-	-	-	-	- 0.13 (0.741)
autocr	-	-	-	-	-	0.14 (0.609)
rights	-	-	-	-	-	0.17 (0.614)
civlib	-	-	-	-	-	0.16 (0.666)
lag	*** 2.91 (0.000)	*** 2.81 (0.000)	*** 2.80 (0.000)	*** 2.73 (0.000)	*** 2.73 (0.000)	*** 2.79 (0.000)

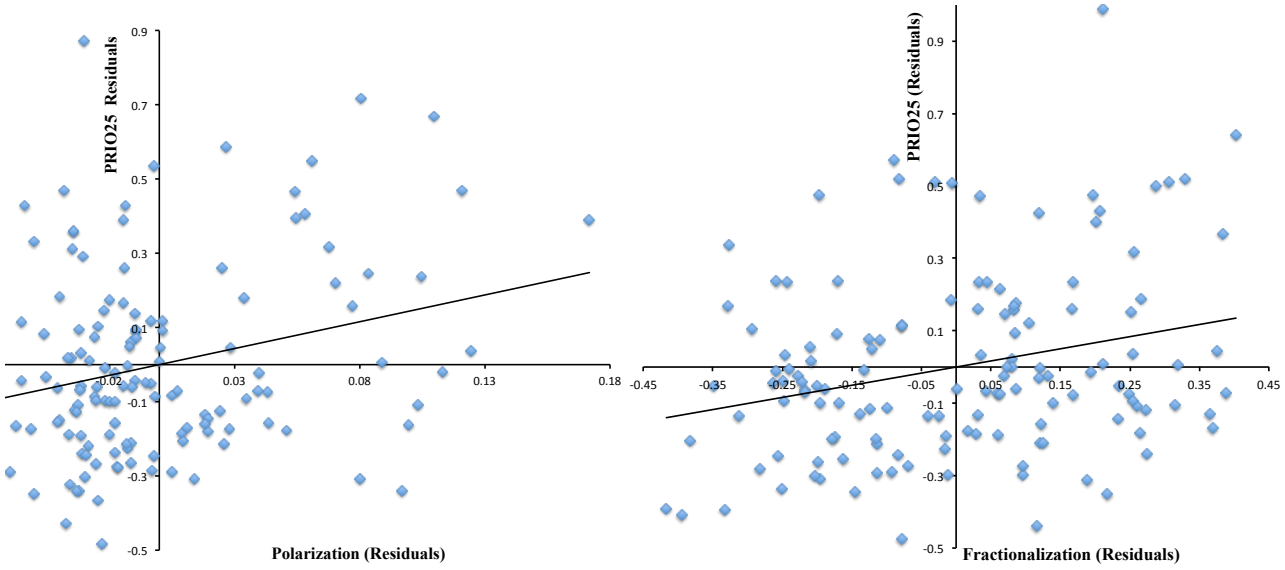
Part A: countries in 45-55 fractionalization decile, ranked by polarization.

Part B: countries in 45-55 polarization decile, ranked by fractionalization.

Part A	Intensity	Years
Dom Rep	1	1
Morocco	1	15
USA	0	0
Serbia-Mont	2	2
Spain	1	5
Macedonia	1	1
Chile	1	1
Panama	1	1
Nepal	2	14
Canada	0	0
Myanmar	2	117
Kyrgystan	0	0
Sri Lanka	2	26
Estonia	0	0
Guatemala	1	30

Part B	Intensity	Years
Germany	0	0
Armenia	0	0
Austria	0	0
Taiwan	0	0
Algeria	2	22
Zimbabwe	2	9
Belgium	0	0
USA	0	0
Morocco	1	15
Serbia-Mont	2	2
Latvia	0	0
Trin-Tob	1	1
Guinea-Bissau	1	13
Sierra Leone	2	10
Mozambique	2	27

- Residual scatters.



