Polarization and Conflict

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1945–1999: battle deaths in 25 interstate wars approx. 3.33m

127 civil wars in 73 states (25 ongoing in 1999).

16.2m dead as a direct result (not counting deaths from displacement and disease).

Economic costs: 8% of world GDP (Hess (2003))

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Ethnicity

Income, poverty, resources, distributional variables

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- Elite initiation of conflict
- Why do the masses follow
- Identifying the aggressor using economic data

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Determinants of Conflict

Ethnicity

Distributional variables

- Donald Horowitz (1985):

"The Marxian concept of class as an inherited and determinative affiliation finds no support in [the] data. Marx's conception applies with far less distortion to ethnic groups. . . .

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- Samuel Huntington's *Clash of Civilizations* (1993, 1996).

- Similar position adopted by many other social scientists (e.g., orientalists such as Bernard Lewis).

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- But a more basic question first:

- Is it true that ethnic divisions matter for conflict?

- Two ways to approach this question.

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- Historical study of conflicts, one by one (e.g., Horowitz)
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- Historical study of conflicts, one by one (e.g., Horowitz)
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- Statistical / theoretical approach
- (Collier-Hoeffler, Fearon-Laitin, Esteban-Ray)

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- demonstrations, processions, strikes, riots, casualties and on to civil war

- Even with specific choice such as civil war, need defining criteria

- onset versus incidence, number of deaths, . . .
- Singer-Small (1982), Licklider (1993), Doyle-Sambanis (2000), Fearon-Laitin (2003)

Explanatory Variables

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- *Economic*: per-capita income, inequality of income or wealth, resource holdings . . .

- *Geographical*: mountainous terrain, separation from capital city . . .

- *Political*: "extent of democracy", prior war . . .

- And, of course

"Ethnic"

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"Ethnic"

- *Ethnolinguistic diversity*: World Christian Encyclopedia, Encyclopedia Britannica, Atlas Narodov Mira, CIA FactBook

- *Religious diversity*: L'Etat des Religions dans le Monde, World Christian Encyclopedia, The Statesman's Yearbook

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- m groups. n_j is population share of group j. Then

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

- The index F is a special case of the measure

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

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

- This is the Gini inequality measure.

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- Taylor and Hudson (1972), Mauro(1995), Easterly and Levine (1997), Alesina *et al.* (2003), Vigdor (2002), Collier and Hoeffler (2002), Fearon and Laiton (2003), Montalvo and Reynal-Querol (2005), Schneider and Wiesehomeier (2008), . . .

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- *But it shows no correlation with conflict*

  - See Collier and Hoeffler (2002), Fearon and Laitin (2003), Miguel-Satyanath-Sergenti (2004), Montalvo and Reynal-Querol (2005).

- 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."

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- In contrast,

"Per capita income . . . is strongly significant in both a statistical and a substantive sense . . ."

- Correction for endogeneity (see Miguel-Satyanath-Sergenti (2004)).

- Though see recent critique by Djankov and Reynal-Querol (2009) with country fixed effects.

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And yet . . .

  - Is fractionalization the right measure?

- Horowitz (1985) again:

"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.'

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- Which echoes an older Marxian theme (Deutsch (1971)):

"As the struggle proceeds, the whole society breaks up more and more into two hostile camps, two great, directly antagonistic classes: bourgeoisie and proletariat. The classes *polarize*, so that they become internally more homogeneous and more and more sharply distinguished from one another in wealth and power."

- More *polarization* than *fragmentation*.

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- Axiomatic approach *presumes* that such a situation is inherently conflictual.

- Esteban and Ray, *Econometrica* 1994

"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 . . ."

- Does the standard theory of inequality measurement fit?

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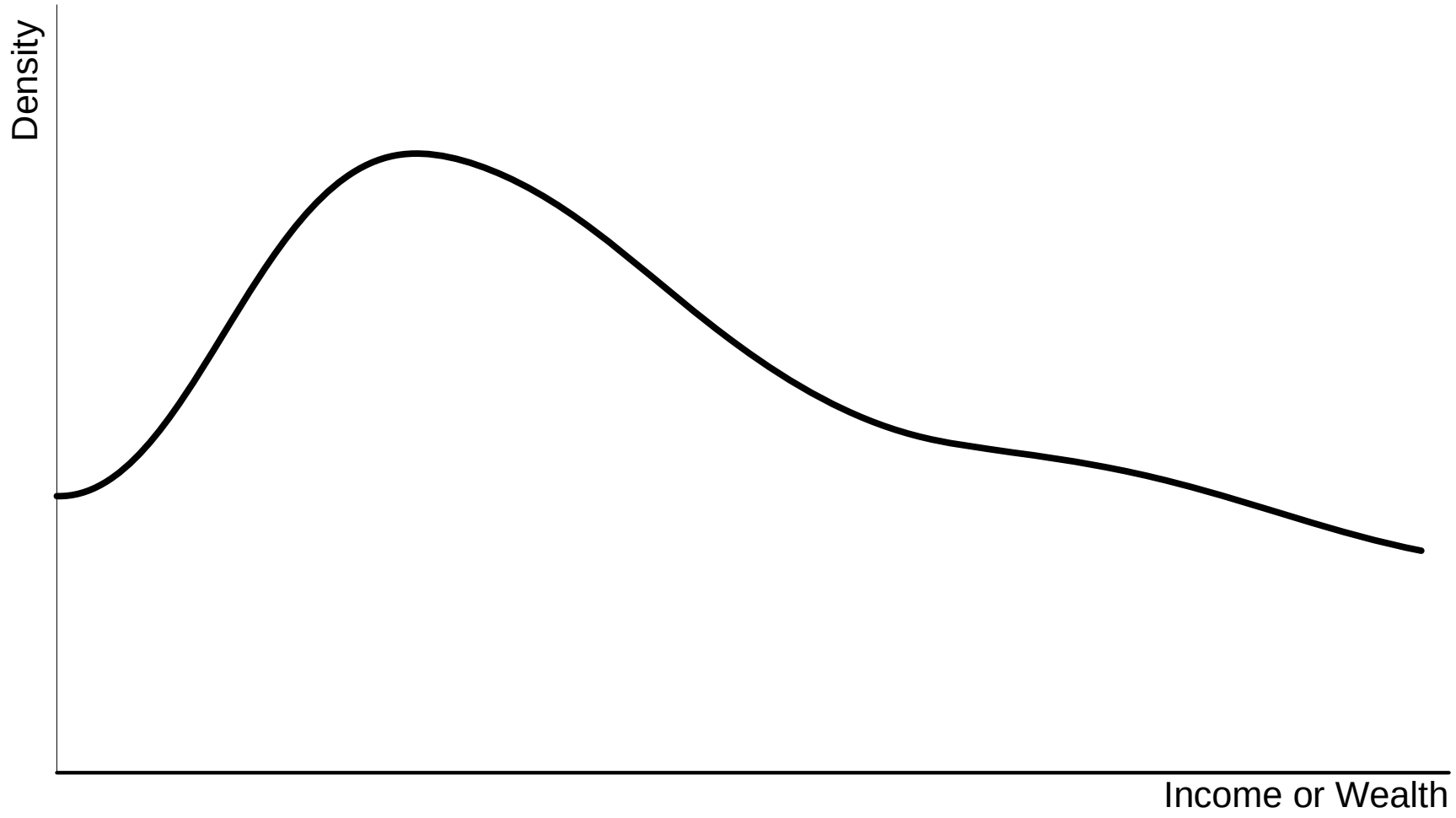
- *Pigou-Dalton Transfers Principle.*

A transfer of resources from a relatively poor to a relatively rich individual must raise income inequality.

- Forms the building block for all inequality measures.

A "Local Compression" Raises Polarization.



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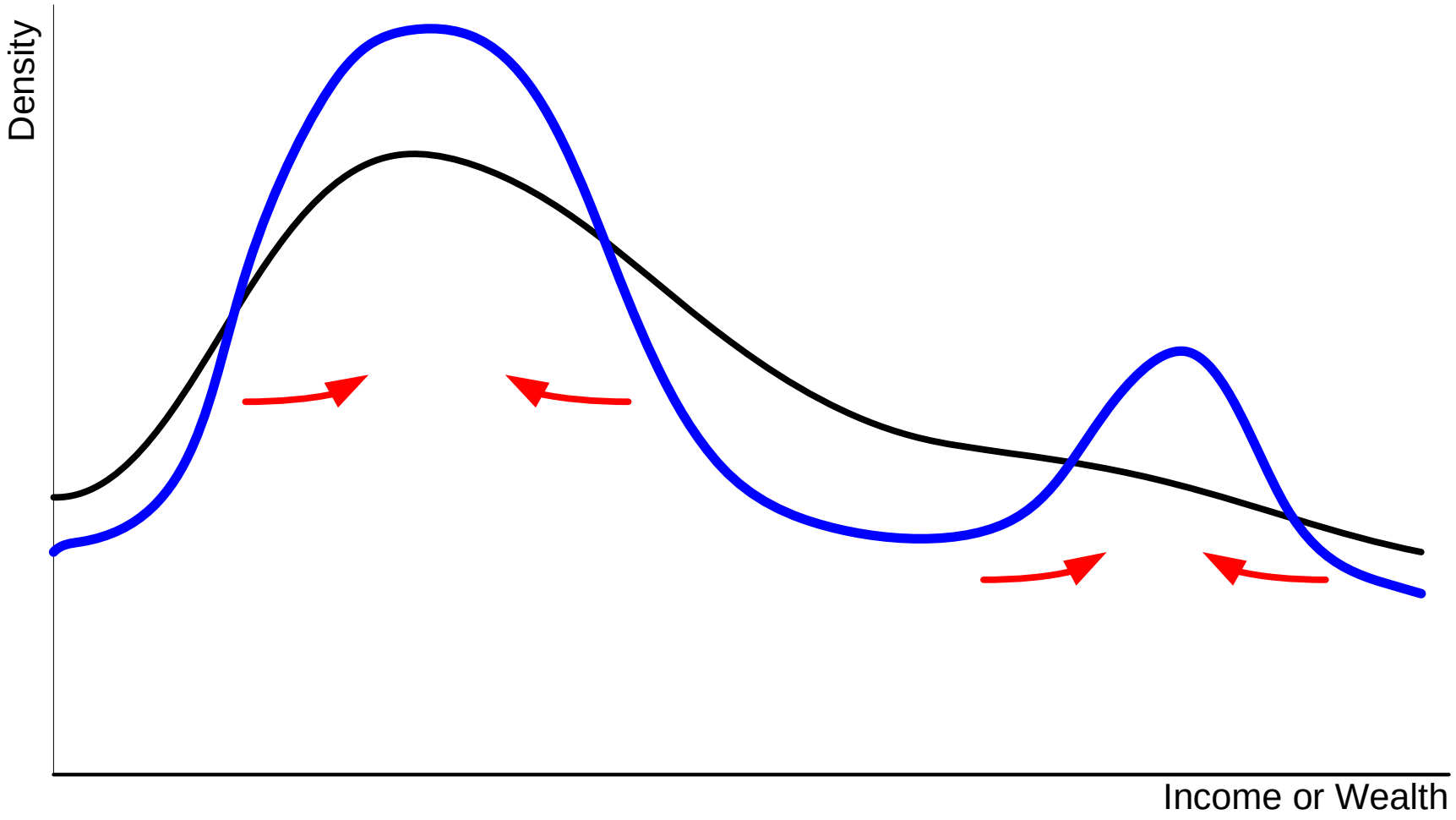

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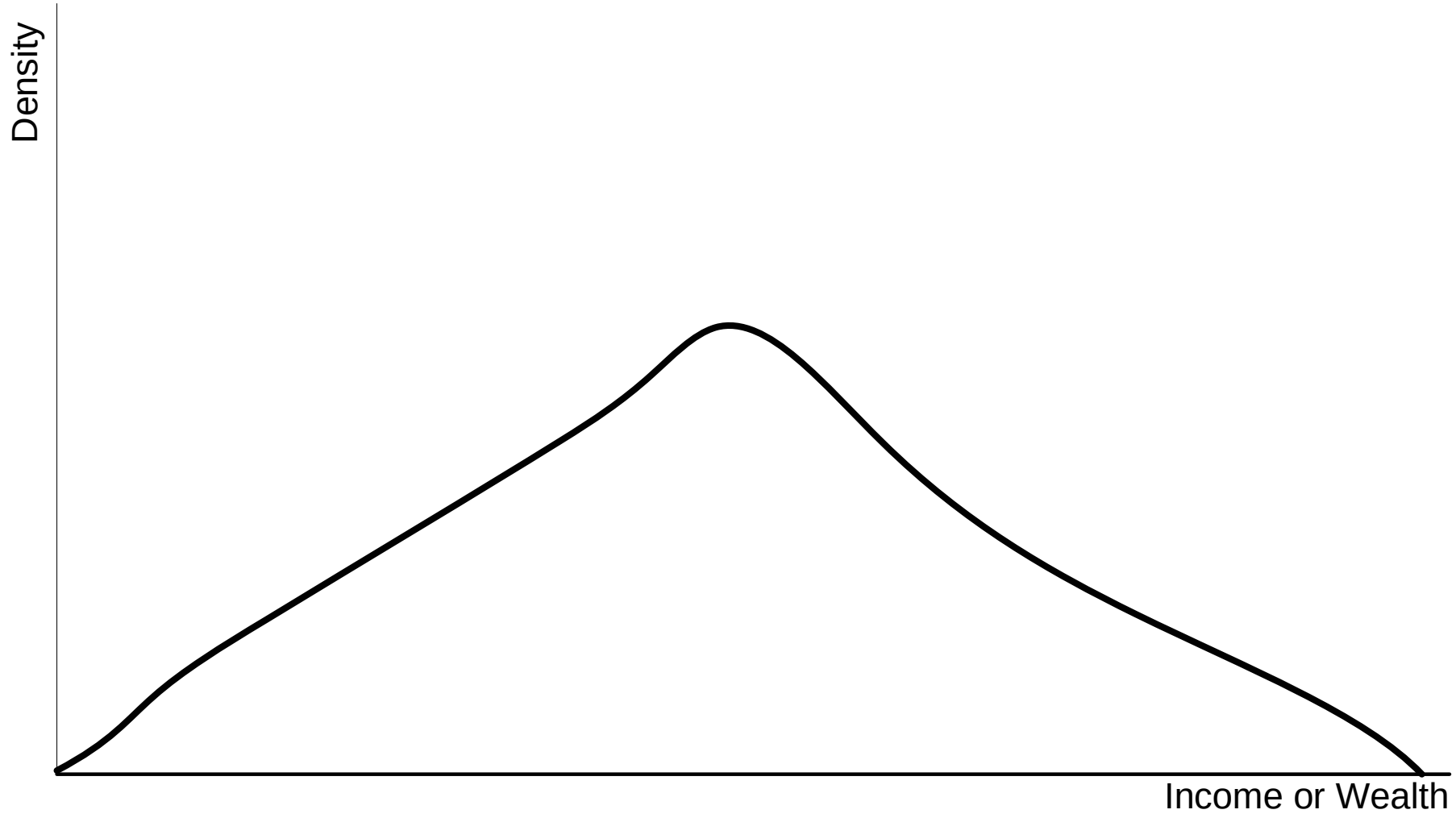

