Beyond the Market: Economic Disparities and Conflict[†]

Debraj Ray, NYU

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[†]Thanks to Joan Esteban and Laura Mayoral for letting me freely draw on our joint work.

BEYOND THE MARKET

Reactions to Uneven Economic Change:

- Occupational choice versus political economy

Within-Country Conflict

- Sustained, organized violence across groups
- or between some "group" and the State
- A precise definition would be useful, but not central to this talk.
- E.g., PRIO threshold: 25 battle deaths per year
- I am just as (or more) interested in low level "simmering" violence.

WITHIN-COUNTRY VIOLENCE

Low-level persistent violence that stops short of full conflict; e.g.,

- Hindu-Muslim
- ETA
- Racial unrest in the US
- Anti-immigrant sentiment

And of course, open conflicts, such as:

- Sinhala-Tamil civil war
- Bosnian war
- The French Wars of Religion
- Rwandan genocide

OUTLINE

- Some underlying (mis)perceptions Background reading: Esteban and Ray 2017
- A theoretical framework for conflict
- Some empirical questions

Three (Mis)Perceptions

THREE (MIS)PERCEPTIONS

I. Aggregate Development Lowers Conflict:

Collier-Hoeffler 1998, 2004; Fearon-Laitin 2003, Miguel-Satyanath-Sergent 2004

- Typically cross-section comparisons, often incomplete.
- Economic growth could well be conflictual; e.g.:
- Grabbing versus opportunity cost:

  oil revenues (Dube-Vargas 2013); Hindu-Muslim violence (Mitra-Ray 2014)
- Frustrated aspirations

  "The French found their position all the more intolerable as it became better."

  de Tocqueville 1856

THREE (MIS)PERCEPTIONS

II. Economic Inequality is Conflictual.

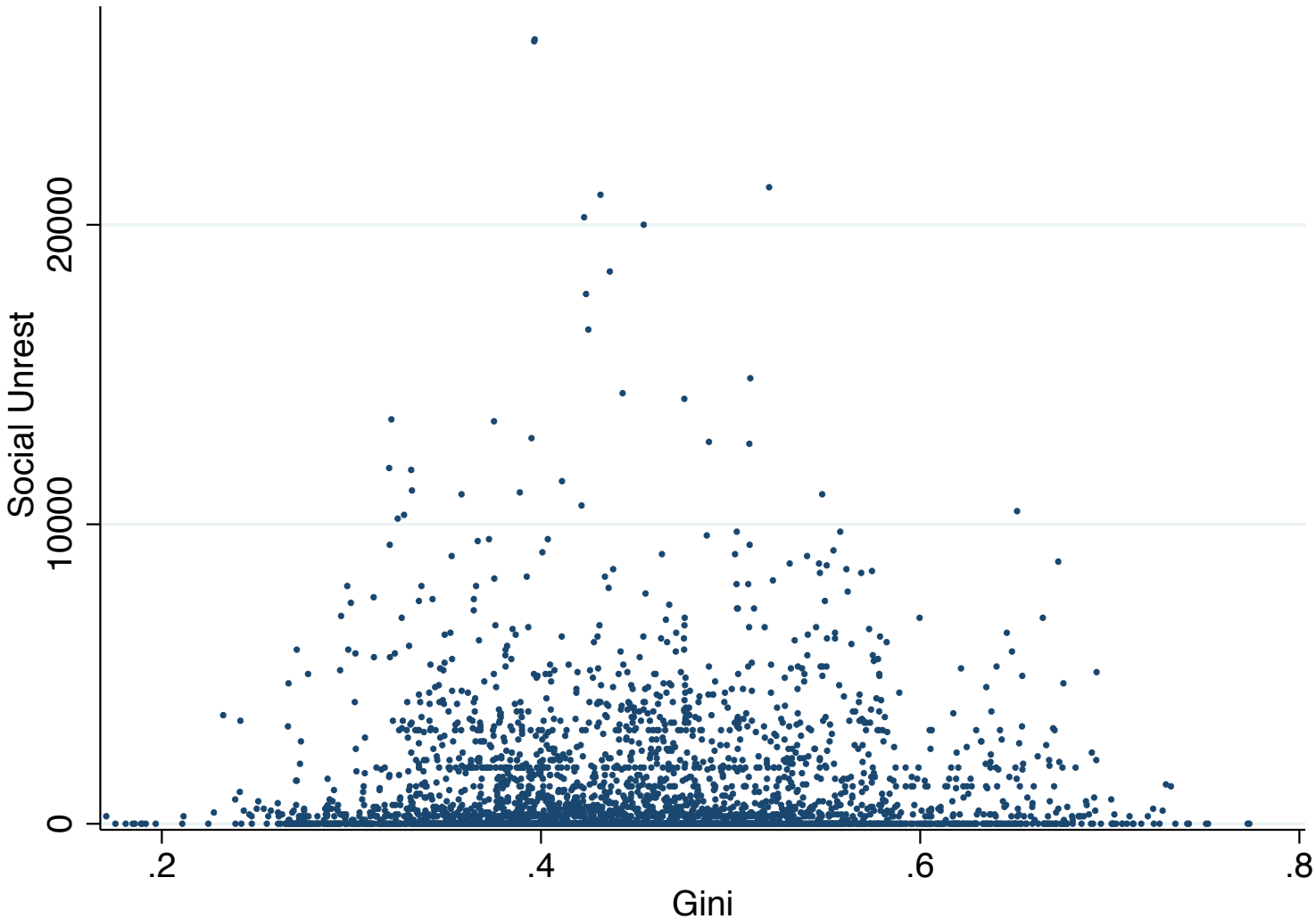
- "The relation between inequality and rebellion is indeed a close one." Sen (1973)