- $P(20 \to 80)$, prio25 13% $\to$ 29%.
- $F(20 \to 80)$, prio25 12% $\to$ 25%.

Robustness Checks

- Alternative definitions of conflict
- Alternative definition of groups: *Ethnologue*
- Binary versus language-based distances
- Conflict onset
- Region and time effects
- Other ways of estimating the baseline model

- Different definitions of conflict, Fearon groupings

Variable	prio25	priocw	prio1000	prioint	isc
P	*** 7.39 (0.001)	*** 6.76 (0.007)	*** 10.47 (0.001)	*** 6.50 (0.000)	*** 25.90 (0.003)
F	** 1.30 (0.012)	** 1.39 (0.034)	* 1.11 (0.086)	*** 1.30 (0.006)	2.27 (0.187)
gdp	***- 0.47 (0.001)	*- 0.35 (0.066)	***- 0.63 (0.000)	***- 0.40 (0.002)	***- 1.70 (0.001)
pop	0.13 (0.141)	* 0.19 (0.056)	0.13 (0.215)	0.10 (0.166)	*** 1.11 (0.000)
oil/diam	0.04 (0.870)	0.06 (0.825)	- 0.03 (0.927)	- 0.04 (0.816)	- 0.57 (0.463)
mount	0.01 (0.136)	** 0.01 (0.034)	0.01 (0.323)	0.00 (0.282)	** 0.04 (0.022)
ncont	** 0.85 (0.018)	0.62 (0.128)	* 0.78 (0.052)	* 0.55 (0.069)	*** 4.38 (0.004)
democ	- 0.02 (0.944)	- 0.09 (0.790)	- 0.41 (0.230)	- 0.03 (0.909)	0.06 (0.944)
lag	*** 2.73 (0.000)	*** 3.74 (0.000)	*** 2.78 (0.000)	*** 2.00 (0.000)	*** 0.50 (0.000)

- $P(20 \rightarrow 80)$, prio25 13%–29%, priocw 7%–17%, prio1000 3%–10%.
- $F(20 \rightarrow 80)$, prio25 12%–25%, priocw 7%–16%, prio1000 3%–6%.

- Different definitions of conflict, *Ethnologue* groupings

Variable	prio25	priocw	prio1000	prioint	isc
P	*** 8.26	*** 8.17	** 10.10	*** 7.28	*** 27.04
	(0.001)	(0.005)	(0.016)	(0.001)	(0.008)
F	0.64	0.75	0.51	0.52	- 0.58
	(0.130)	(0.167)	(0.341)	(0.185)	(0.685)
gdp	***- 0.51	**- 0.39	***- 0.63	***- 0.45	***- 2.03
	(0.000)	(0.022)	(0.000)	(0.000)	(0.000)
pop	* 0.15	** 0.24	0.15	0.12	*** 1.20
	(0.100)	(0.020)	(0.198)	(0.118)	(0.000)
oil/diam	0.15	0.21	0.10	0.08	- 0.06
	(0.472)	(0.484)	(0.758)	(0.660)	(0.943)
mount	* 0.01	** 0.01	0.01	* 0.01	** 0.04
	(0.058)	(0.015)	(0.247)	(0.099)	(0.013)
ncont	** 0.72	0.49	0.50	0.44	*** 4.12
	(0.034)	(0.210)	(0.194)	(0.136)	(0.006)
democ	0.03	0.00	- 0.32	0.03	0.02
	(0.906)	(0.993)	(0.350)	(0.898)	(0.979)
lag	*** 2.73	*** 3.75	*** 2.83	*** 2.01	*** 0.50
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

- Binary variables don't work well with *Ethnologue*.
- Can compute pseudolikelihoods for δ as in Hansen (1996).