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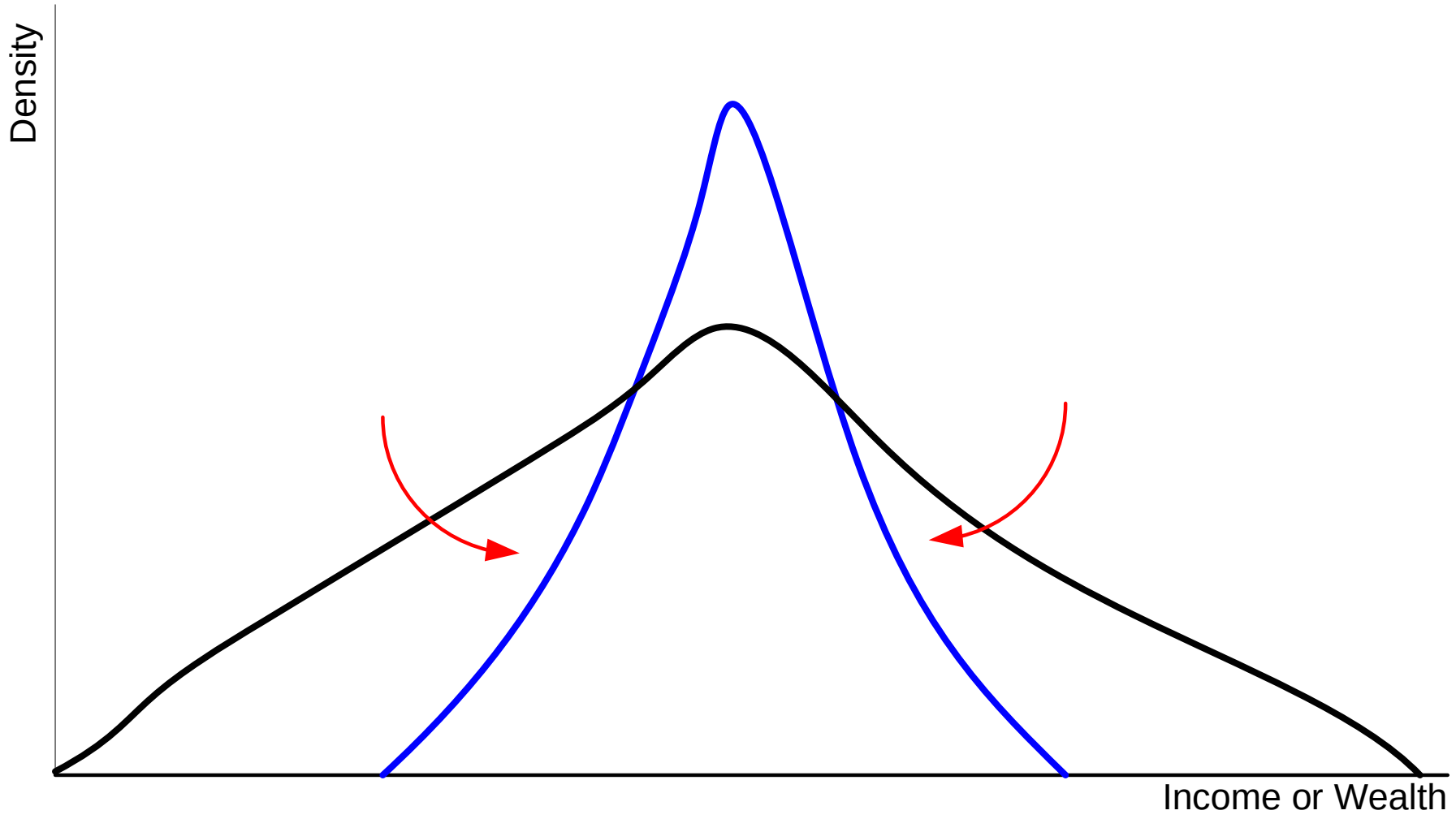

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- Objective: axiomatically try and pin down a class of measures

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- Each individual feels:
- *Identification* with people of "similar" income.
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- *Polarization*: "sum" of all such antagonisms over the population.
- Not very useful as it stands, but hopefully a good starting point.

Axiomatic Approach

- Axioms based on very special distributions: *basic densities* . . .

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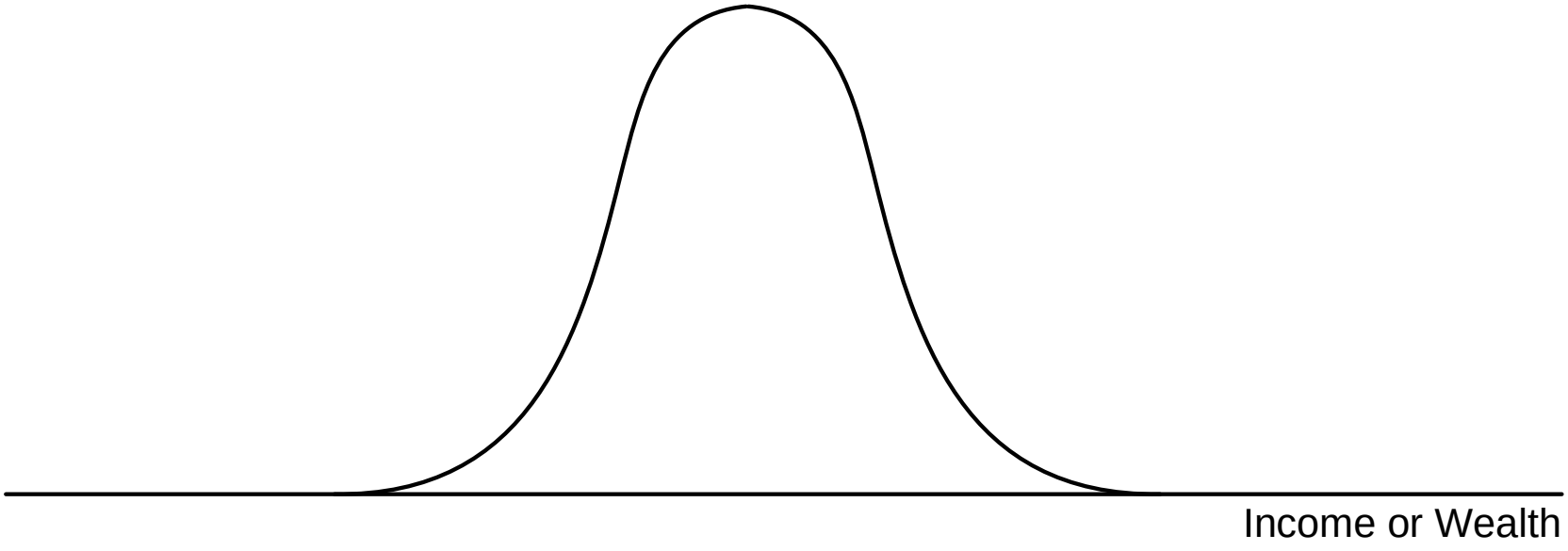
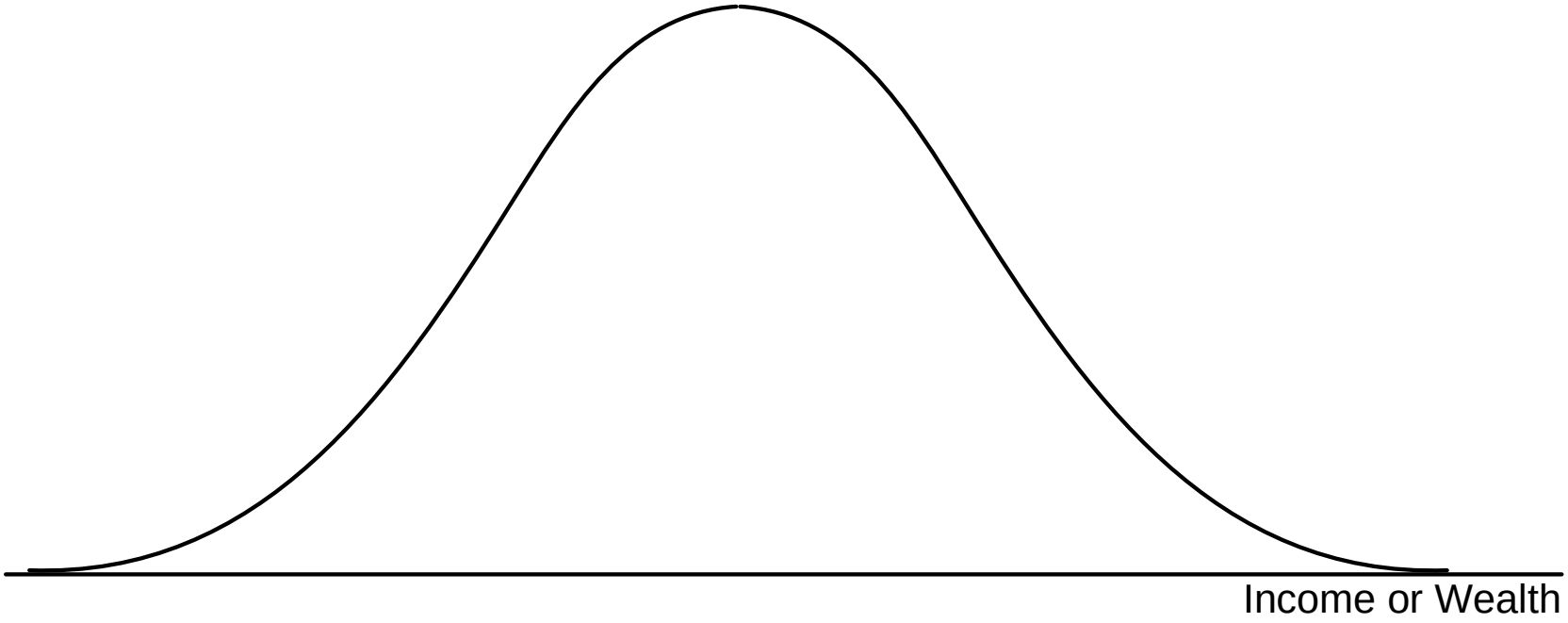
- . . . symmetric, single-peaked distributions on a bounded range.



- *Axiom 1.* If a distribution is just a single basic density, a "global compression" of that density cannot increase polarization.

- Global compression cannot raise polarization



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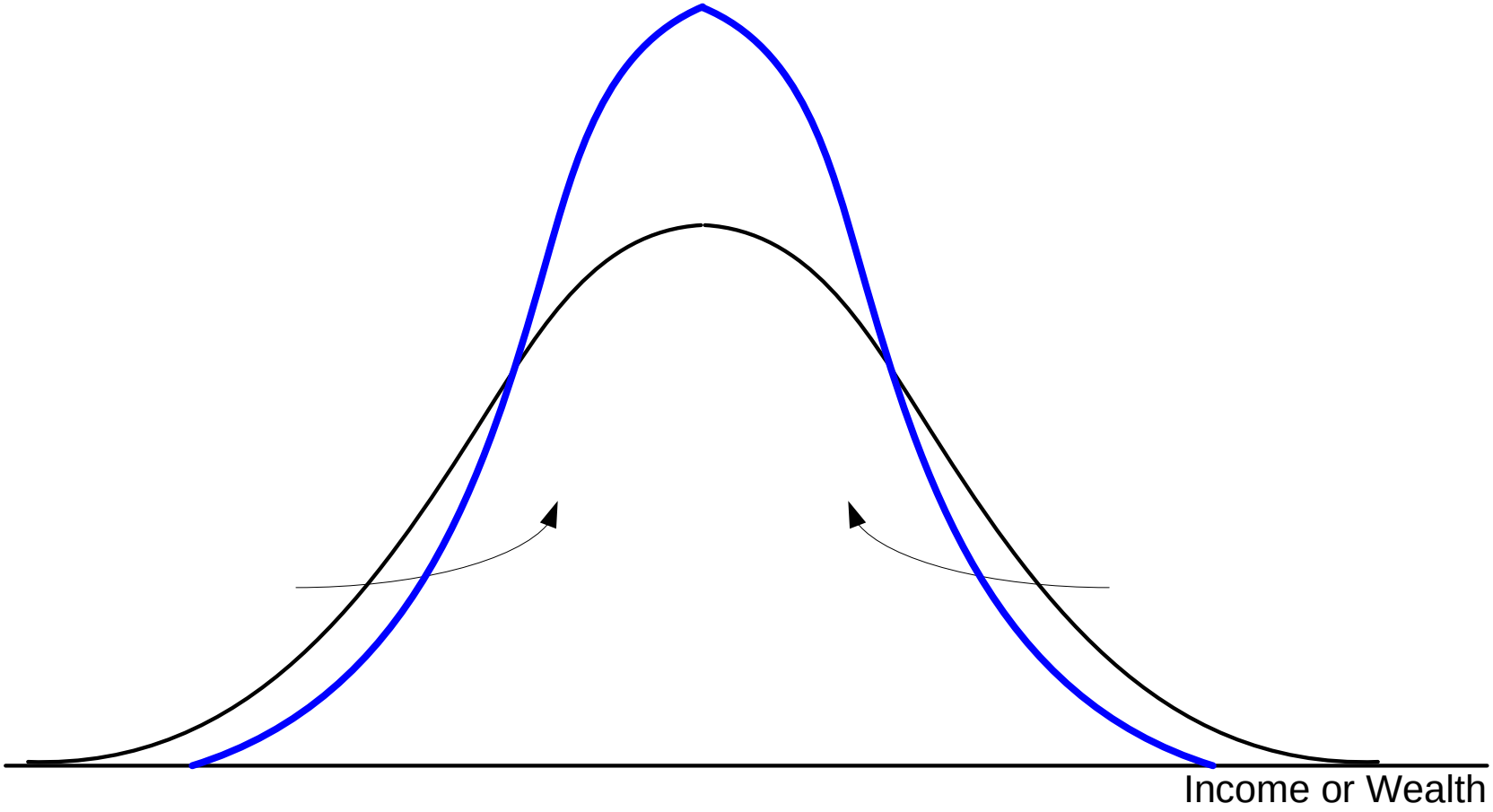