- Unclear. Lichbach 1989 survey:

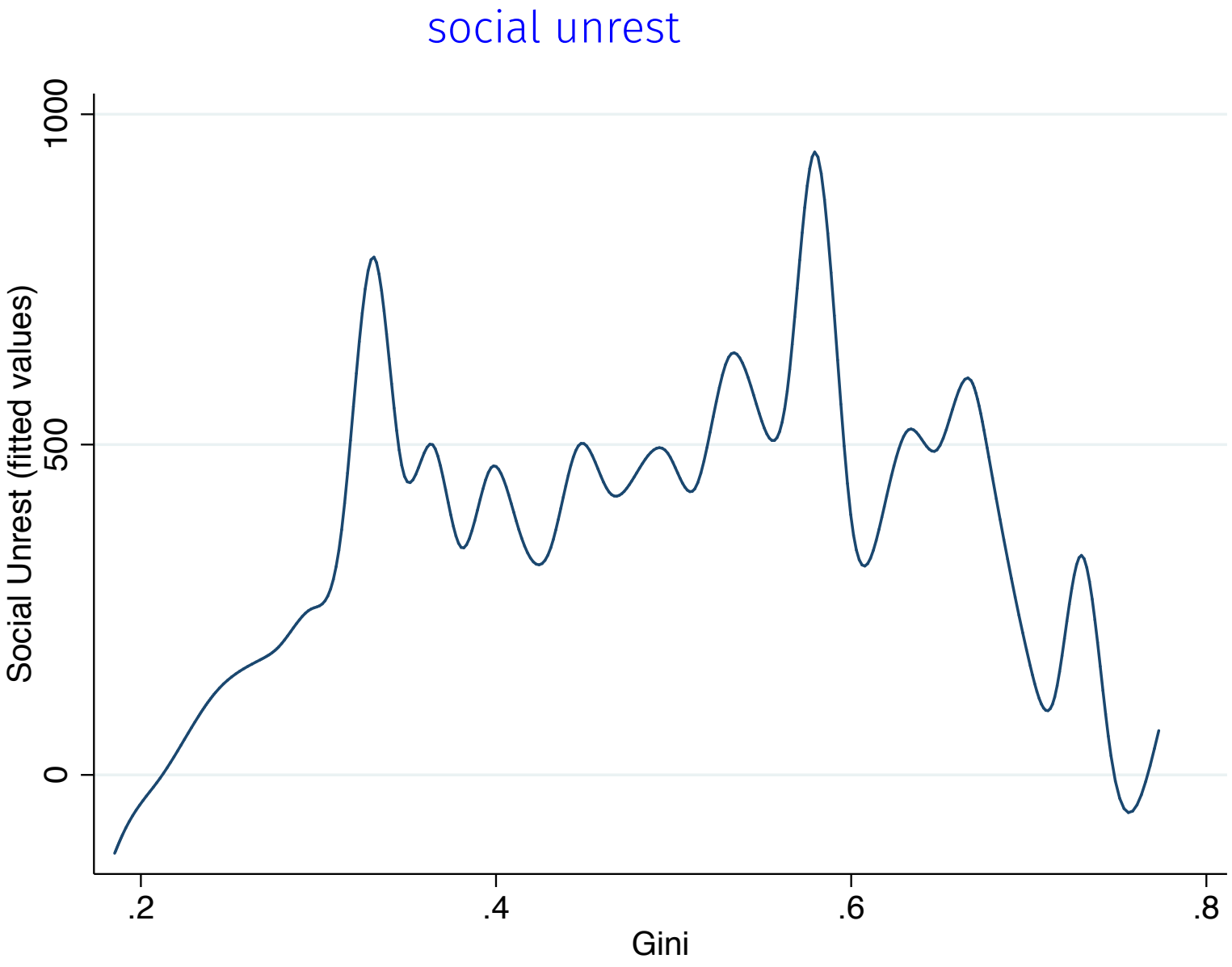
- "[T]ypical finding of a weak, barely significant relationship between inequality and political violence . . . rarely robust" Midlarsky 1988