- Onset vs incidence, Fearon and *Ethnologue* groupings

Variable	onset2	onset5	onset8	onset2	onset5	onset8
P	*** 7.85	*** 7.41	*** 7.26	*** 8.83	*** 8.84	*** 8.71
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
F	* 0.94	0.72	0.62	0.39	0.20	0.15
	(0.050)	(0.139)	(0.204)	(0.336)	(0.602)	(0.702)
gdp	***- 0.60	***- 0.65	***- 0.68	***- 0.64	***- 0.70	***- 0.73
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
pop	0.01	0.03	0.03	0.06	0.05	0.05
	(0.863)	(0.711)	(0.748)	(0.493)	(0.588)	(0.619)
oil/diam	** 0.54	** 0.46	** 0.47	*** 0.64	*** 0.56	*** 0.57
	(0.016)	(0.022)	(0.025)	(0.004)	(0.005)	(0.007)
mount	0.00	0.00	0.00	0.00	0.00	0.00
	(0.527)	(0.619)	(0.620)	(0.295)	(0.410)	(0.424)
ncont	*** 0.74	** 0.66	0.42	** 0.66	** 0.63	0.40
	(0.005)	(0.010)	(0.104)	(0.012)	(0.017)	(0.120)
democ	- 0.06	0.06	0.08	- 0.02	0.09	0.10
	(0.816)	(0.808)	(0.766)	(0.936)	(0.716)	(0.704)
lag	0.32	- 0.08	- 0.08	0.29	- 0.13	- 0.13
	(0.164)	(0.740)	(0.751)	(0.214)	(0.618)	(0.622)
	Fearon	Fearon	Fearon	Eth	Eth	Eth

Region and time effects, Fearon groupings

Variable	reg.dum.	no Afr	no Asia	no L.Am.	trend	interac.
P	*** 6.64 (0.002)	** 5.36 (0.034)	*** 7.24 (0.001)	*** 9.56 (0.001)	*** 7.39 (0.001)	*** 7.19 (0.001)
F	*** 2.03 (0.001)	*** 2.74 (0.001)	** 1.28 (0.030)	*** 1.49 (0.009)	** 1.33 (0.012)	*** 1.76 (0.001)
gdp	***- 0.72 (0.000)	***- 0.69 (0.000)	**- 0.39 (0.024)	***- 0.45 (0.006)	***- 0.49 (0.001)	***- 0.60 (0.000)
pop	0.05 (0.635)	0.09 (0.388)	0.06 (0.596)	* 0.17 (0.087)	0.14 (0.125)	0.06 (0.543)
oil/diam	0.12 (0.562)	0.14 (0.630)	0.10 (0.656)	0.10 (0.687)	0.05 (0.824)	0.15 (0.476)
mount	0.00 (0.331)	- 0.00 (0.512)	0.01 (0.114)	** 0.01 (0.038)	0.01 (0.109)	0.01 (0.212)
ncont	** 0.87 (0.018)	* 0.75 (0.064)	** 0.83 (0.039)	0.62 (0.134)	** 0.82 (0.025)	** 0.77 (0.040)
democ	0.08 (0.761)	- 0.03 (0.932)	- 0.23 (0.389)	0.10 (0.716)	0.08 (0.750)	0.13 (0.621)
lag	*** 2.68 (0.000)	*** 2.83 (0.000)	*** 2.69 (0.000)	*** 2.92 (0.000)	*** 2.79 (0.000)	*** 2.74 (0.000)

Other estimation methods, Fearon groupings.