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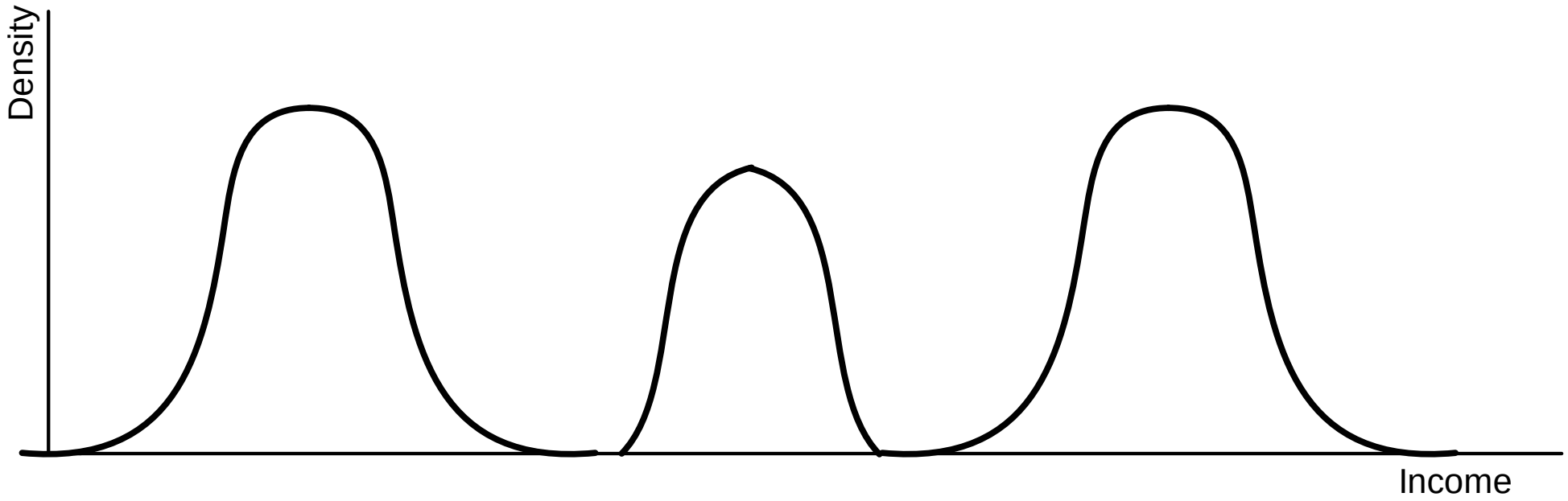

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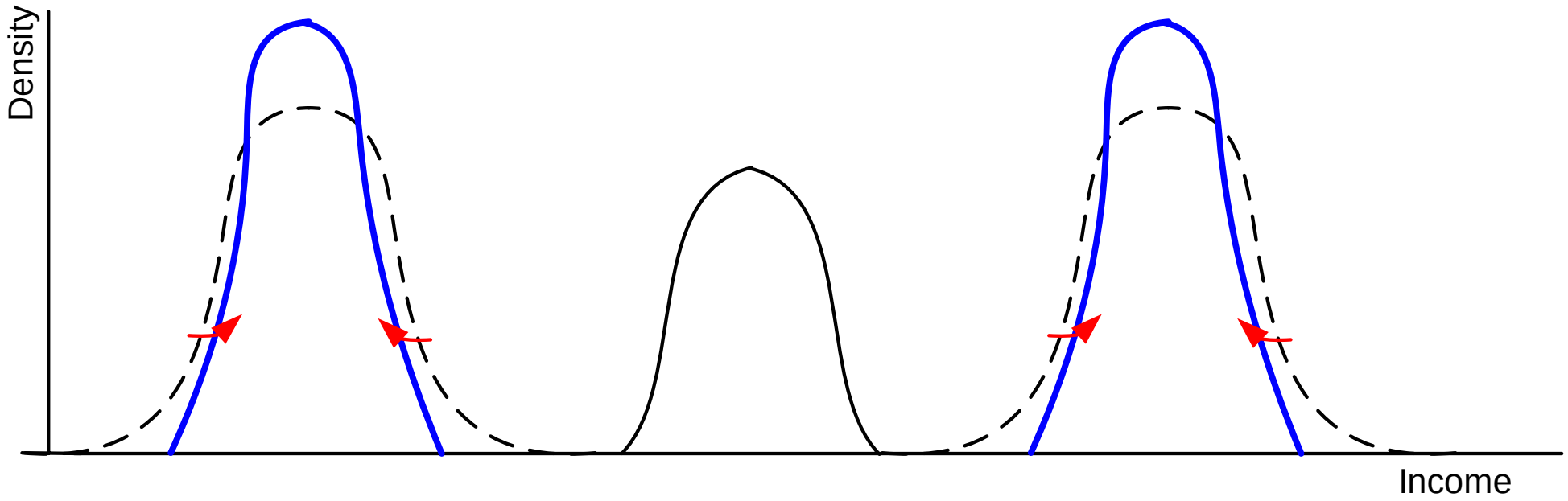
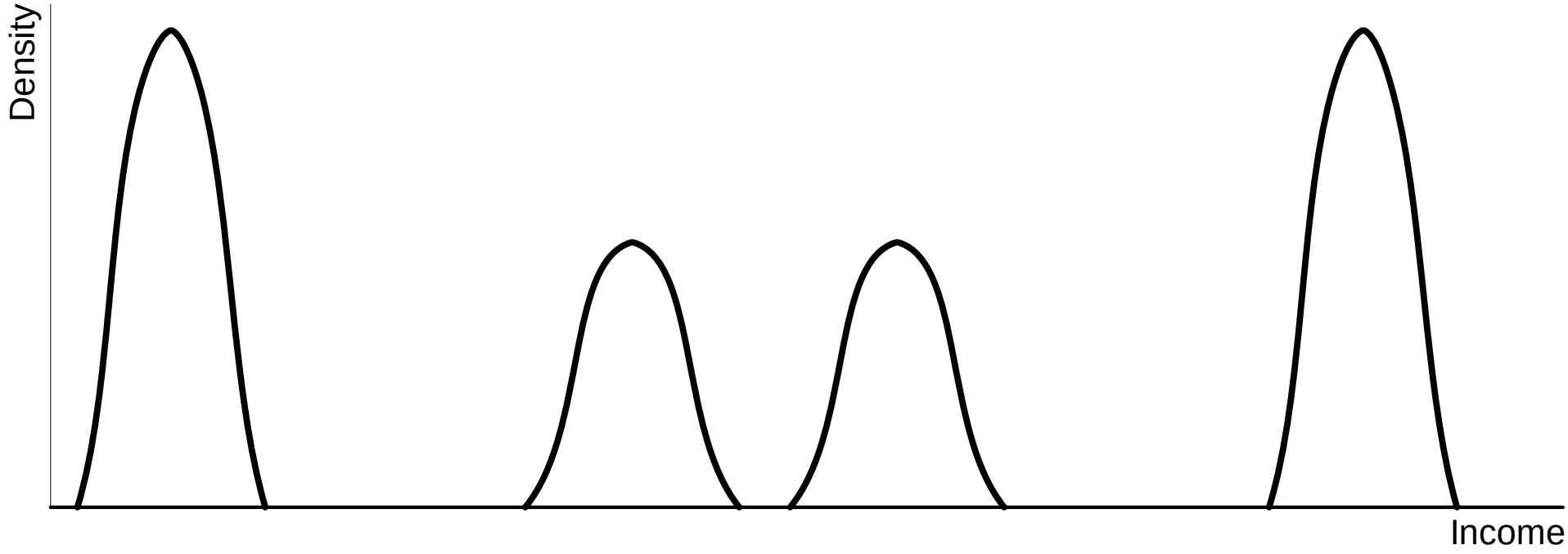


- *Axiom 3.* Consider a *symmetric* distribution composed of four disjoint scalings of the same basic density. "Slide" the two middle densities away from each other. Then polarization must go up.



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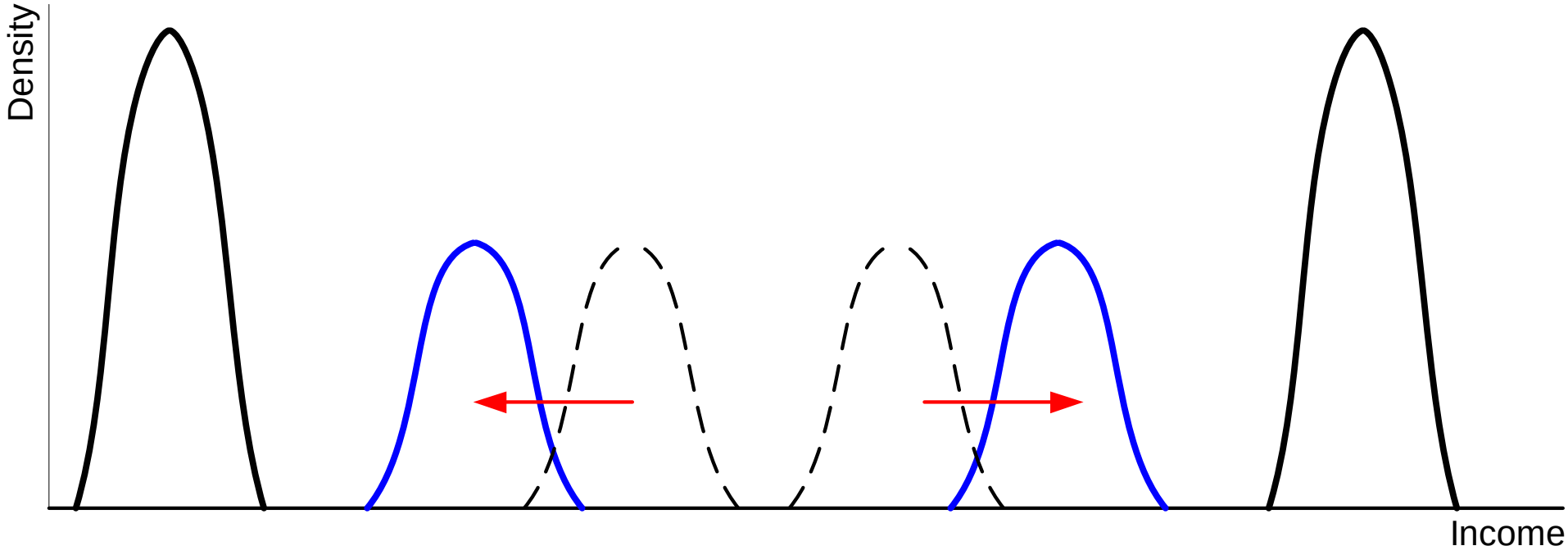

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- Theorem 1. *A polarization measure satisfies Axioms 1–4 if and only if it is proportional to*

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where α *lies between 0.25 and 1.*

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Compare with the Gini / fractionalization index:

- $$\text{Gini} = \sum_x \sum_y n(x)n(y)|y-x|,$$

- It's α that makes all the difference.

Distinctive Properties of Polarization

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- *1. Bimodality.* Polarization maximal for bimodal distributions, but defined of course over all distributions.

- *2. Globality.* The local "merger" of two groups has effects that depend on the shape of the distribution elsewhere.

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- For instance . . .

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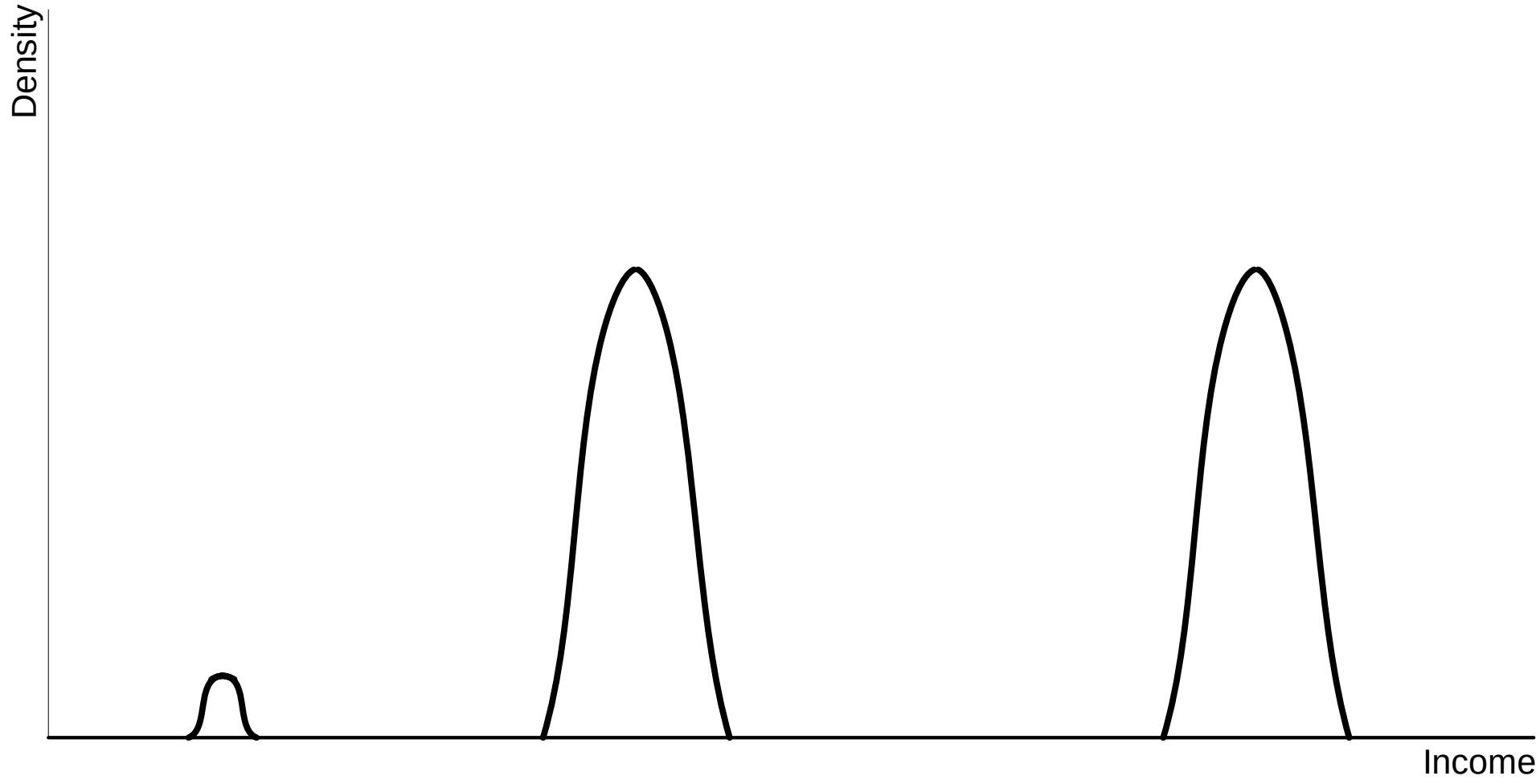