THREE (MIS)PERCEPTIONS

II. Economic Inequality and Conflict: Banks CNTS dataset

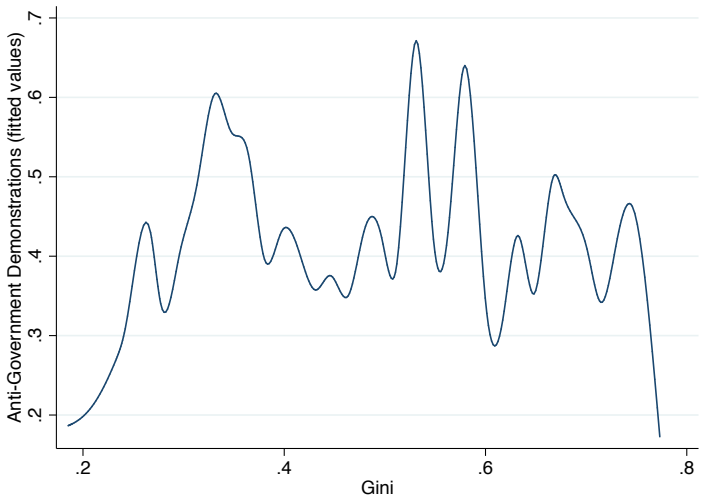


THREE (MIS)PERCEPTIONS

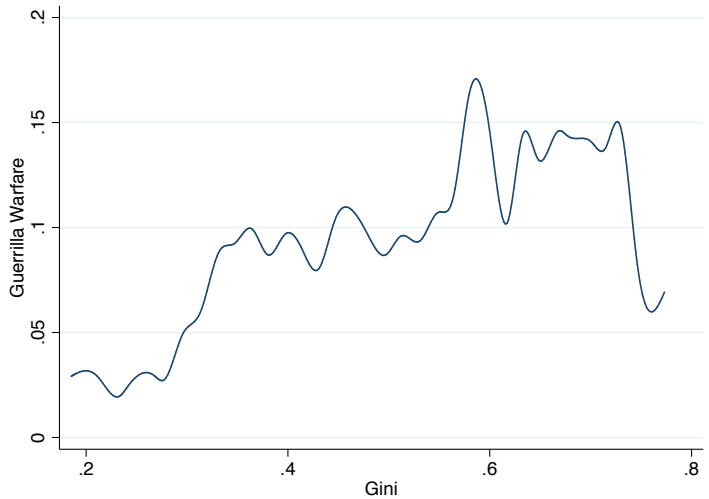


THREE (MIS)PERCEPTIONS

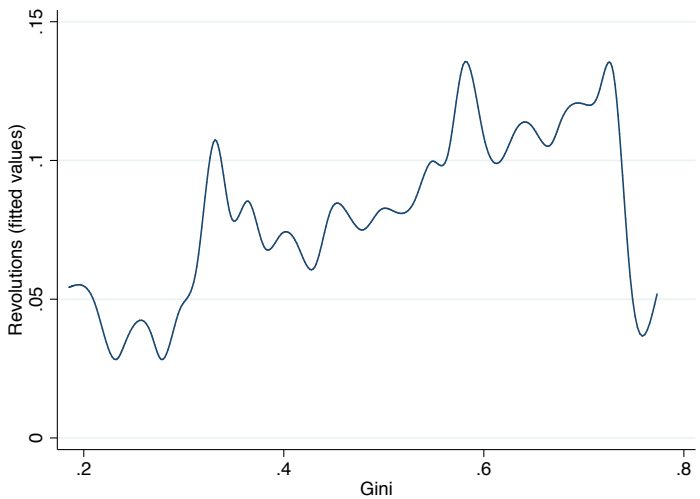
demonstrations



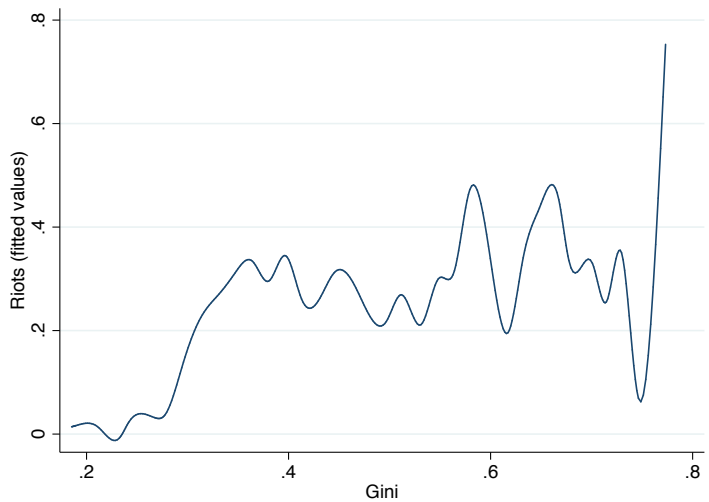
guerrilla warfare



revolutions



riots



Three (mis)perceptions

III. Ethnic Salience:

- 1945–1998, 100/700 ethnic groups active in rebellion Fearon 2006
- "[E]clipse of the left-right ideological axis." Brubaker and Laitin (1998)

One of the great questions of political economy:

- It isn't that the Marxian view is entirely irrelevant, but ...
- Economic similarity often a more direct threat.

ETHNICITY OR CLASS?

Conflict over directly contested resources:

- land, jobs, business resources, government quotas, religious space ...

The implications of direct contestation:

- Ethnic markers.
- Instrumentalism v. primordialism (Huntington, Lewis)

Theoretical Framework

FRAMEWORK

- A set of potential allocations $x \in X$ over individuals:
  - Restrictions: could be market outcomes or constrained by horizontal equity
- Allowable coalitions $S \in \mathcal{S}$:
  - class, geography, ethnicity, occupation, ...
- Costly conflict technology:
  - could use labor or finances or both
- Coalitional preferences over allocations:
  - e.g., group-utilitarian or group-Pareto

FRAMEWORK

- **Peace**
- Search for $x \in X$
- Constraints: horizontal equity, market forces
- **Conflict**
- S forms $\rightarrow$ conflict $\rightarrow$ random allocation $\{x'\}$ at cost c_S.
- **Blocking**
- $x \in X$ is blocked by $S \in \mathcal{S}$ if

$$\{\{x'\}, c_S\} \succ_S x$$

- where $\succ_S =$ **coalitional preferences**: e.g., group-utilitarian or group-Pareto

FRAMEWORK

Good for understanding:

- What it takes to avoid conflict;
- Conflict patterns conditional on conflict taking place.