Variable	Logit	OLog(CS)	Logit(Y)	RELog	OLS	RC
P	*** 7.39 (0.001)	*** 11.84 (0.003)	** 4.68 (0.015)	*** 7.13 (0.000)	*** 0.86 (0.004)	*** 0.95 (0.001)
F	** 1.30 (0.012)	*** 2.92 (0.001)	*** 1.32 (0.003)	*** 1.27 (0.005)	** 0.13 (0.025)	*** 0.16 (0.008)
gdp	***- 0.47 (0.001)	***- 0.77 (0.001)	**- 0.29 (0.036)	***- 0.46 (0.000)	***- 0.05 (0.000)	***- 0.06 (0.000)
pop	0.13 (0.141)	0.03 (0.858)	0.14 (0.123)	** 0.14 (0.090)	** 0.02 (0.020)	** 0.02 (0.032)
oil/diam	0.04 (0.870)	** 0.94 (0.028)	0.29 (0.280)	0.04 (0.850)	0.00 (0.847)	0.01 (0.682)
mount	0.01 (0.136)	0.01 (0.102)	0.00 (0.510)	0.01 (0.185)	0.00 (0.101)	0.00 (0.179)
ncont	** 0.85 (0.018)	*** 1.51 (0.007)	* 0.62 (0.052)	*** 0.83 (0.002)	** 0.09 (0.019)	*** 0.10 (0.006)
democ	- 0.02 (0.944)	- 0.48 (0.212)	- 0.09 (0.690)	- 0.02 (0.941)	0.01 (0.788)	0.01 (0.585)
lag	*** 2.73 (0.000)	-	*** 4.69 (0.000)	*** 2.69 (0.000)	*** 0.54 (0.000)	*** 0.45 (0.000)

Inter-Country Variations in Publicness and Cohesion

$$\text{conflict per-capita} \simeq \alpha\left[\lambda P + (1-\lambda)F\right],$$

- Relax assumption that λ and α same across countries.
- Privateness: natural resources; use per-capita oil reserves (oilresv).
- Publicness: control while in power (pub), average of
  - Autocracy (Polity IV)
  - Absence of political rights (Freedom House)
  - Absence of civil liberties (Freedom House)
- $\Lambda \equiv (\text{pub*gdp})/(\text{pub*gdp} + \text{oilresv})$.

- Country-specific public good shares and group cohesion

Variable	prio25	prioint	isc	prio25	prioint	isc
P	- 3.31	- 1.93	- 9.21	- 3.01	- 1.65	-13.04
	(0.424)	(0.538)	(0.561)	(0.478)	(0.630)	(0.584)
F	0.73	0.75	- 2.27	1.48	1.51	**- 6.65
	(0.209)	(0.157)	(0.249)	(0.131)	(0.108)	(0.047)
$P\Lambda$	*** 17.38	*** 13.53	*** 60.23			
	(0.001)	(0.001)	(0.005)			
$F(1-\Lambda)$	*** 2.53	*** 1.92	*** 11.87			
	(0.003)	(0.003)	(0.000)			
$P\Lambda A$				** 23.25	** 19.16	* 72.22
				(0.021)	(0.019)	(0.083)
$F(1-\Lambda)A$				** 4.02	*** 2.92	*** 26.03
				(0.013)	(0.003)	(0.000)
gdp	***- 0.62	***- 0.50	***- 2.36	***- 0.65	***- 0.53	***- 3.68
	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)
pop	0.10	0.09	*** 0.99	0.08	0.09	0.33
	(0.267)	(0.243)	(0.000)	(0.622)	(0.448)	(0.565)
lag	*** 2.62	*** 1.93	*** 0.47	*** 2.40	*** 1.79	*** 0.42
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

And Economic Inequality?

- Lichbach survey (1989):
  - 43 papers
  - some "best forgotten"
  - Evidence completely mixed.
- "[F]airly typical finding of a weak, barely significant relationship between inequality and political violence . . . rarely is there a robust relationship between the two variables." Midlarsky (1988)

Economic Inequality and Conflict

- Esteban, Mayoral and Ray (in progress).