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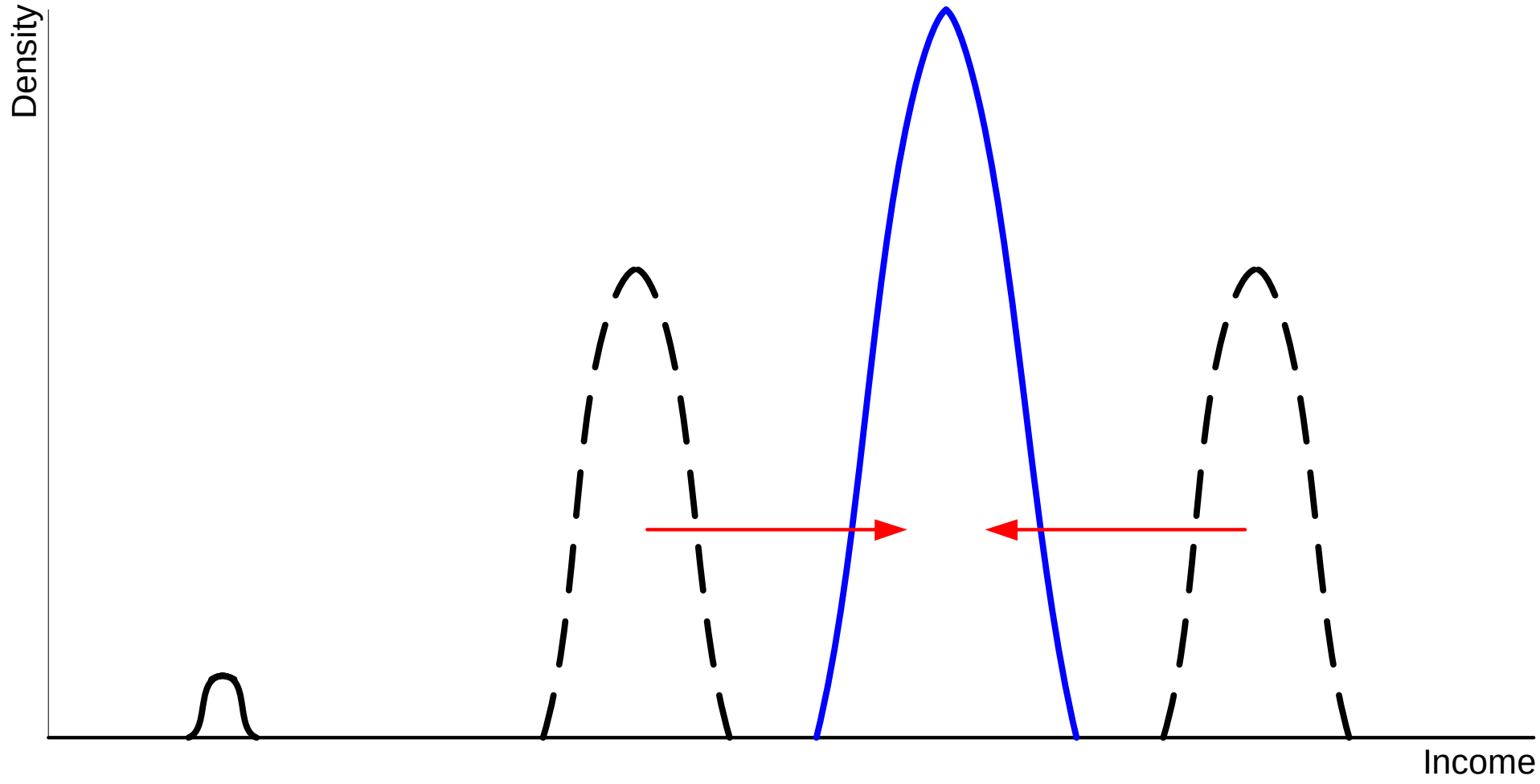

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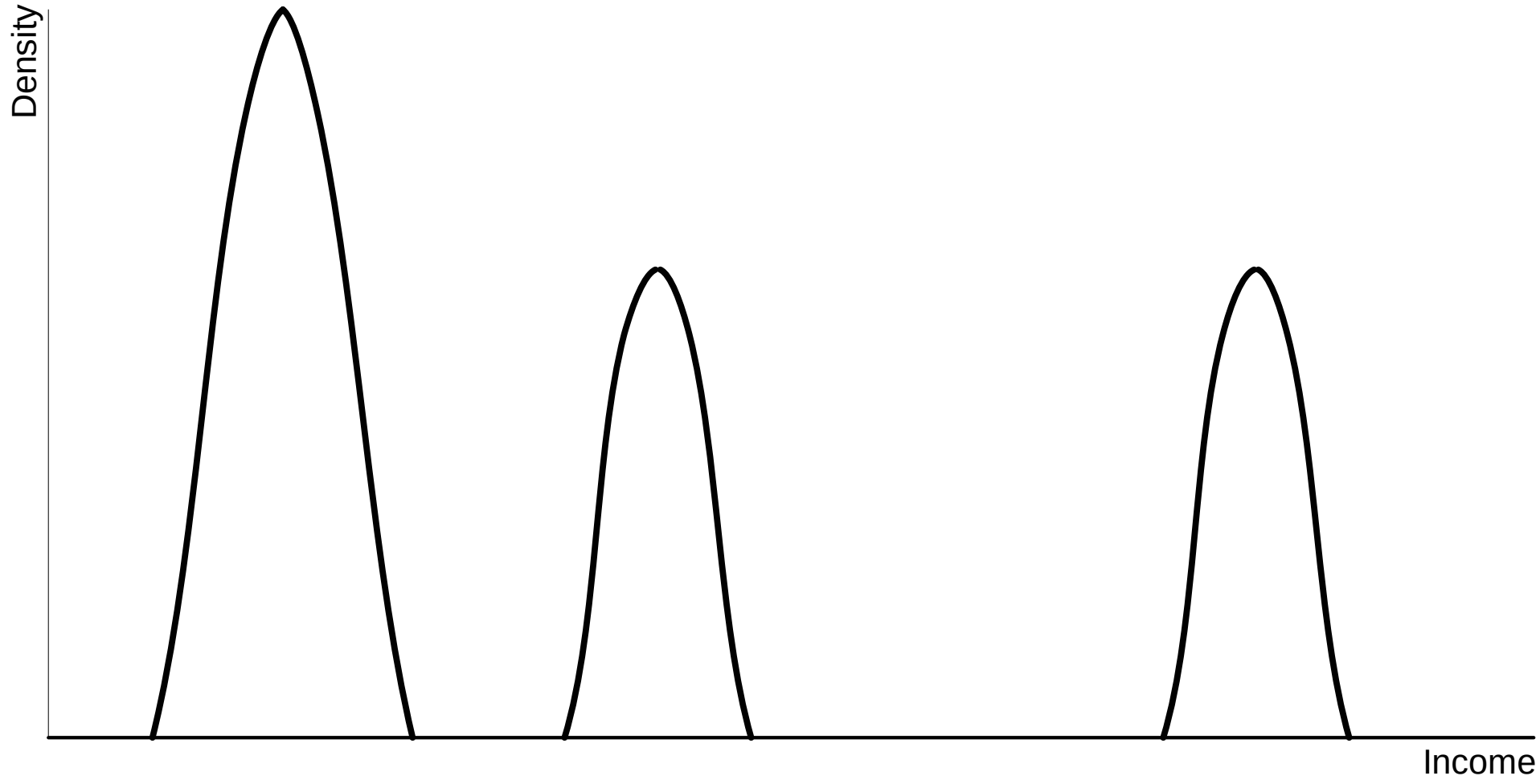

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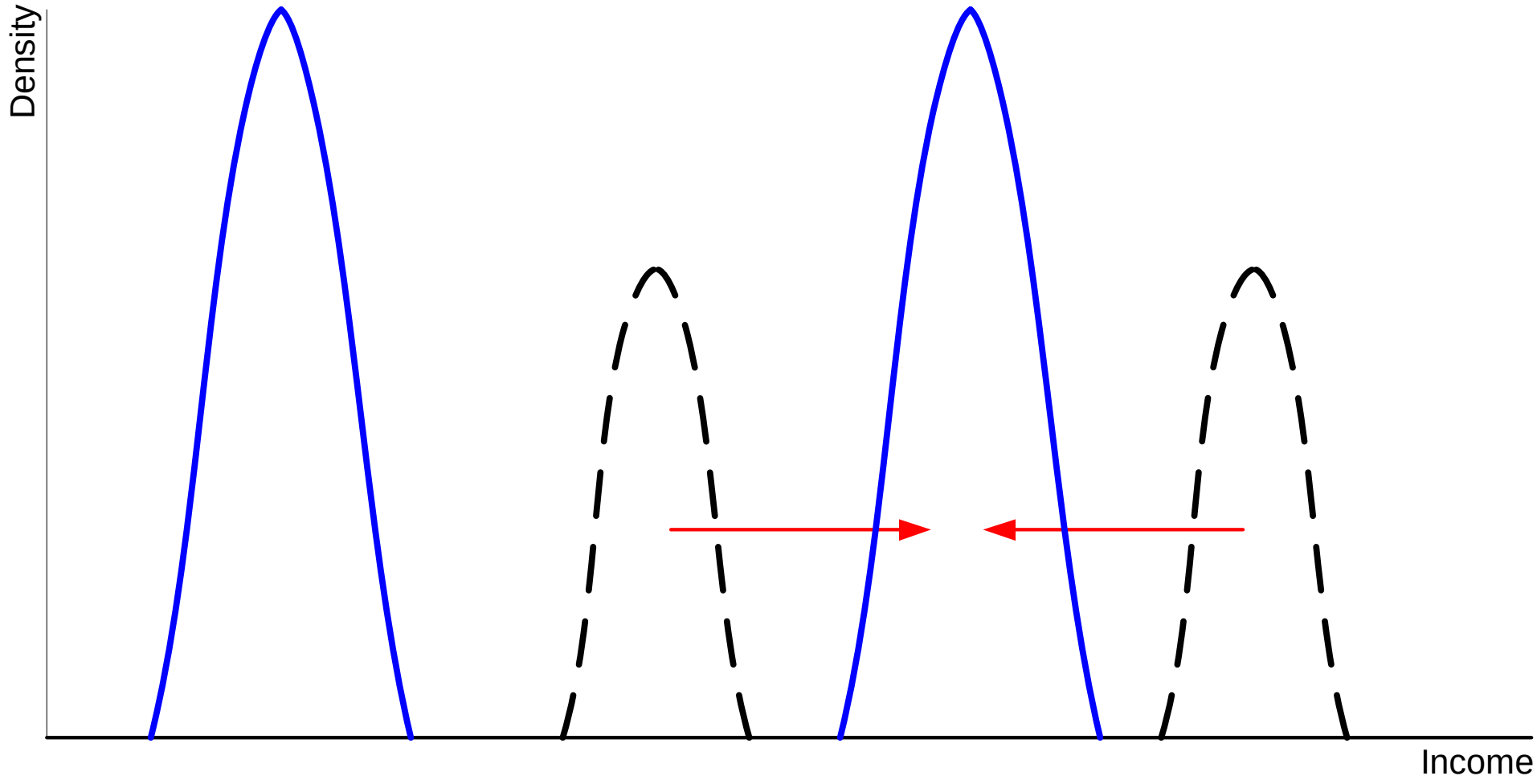

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- Family of possible values of α.

- Can be narrowed further behaviorally or axiomatically.

[Axiomatic]

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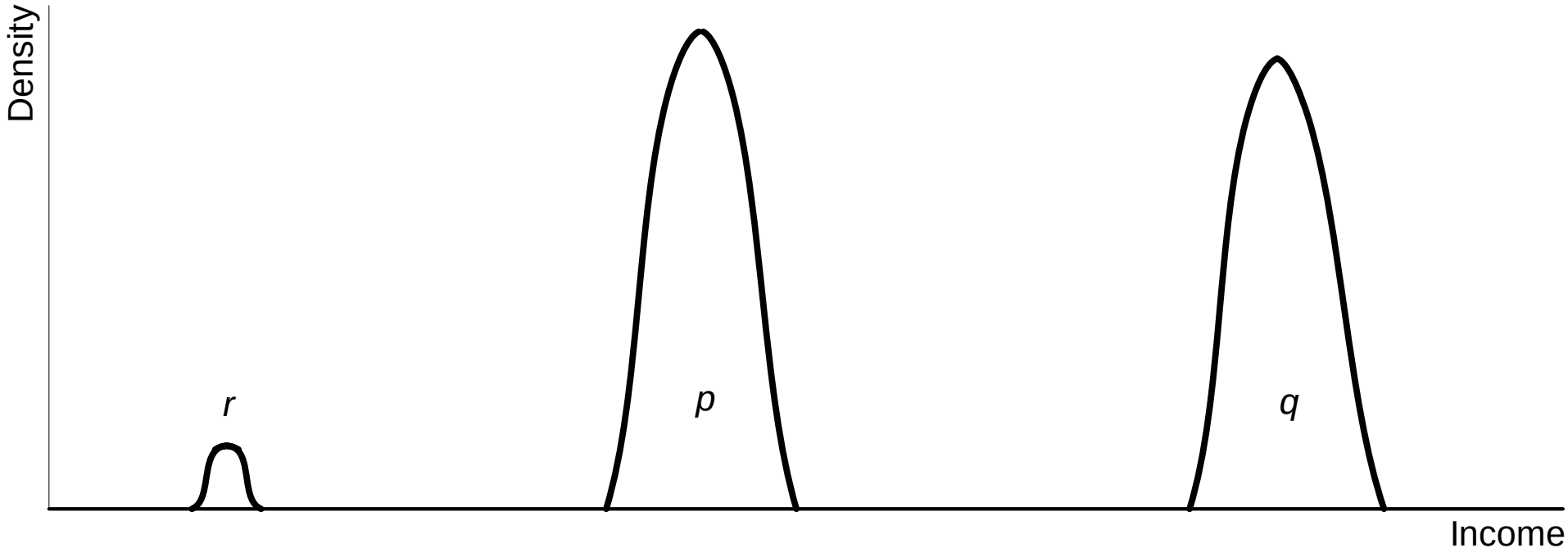
- *Axiom 5.* If $p > q$ but $p - q$ is small and so is r, a small shift of mass from r to q cannot reduce polarization.