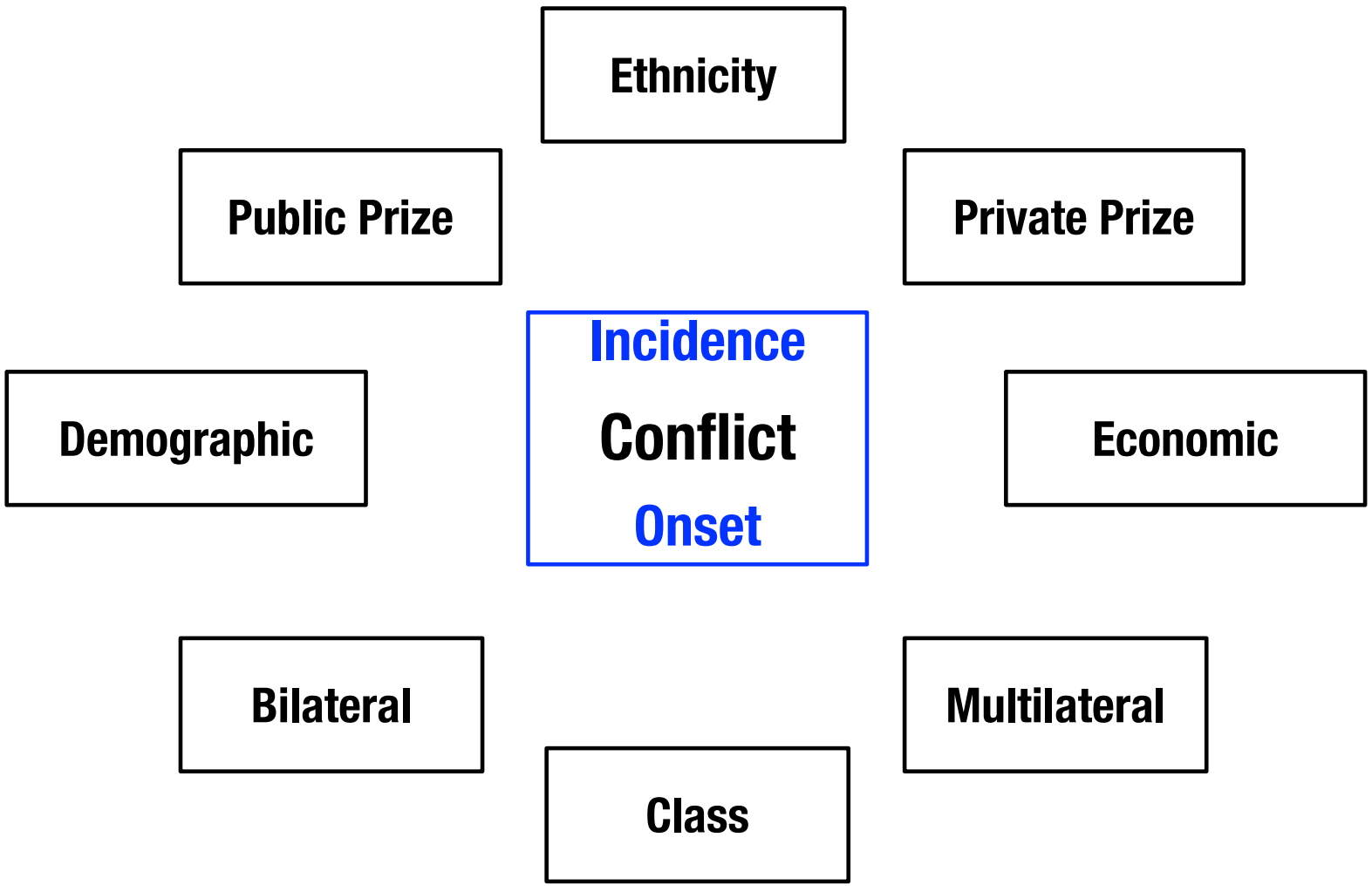
Needs extra work to understand:

- Which conflicts will emerge if several are possible;
- We return to this more difficult theme later (famous last words).