Variable	prio25	prio25	prio1000	prio1000	prioint	prioint
Gini	** 0.01	** 0.01	0.01	** 0.01	** 0.02	*** 0.02
	(0.042)	(0.014)	(0.131)	(0.054)	(0.026)	(0.004)
gdp	0.05	-	- 0.03	-	0.02	-
	(0.488)		(0.533)		(0.871)	
gdpgr	-	*** 0.00	-	*** 0.00	-	*** 0.01
		(0.001)		(0.001)		(0.000)
pop	0.05	- 0.08	0.14	0.10	0.18	0.02
	(0.709)	(0.472)	(0.140)	(0.214)	(0.300)	(0.871)
oil/diam	*** 0.00	*** 0.00	0.00	0.00	** 0.00	** 0.00
	(0.037)	(0.018)	(0.112)	(0.124)	(0.022)	(0.010)
democ	0.07	* 0.11	- 0.02	- 0.06	0.05	0.06
	(0.301)	(0.093)	(0.668)	(0.283)	(0.614)	(0.525)

Surprising? Not Really

- Two entry points:
- Wealth of the rival group — related to the gains from conflict.
- Wealth of the own group — related to the costs of conflict.

$\Rightarrow$ No connection between intergroup inequality and conflict.

A Second Argument for Ethnic Salience

- Esteban and Ray (2008, 2010)
- Organized conflict is people + finance.
- Within-group disparities feed the people/finance synergy.
- Class conflict, by definition of class, fails on this score.
- Leads to the one robust prediction for incomes and conflict:
- Within-group inequality is conflictual.
- Huber and Mayoral (2013)

Variable	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Gini	3.234						
	(2.951)						
BGI		-0.301	0.505	-0.471	-0.022	0.060	0.203
		(5.118)	(5.097)	(5.402)	(0.374)	(0.433)	(0.285)
WGI		**13.752	*11.764	**13.549	**0.833	**0.822	*0.559
		(6.422)	(6.012)	(6.317)	(0.415)	(0.397)	(0.303)
Overlap		-8.010	*-9.133	-9.191	0.395	0.468	-0.022
		(7.220)	(5.417)	(7.008)	(0.400)	(0.446)	(0.444)
GDP, lag	-0.281	-0.339	*-0.504	*-0.453	-0.121	-0.363	0.033
	(0.254)	(0.274)	(0.265)	(0.254)	(0.207)	(0.229)	(0.025)
Pop, lag	***0.400	**0.319	**0.374	**0.365	*-0.835	-0.541	**0.034
	(0.132)	(0.142)	(0.152)	(0.147)	(0.499)	(0.451)	(0.017)
P	1.517	**2.091	**2.317	**2.337			
	(1.002)	(0.992)	(0.952)	(0.993)			
F	**2.676	***9.932	***9.108	***10.360			
	(1.219)	(3.789)	(3.412)	(3.694)			
Non-cont	1.098	**1.705	**1.753	**1.701			
	(0.671)	(0.758)	(0.683)	(0.740)			
Mount	0.011	0.011					
	(0.009)	(0.009)					
xPol, lag	0.031	0.030		0.032	-0.020	-0.009	0.006
	(0.041)	(0.044)		(0.056)	(0.016)	(0.019)	(0.007)
xPol Sq				-0.001			
				(0.017)			
Anoc, lag			***1.096				
			(0.420)				
Dem, lag			**1.005				
			(0.449)				
Nat. Res.	-0.294	-0.224					
	(0.337)	(0.374)					
PRIO25, lag	***4.655	***4.465	***4.549	***4.545		**0.334	***0.682
	(0.624)	(0.601)	(0.591)	(0.606)		(0.143)	(0.085)
	Reg E.	Reg E.	Reg E.	Reg E.	FE	FE	FE

Summary

- Exclusionary conflict as important as distributive conflict, maybe more.
- Often made salient by the use of ethnicity or religion.
- Do societies with "ethnic divisions" experience more conflict?
- We develop a theory of conflict that generates an empirical test.
- The notion of polarization is central to this theory
- As is fractionalization
- Convex combination of the two distributional variables predicts conflict.
- Theory appears to find strong support in the data.
- Other predictions: interaction effects on shocks that affect rents and opportunity costs.