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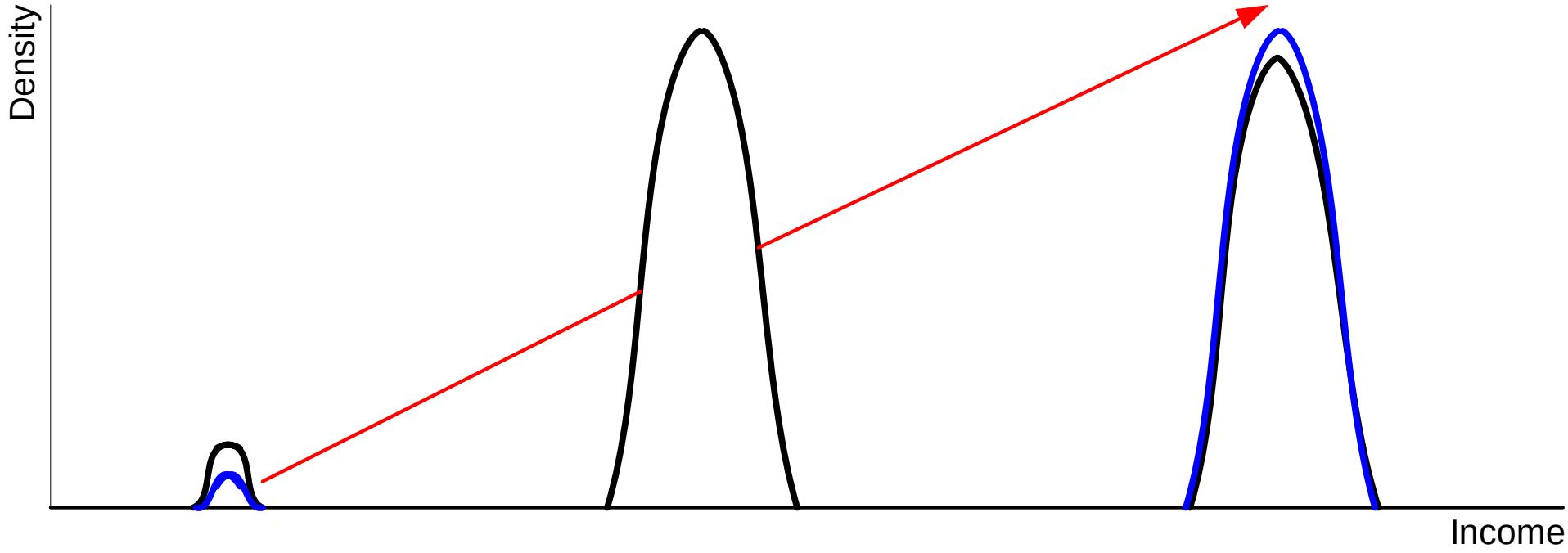

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- If all inter-group distances are binary, then

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

Theories of Conflict

A behavioral model linking conflict to distribution

(will return to empirical connections)

Polarization and Conflict: Behavior

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- 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.

I discuss the theory first (based on Esteban and Ray (2009)).

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- The chances of winning depend on group resources vested in conflict. Members of the group contribute these costly resources.

- The total contributions (per-capita) is our measure of *conflict*.

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- The remainder $1 - \lambda$ is privately divided among the winning group.

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- (in case some other group j wins).
- [Win probability proportional to group resources.]

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- Another extreme: there is full intra-group cohesion and individual contributions maximize *group* payoffs.

- Intermediate situations: define person k's *extended utility* by

$$(1-\alpha) \text{ Own Payoff } + \alpha \text{ Group Payoff },$$

where α lies between 0 and 1.

- Interpretations for α: (i) intragroup concern or altruism (ii) group cohesion.

- *Equilibrium.* A collection of individual contributions where for every individual, her contribution maximizes

$$(1-\alpha)\text{ Own Payoff }+\alpha\text{ Group Payoff }.$$

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$$(1-\alpha)\ \text{Own Payoff}\ +\alpha\ \text{Group Payoff}\ .$$

- To state main result of this section, recall:

$$G=\sum_{j=1}^{m}\sum_{i=1}^{m}n_i n_j\delta_{ij}\ \text{[Gini]},$$

$$F=\sum_{i=1}^{m}n_i(1-n_i)\ \text{[Frac]},$$

$$P=\sum_{i=1}^{m}\sum_{j=1}^{m}n_i^2 n_j\delta_{ij}\ \text{[Pol]}.$$

where $\delta_{ij}\equiv u_{ii}-u_{ij}$.

- And just one definition: for each i, let

$$\gamma_i \equiv \frac{\text{win probability for } i}{n_i}.$$

- These are the *correction ratios.*

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- These are the *correction ratios.*

- Theorem 4. *Approximate every correction ratio by 1. Then per-capita conflict is a linear function of Gini, fractionalization, and squared polarization:*

$$\text{Conflict} \approx \omega_1 + \omega_2 G + \alpha[\lambda P + (1-\lambda)F],$$

where

$\omega_1 \equiv (1-\lambda)(1-\alpha)(m-1)/N$ and $\omega_2 \equiv \lambda(1-\alpha)/N$.

- Per-capita conflict $\approx \omega_1 + \omega_2 G + \alpha[\lambda P + (1-\lambda)F]$.

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- When population is large, only F and P matter: $(\omega_1, \omega_2) \to 0$ as $N \to \infty$.

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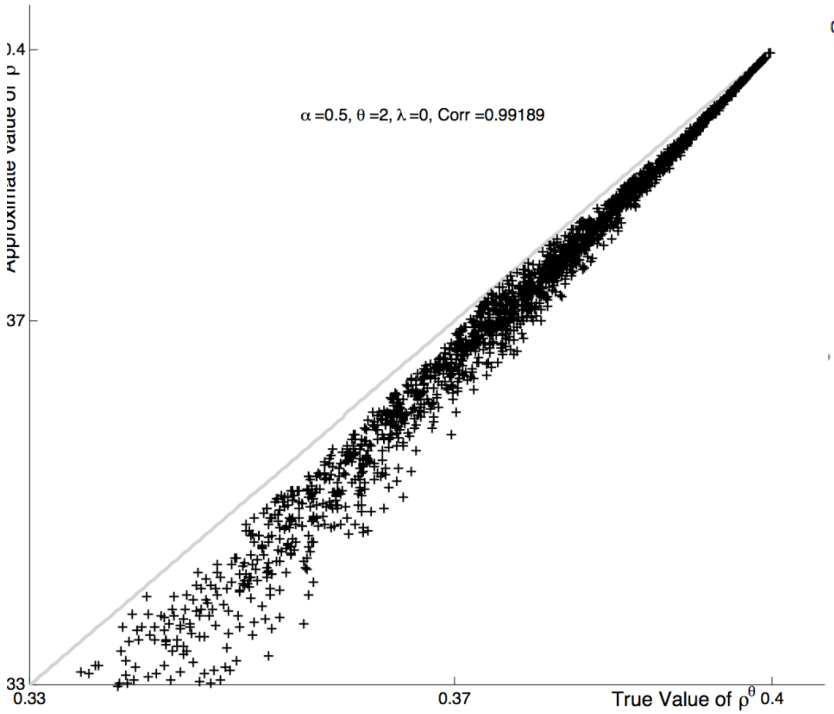
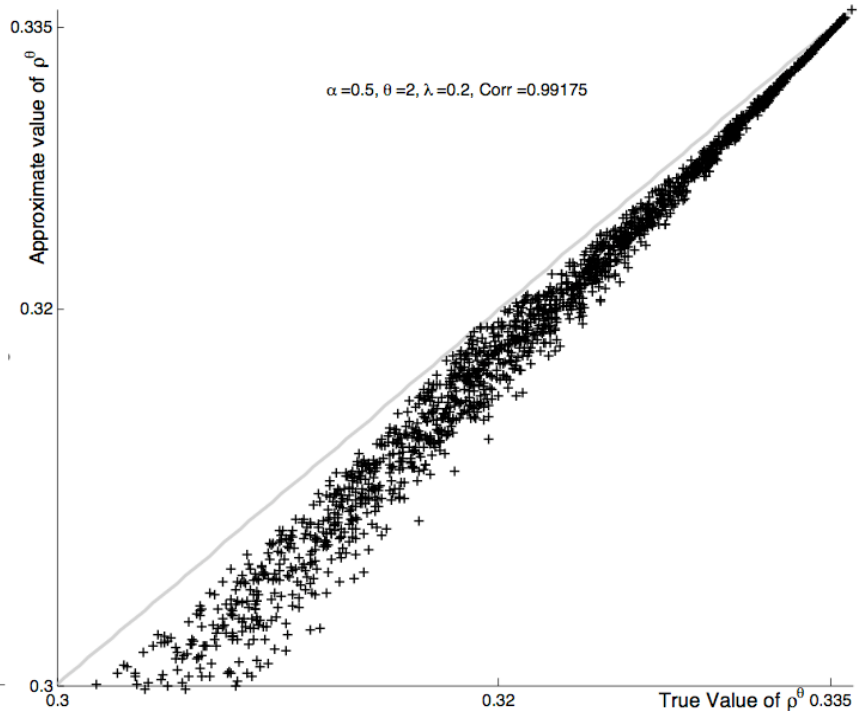
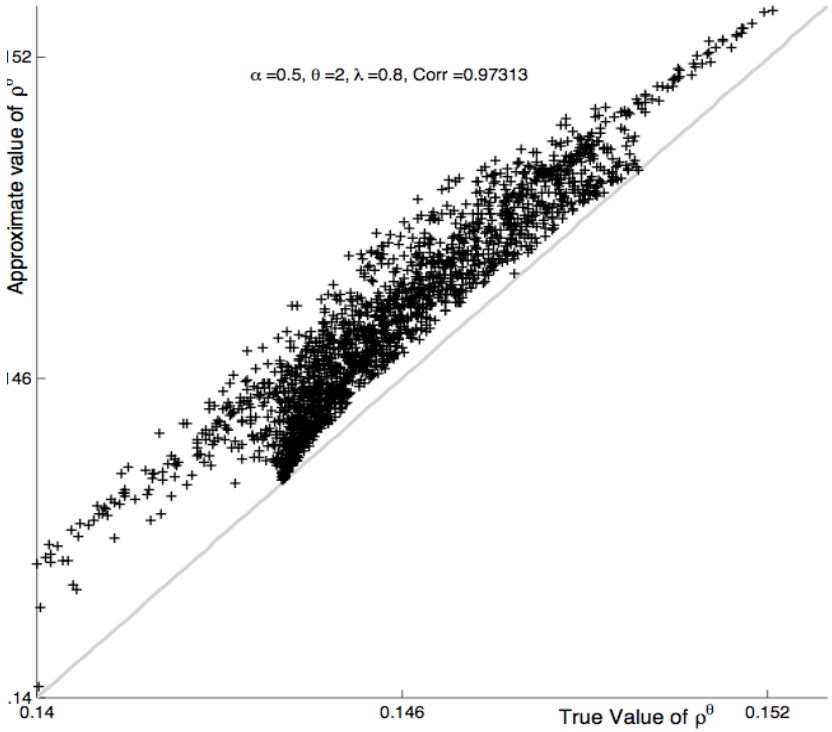
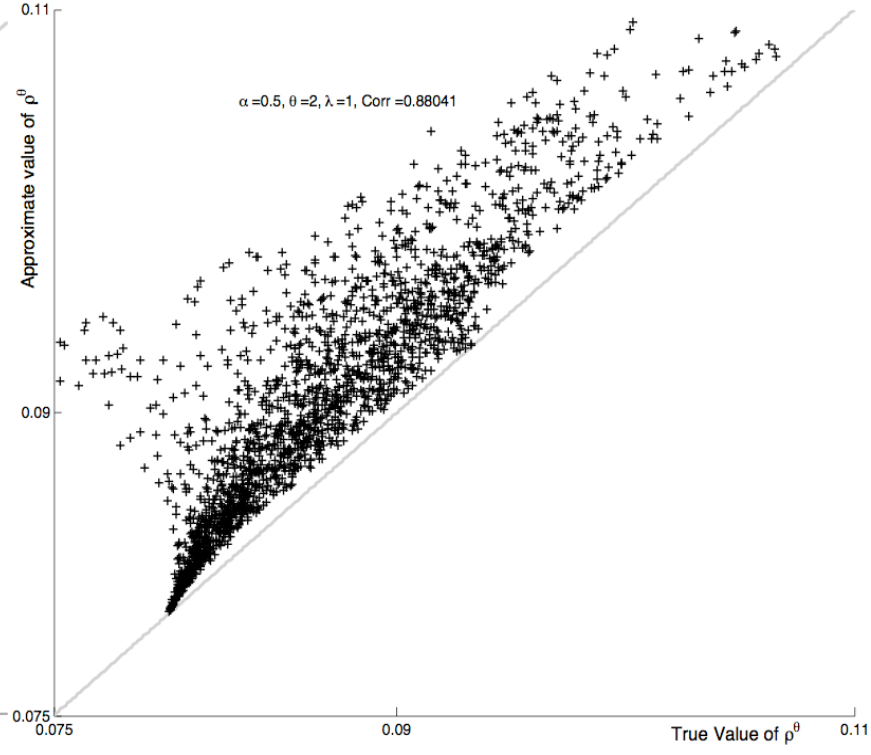
- Can numerically simulate the model to see how good the approximation is.

Contests, quadratic costs, large populations, λ various:

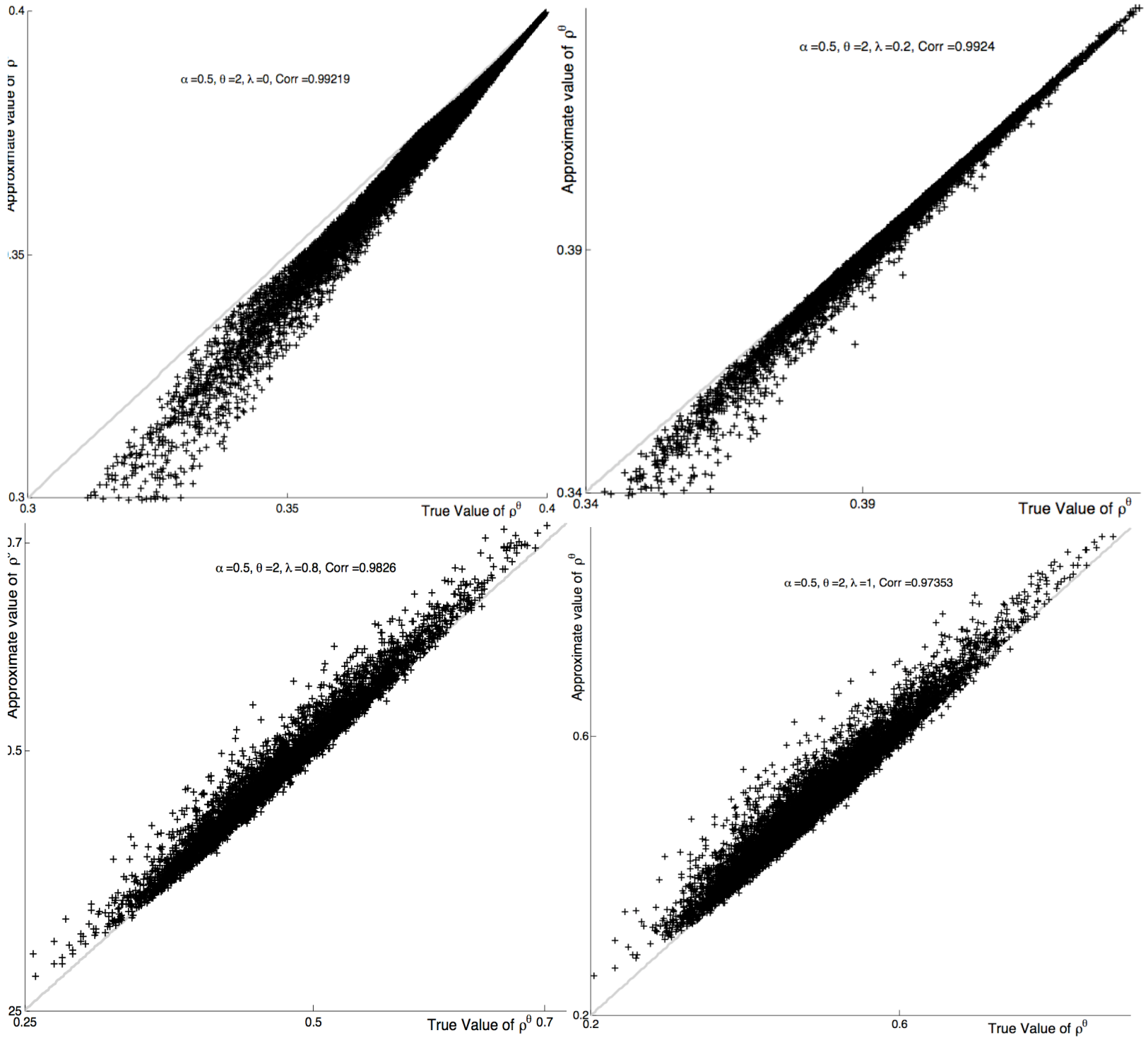




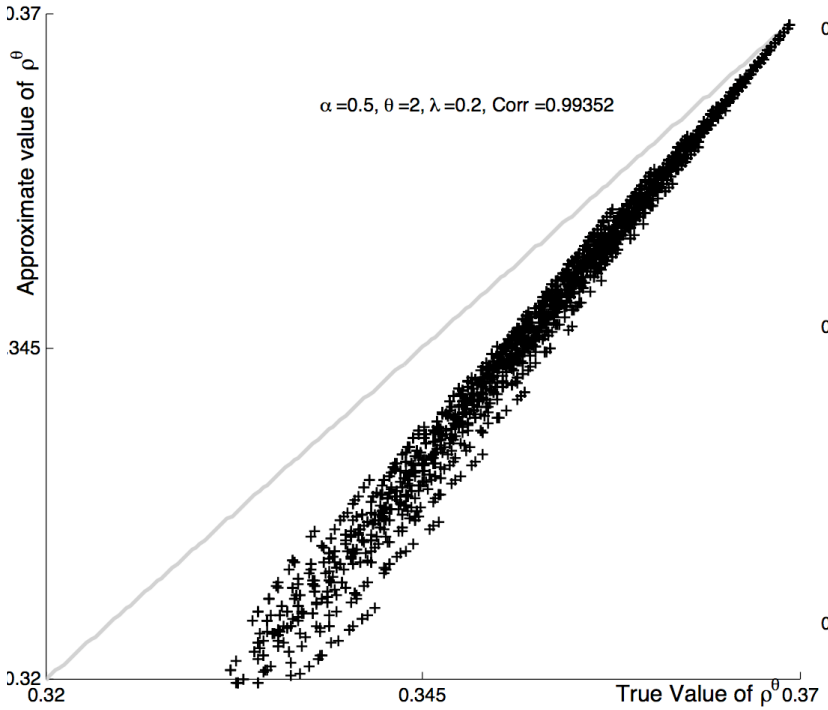


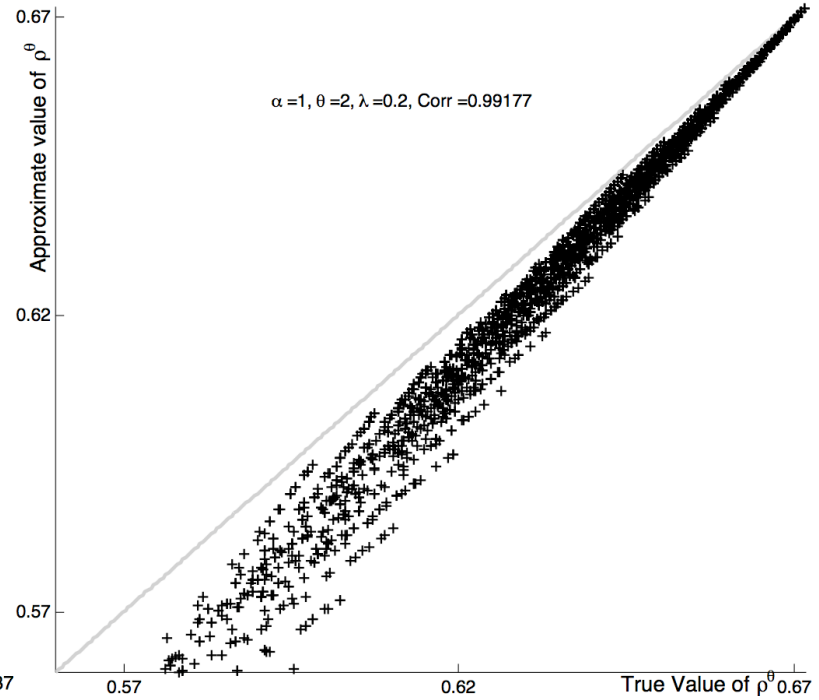


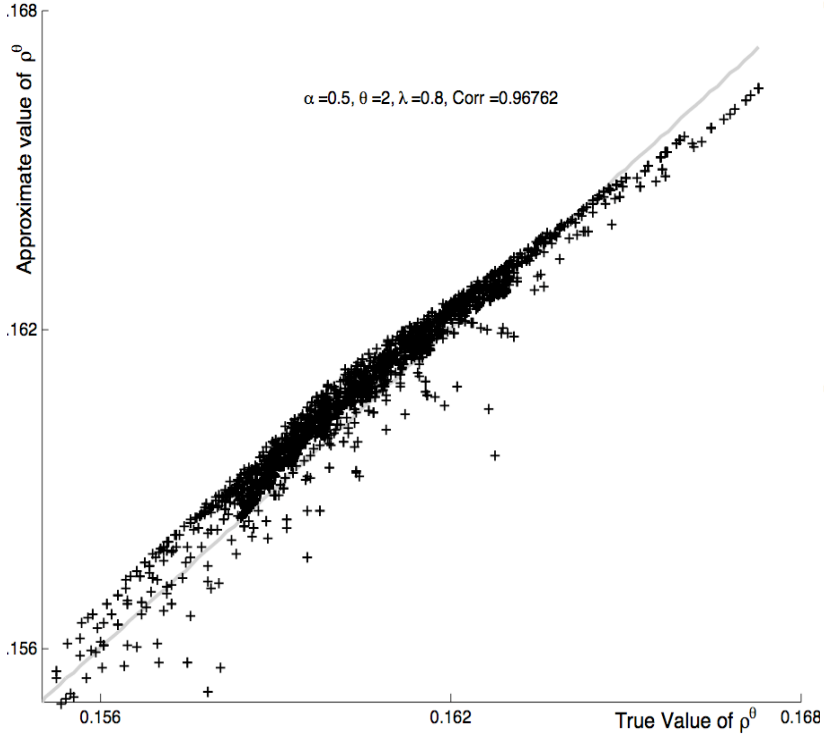
Distances, quadratic costs, large populations, λ various:

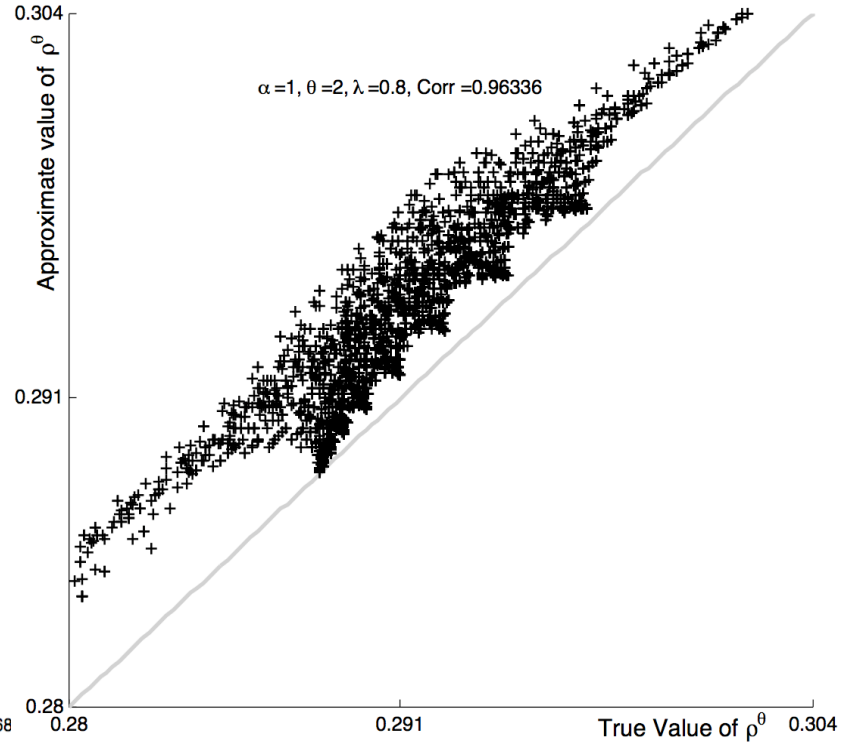


Small populations, λ various:

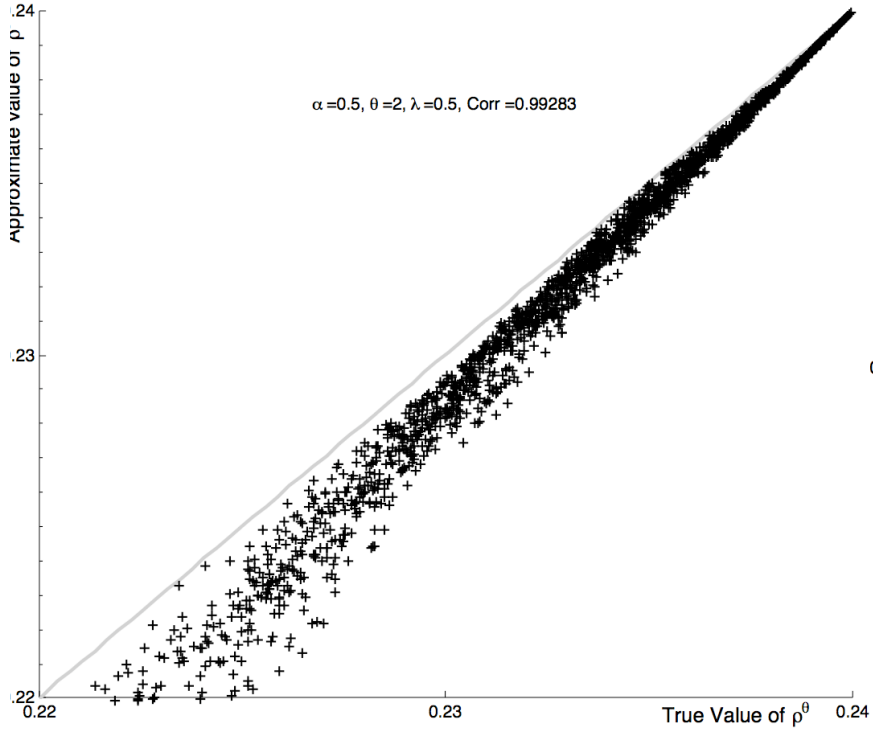


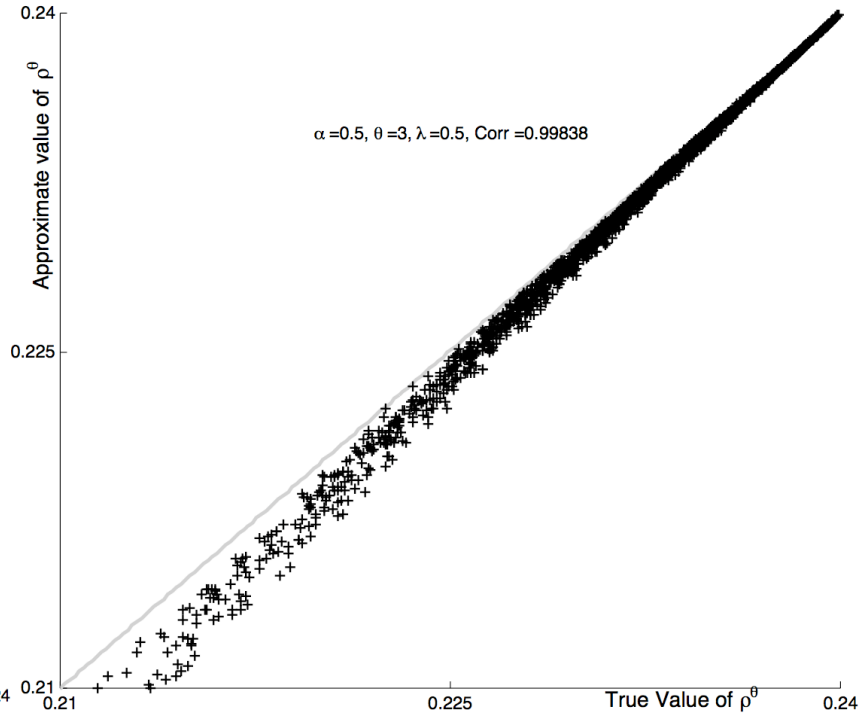


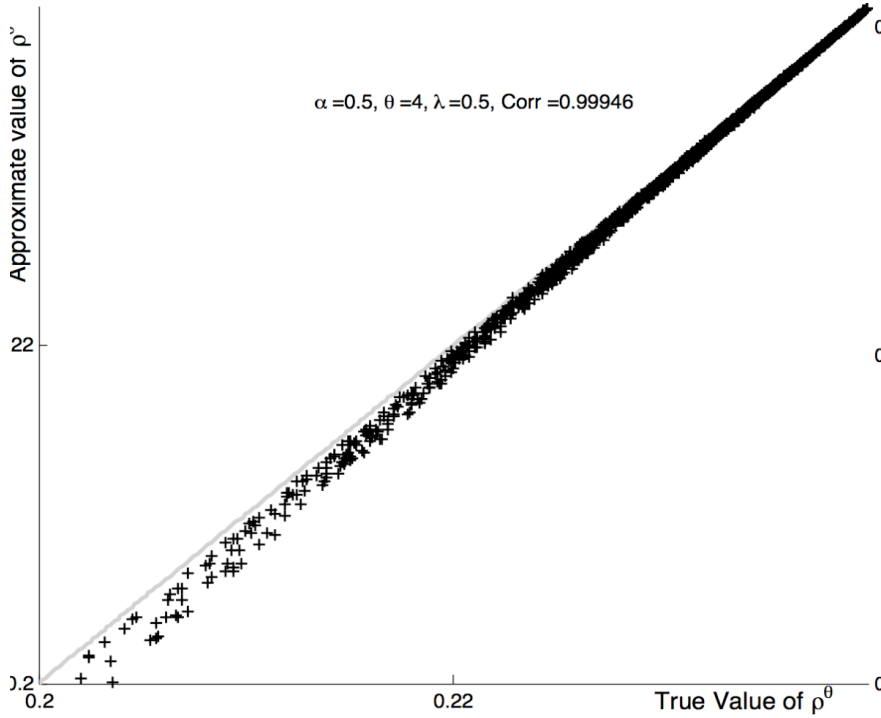


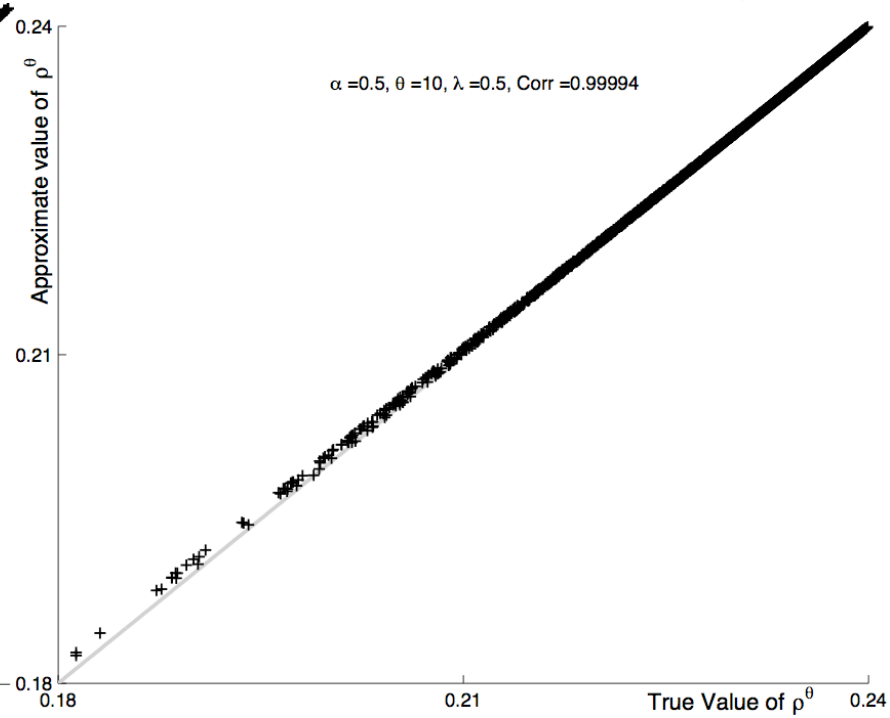


Nonquadratic costs, large populations, λ various:









- Empirical investigation based on Montalvo and Reynal-Querol, *AER* (2005).

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- Compare with fragmentation:

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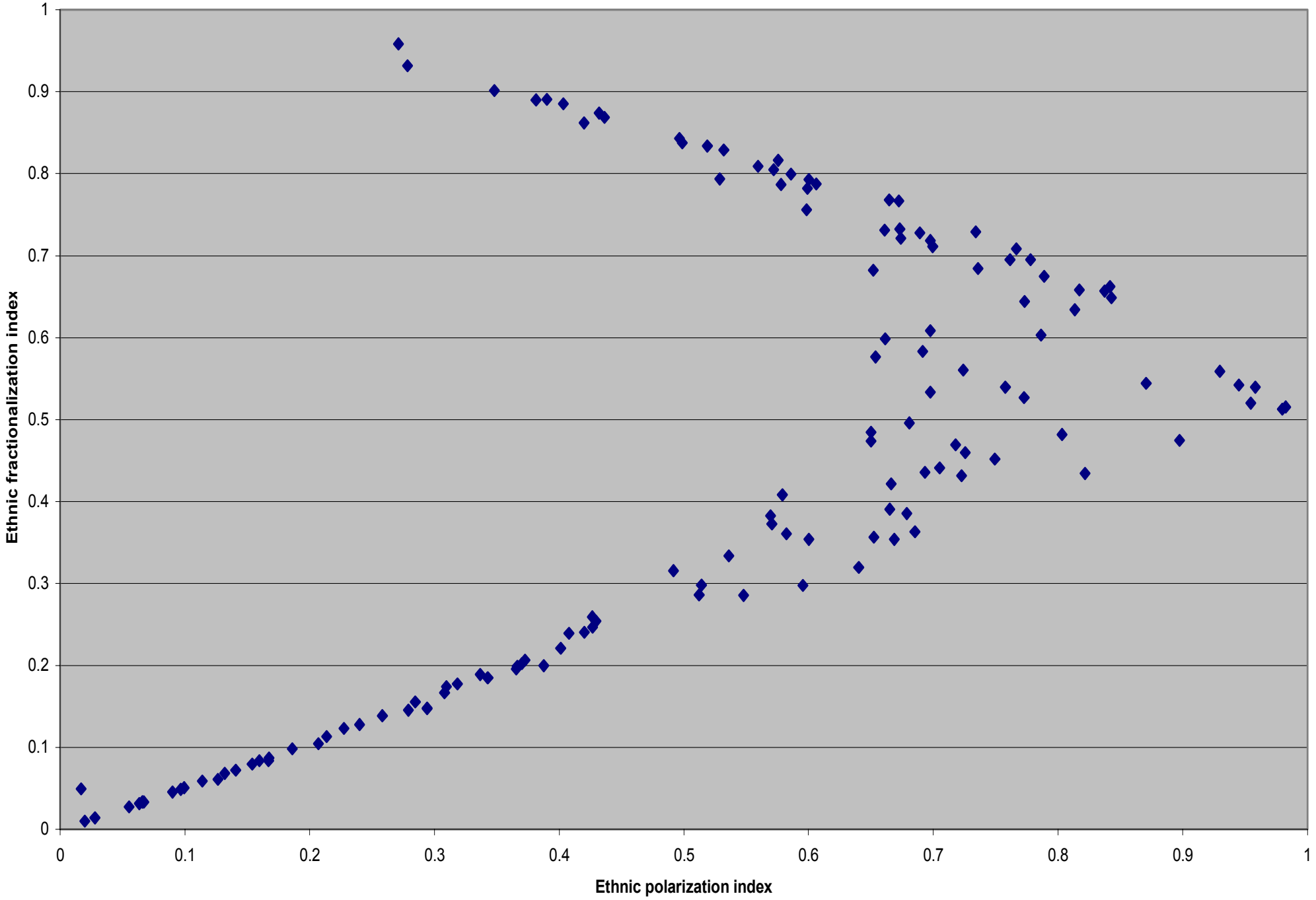
- The difference isn't just theoretical . . .


Ethnic fractionalization index
Ethnic polarization index
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1

- Guatemala, Sierra Leone: ethnic polarization high but ethnic fractionalization low

(Guatemala: 55% Mestizo or Ladino, 42% Maya, 3% other)

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- Remarks on ethnolinguistic polarization (follow Fearon (2003) on linguistic distances).

- New regression as in Fearon-Laitin (2003) and Collier-Hoeffler (2004) but with polarization included.

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- 138 countries, 1960–1999.

- Dependent variable: incidence of a civil war over a five year period.

- (Remarks on incidence versus onset.)

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- 138 countries, 1960–1999.

- Dependent variable: incidence of a civil war over a five year period.

- (Remarks on incidence versus onset.)

- PRIO dataset for civil wars, 25 yearly deaths criterion (and 1000 overall).

- *Explanatory Variables* include
  - per-capita income
  - population size
  - terrain (proxy for ease of insurgency)
  - primary exports (proxy for payoff in event of victory)
  - democracy indicators
- . . . and of course indices of ethnic or religious polarization

- First run a logit of war on ethnic fractionalization

	[1]	[2]	[3]	[4]
EthFrac	0.81			
	(2.04)			
LogPcGdp	-0.62			
	(5.07)			
Constant	2.47			
	(2.47)			
Pseu R^2	0.07			
Obs	860			

	[1]	[2]	[3]	[4]
EthFrac	0.81	0.22		
	(2.04)	(0.53)		
LogPcGdp	-0.62	-0.76		
	(5.07)	(5.90)		
Constant	2.47	-0.42		
	(2.47)	(0.38)		
LogPop		0.46		
		(6.75)		
Pseu R^2	0.07	0.15		
Obs	860	860		

	[1]	[2]	[3]	[4]
EthFrac	0.81	0.22	-0.18	
	(2.04)	(0.53)	(0.16)	
LogPcGdp	-0.62	-0.76	-0.79	
	(5.07)	(5.90)	(5.96)	
Constant	2.47	-0.42	-0.18	
	(2.47)	(0.38)	(0.16)	
LogPop		0.46	0.46	
		(6.75)	(6.03)	
PrimExp			0.25	
			(0.26)	
Pseu R^2	0.07	0.15	0.15	
Obs	860	860	840	

	[1]	[2]	[3]	[4]
EthFrac	0.81	0.22	-0.18	0.49
	(2.04)	(0.53)	(0.16)	(0.97)
LogPcGdp	-0.62	-0.76	-0.79	-0.93
	(5.07)	(5.90)	(5.96)	(5.40)
Constant	2.47	-0.42	-0.18	1.57
	(2.47)	(0.38)	(0.16)	(0.94)
LogPop		0.46	0.46	0.35
		(6.75)	(6.03)	(3.69)
PrimExp			0.25	0.50
			(0.26)	(0.48)
Mountains				0.00
				(1.67)
NonContiguous				-0.20
				(0.61)
Democracy				0.49
				(1.87)
Pseu R^2	0.07	0.15	0.15	0.14
Obs	860	860	840	741

- Now for the logit using ethnic polarization

	[1]	[2]	[3]	[4]
EthPol	1.56			
	(3.31)			
LogPcGdp	-0.71			
	(6.16)			
Constant	2.65			
	(3.01)			
Pseu R^2	0.09			
Obs	860			

	[1]	[2]	[3]	[4]
EthPol	1.56	1.95		
	(3.31)	(3.76)		
LogPcGdp	-0.71	-0.77		
	(6.16)	(6.53)		
Constant	2.65	-1.56		
	(3.01)	(1.47)		
LogPop		0.49		
		(7.15)		
Pseu R^2	0.09	0.17		
Obs	860	860		

	[1]	[2]	[3]	[4]
EthPol	1.56	1.95	1.98	
	(3.31)	(3.76)	(3.71)	
LogPcGdp	-0.71	-0.77	-0.78	
	(6.16)	(6.53)	(6.57)	
Constant	2.65	-1.56	-1.43	
	(3.01)	(1.47)	(1.27)	
LogPop		0.49	0.48	
		(7.15)	(6.46)	
PrimExp			-0.09	
			(0.09)	
Pseu R^2	0.09	0.17	0.17	
Obs	860	860	840	

	[1]	[2]	[3]	[4]
EthPol	1.56	1.95	1.98	1.82
	(3.31)	(3.76)	(3.71)	(3.23)
LogPcGdp	-0.71	-0.77	-0.78	-0.93
	(6.16)	(6.53)	(6.57)	(5.50)
Constant	2.65	-1.56	-1.43	-0.93
	(3.01)	(1.47)	(1.27)	(0.16)
LogPop		0.49	0.48	0.38
		(7.15)	(6.46)	(4.33)
PrimExp			-0.09	0.17
			(0.09)	(0.16)
Mountains				0.00
				(1.13)
NonContiguous				-0.00
				(0.00)
Democracy				0.41
				(1.58)
Pseu R^2	0.09	0.17	0.17	0.16
Obs	860	860	840	741

- Ethnic polarization not just significant; the effect is pretty big too.

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- If polarization raised from 0.51 (the average) to 0.95 (Nigeria) the predicted probability of conflict doubles.

- [An increase by one standard deviation (0.24) raises conflict probability by 50%.]

- Try the same logit with religious variables instead

	[1]	[2]	[3]	[4]
RelFrac	1.41			
	(2.31)			
LogPcGdp	-0.61			
	(4.91)			
Constant	1.53			
	(1.42)			
Pseu R^2	0.10			
Obs	853			

	[1]	[2]	[3]	[4]
RelFrac	1.41	0.53		
	(2.31)	(0.76)		
LogPcGdp	-0.61	-0.84		
	(4.91)	(5.75)		
Constant	1.53	-1.24		
	(1.42)	(0.97)		
LogPop		0.50		
		(6.41)		
Pseu R^2	0.10	0.16		
Obs	853	853		

	[1]	[2]	[3]	[4]
RelFrac	1.41	0.53	0.35	
	(2.31)	(0.76)	(0.49)	
LogPcGdp	-0.61	-0.84	-0.87	
	(4.91)	(5.75)	(5.85)	
Constant	1.53	-1.24	-1.15	
	(1.42)	(0.97)	(0.86)	
LogPop		0.50	0.51	
		(6.41)	(5.88)	
PrimExp			0.63	
			(0.61)	
Pseu R^2	0.10	0.16	0.16	
Obs	853	853	833	

	[1]	[2]	[3]	[4]
RelFrac	1.41	0.53	0.35	0.92
	(2.31)	(0.76)	(0.49)	(1.17)
LogPcGdp	-0.61	-0.84	-0.87	-1.03
	(4.91)	(5.75)	(5.85)	(5.27)
Constant	1.53	-1.24	-1.15	0.45
	(1.42)	(0.97)	(0.86)	(0.25)
LogPop		0.50	0.51	0.41
		(6.41)	(5.88)	(4.09)
PrimExp			0.63	1.15
			(0.61)	(1.04)
Mountains				0.01
				(2.17)
NonContiguous				0.10
				(0.31)
Democracy				0.36
				(1.29)
Pseu R^2	0.10	0.16	0.16	0.16
Obs	853	853	833	734

- Contrast with use of religious polarization variable

	[1]	[2]	[3]	[4]
RelPol	1.09			
	(2.93)			
LogPcGdp	-0.57			
	(4.46)			
Constant	1.17			
	(1.10)			
Pseu R^2	0.10			
Obs	853			

	[1]	[2]	[3]	[4]
RelPol	1.09	0.71		
	(2.93)	(1.71)		
LogPcGdp	-0.57	-0.76		
	(4.46)	(5.22)		
Constant	1.17	-1.93		
	(1.10)	(1.52)		
LogPop		0.49		
		(6.36)		
Pseu R^2	0.10	0.17		
Obs	853	853		

	[1]	[2]	[3]	[4]
RelPol	1.09	0.71	0.65	
	(2.93)	(1.71)	(1.50)	
LogPcGdp	-0.57	-0.76	-0.78	
	(4.46)	(5.22)	(5.26)	
Constant	1.17	-1.93	-1.85	
	(1.10)	(1.52)	(1.40)	
LogPop		0.49	0.50	
		(6.36)	(5.75)	
PrimExp			0.41	
			(0.39)	
Pseu R^2	0.10	0.17	0.17	
Obs	853	853	833	

	[1]	[2]	[3]	[4]
RelPol	1.09	0.71	0.65	1.06
	(2.93)	(1.71)	(1.50)	(2.20)
LogPcGdp	-0.57	-0.76	-0.78	-0.98
	(4.46)	(5.22)	(5.26)	(5.08)
Constant	1.17	-1.93	-1.85	0.17
	(1.10)	(1.52)	(1.40)	(0.10)
LogPop		0.49	0.50	0.39
		(6.36)	(5.75)	(3.94)
PrimExp			0.41	0.93
			(0.39)	(0.84)
Mountains				0.01
				(2.12)
NonContiguous				0.16
				(0.47)
Democracy				0.35
				(1.26)
Pseu R^2	0.10	0.17	0.17	0.17
Obs	853	853	833	734

- *Observations are robust to several different specifications*

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- Ethnic polarization significant when entered into same regression with ethnic fractionalization; latter is not.

- Same true if a measure of ethnic dominance (Collier 2001 and Collier and Hoeffler 2002) is used instead.

- Both observations above still true if "ethnic" is replaced by "religious".

- *Also robust to use of different datasets and classifications*

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- World Christian Encyclopedia — used here
- Encyclopedia Britannica
- Atlas Nadorov Mira
- Alternative classifications as in Alesina et al (2003)

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- (measure along each dimension, pick the max)

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- Works even more strongly for genocides
  - (Montalvo and Reynal-Querol *Economic Journal* (2008)).
- *Robust to pure cross-section logits*
  - Incidence of civil war 1960–1995 with base variables from 1960.

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- Discussion so far feeds back to questions about theory

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- If economics drives conflict, why does ethnicity matter at all?

- The view I propose is that ethnicity is a marker to extract a larger share of the economic pie through conflict.

- It is imperative to note that this view does *not* require income differences across ethnic groups!

Aggressors and Victims

Identifying the aggressor using economic data

- Motivated by Hindu-Muslim violence in India (e.g., Gujarat 2002).

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- Poor, low-caste Hindus participated in that violence against the Muslims.

- That violence was funded by the rich Hindus.

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- Poor, low-caste Hindus participated in that violence against the Muslims.

- That violence was funded by the rich Hindus.

- Esteban and Ray AER (2008) study this perverse synergy of inequality.

- Address here a somewhat different question, based on Mitra and Ray (2009).

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- We ask this question of Hindu-Muslim conflict in post-independence India.

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- 2000 Hindu-Muslim riots between 1950–1995 in the Varshney-Wilkinson database.

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- Big spikes in 1992 (Babri Masjid, riots nationwide) and 2002 (Gujarat).

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- Big spikes in 1992 (Babri Masjid, riots nationwide) and 2002 (Gujarat).

- Which group is largely responsible? The question is constantly debated.

A Test for Identifying Aggressors

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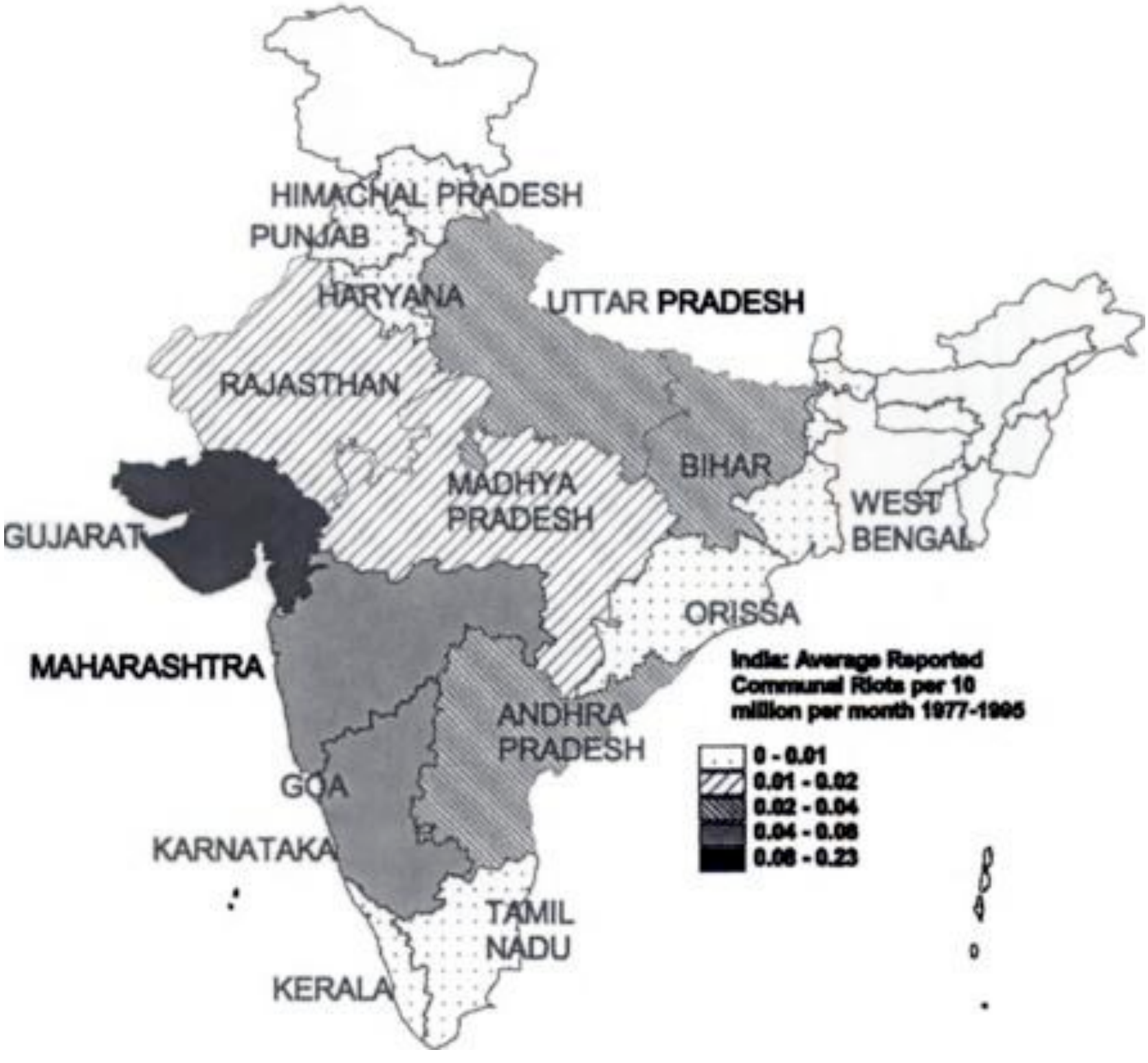
- If Group A is the instigator, then an increase in the incomes of Group B will increase conflict.

- If Group A is the instigator, then an increase in own incomes will have an ambiguous effect on conflict.

- These relationships are testable.

- But methodology is not fully general

- (makes sense when groups have strong economic interactions; e.g., both employed in the same sector.)


HIMACHAL PRADESH
PUNJAB
HARYANA
UTTAR PRADESH
RAJASTHAN
BIHAR
MADHYA PRADESH
WEST BENGAL
GUJARAT
ORISSA
MAHARASHTRA
ANDHRA PRADESH
GOA
KARNATAKA
TAMIL NADU
KERALA
India: Average Reported Communal Riots per 10 million per month 1977-1995
0 - 0.01
0.01 - 0.02
0.02 - 0.04
0.04 - 0.06
0.06 - 0.23

Data

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- On Hindu-Muslim violence: Varshney-Wilkinson based on The Times of India, 1950–1995. Available at the district level.

- On income data: National Sample Survey data on consumption expenditure, 38th round (1983) and 43rd round (1987-8). Generally at the regional level.

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- We have a panel if we are willing to aggregate up to the regional level: 14 states, 55 regions.

- We also investigate a cross-section using the 43rd round.

- Casualties (4-year average) starting three years later

	[1]	[2]	[3]	[4]
Muslim pce	1.94**	1.92**	1.96**	1.95**
	(2.00)	(2.00)	(2.03)	(2.03)
Hindu pce	0.05	-0.01	-0.06	-0.14
	(0.05)	(0.00)	(0.53)	(0.06)
Time	-0.63	-0.70	-0.75	-0.83
	(1.15)	(1.26)	(1.30)	(1.43)
Pop		0.53***	0.41***	0.51***
		(4.87)	(3.62)	(4.6)
Muslim %	0.06**	0.06**		
	(2.38)	(2.38)		
RelPol			2.33**	2.33**
			(2.43)	(2.44)
CurrCasualties		-0.00		-0.00
		(0.67)		(0.67)

- Pop $\uparrow$ 10% $\Rightarrow$ Cas $\uparrow$ 10.5%; Mus exp $\uparrow$ 10% $\Rightarrow$ Cas $\uparrow$ 20%.

- Outbreak (4-year average) starting three years later

	[1]	[2]	[3]	[4]
Muslim pce	1.75**	1.55*	1.45*	1.56*
	(2.19)	(1.94)	(1.84)	(1.95)
Hindu pce	0.93	0.54	0.40	0.62
	(0.88)	(0.65)	(0.53)	(0.74)
Time	0.48	0.04	0.08	0.09
	(1.18)	(0.07)	(0.18)	(0.18)
Pop	0.55***	0.59***	0.53***	0.58***
	(5.11)	(4.83)	(4.94)	(4.70)
Muslim %		0.03	0.04	0.03
		(1.15)	(1.54)	(1.15)
CurrOutbreak			0.05**	
			(2.69)	
CurrCasualties				0.00
				(0.50)

- Pop $\uparrow$ 10% $\Rightarrow$ Out $\uparrow$ 10%; Mus exp $\uparrow$ 10% $\Rightarrow$ Out $\uparrow$ 16.1%.

- Similar results with riot years

- Similar results with region fixed effects (instead of random effects)

- Can go to the district level if willing to sacrifice the panel:

- (322 districts in the 14 states considered, as opposed to 55 regions in the panel)

- Casualties (1990–1993), NSS 43R 1987-88 on RHS

	[1]	[2]	[3]	[4]
Muslim pce	1.22**	1.16**	1.44***	1.38***
	(2.17)	(2.05)	(2.77)	(2.60)
Hindu pce	2.42*	2.30*	2.09	2.00
	(1.81)	(1.76)	(1.62)	(1.59)
Pop	4.62	4.18	4.66	4.27
	(1.52)	(1.36)	(1.53)	(1.38)
Muslim %	0.12**	0.11**		
	(2.50)	(2.35)		
RelPol			4.32**	4.08**
			(3.04)	(2.88)
CurrCasualties			0.01	0.01
			(1.44)	(1.33)

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- Also run the regression on H-M income *ratios*, with strong results.

- Casualties (1990–1993), NSS 43R 1987-88 on RHS

	[1]	[2]	[3]	[4]
H-M expratio	-1.30**	-1.23**	-1.46***	-1.38***
	(2.56)	(2.31)	(2.92)	(2.64)
Average pce	3.71***	3.55**	3.61***	3.48**
	(2.65)	(2.47)	(2.60)	(2.44)
Pop	4.49	4.08	4.50	4.14
	(1.48)	(1.33)	(1.48)	(1.35)
Muslim %	0.12***	0.12**		
	(2.73)	(2.57)		
RelPol			4.53***	4.30***
			(3.31)	(3.13)
CurrCasualties			0.01	0.01
			(1.44)	(1.38)

- More important concern is endogeneity.
- Effect of conflict on Muslim incomes
- Effect of conflict on Hindu incomes
- (should bias the results against us).

- Muslim expenditure NSS 38R and 43R

	[1]	[2]	[3]
CurrCasualties	-0.0005***		
	(4.00)		
CurrOutbreak		-0.011***	
		(3.67)	
CurrRiotYears			-0.046**
			(2.30)
Pop	-0.042	-0.044	0.023
	(0.34)	(0.35)	(0.18)
Muslim %	0.007	0.008	0.008
	(1.17)	(1.6)	(1.33)
Time Dummy	yes	yes	yes

- Effect of *lagged* conflict on Muslim expenditure is also 0.

- Hindu expenditure NSS 38R and 43R

	[1]	[2]	[3]
CurrCasualties	-0.0001		
	(1.14)		
CurrOutbreak		-0.0022	
		(1.18)	
CurrRiotYears			-0.197
			(1.32)
Pop	-0.061	-0.062	0.030
	(0.54)	(0.56)	(0.24)
Muslim %	-0.006	0.006	0.005
	(1.58)	(1.50)	(1.47)
Time Dummy	yes	yes	yes

- Effect of *lagged* conflict on Hindu expenditure is also 0.

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- Several authors have advanced cultural explanations for underdevelopment.

- Extending this line, scholars have suggested links between conflict and ethnic differences.

- But studies that employ a well-known measure of ethnic and religious fragmentation show no links with conflict. [Though there are links with economic growth.]

- I argue for the use of a very different measure — a *polarization index*.

- The measure has a philosophical foundation — the *identity-alienation* framework — which may turn out to be useful in other applications.

- A simple yet general behavioral model of conflict then links predicted conflict closely to polarization and fractionalization.
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  - The former link is larger, the larger the importance of "public goods" (broadly defined).
- I then discuss an empirical study which uses this polarization measure to exhibit a robust and positive relationship between (ethnic or religious) polarization and the incidence of conflict.
- Finally, I discuss an economic test for identifying aggressors in conflict, and apply this to Hindu-Muslim conflict in India.
  - The test strongly suggests that Hindus have been the aggressors.