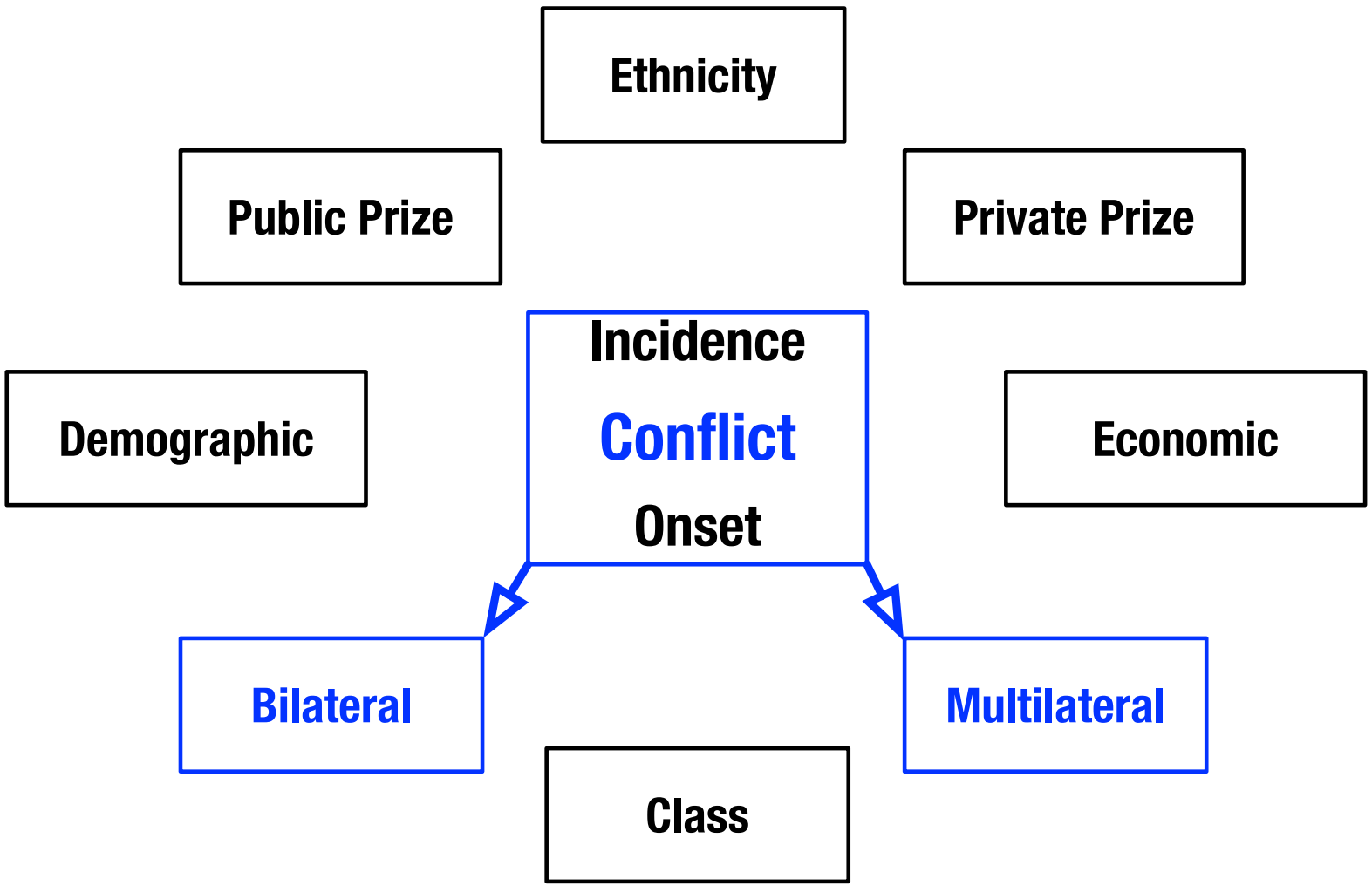
Excludes:

- Well-known “why conflict?” themes: incomplete information, no-commitment, etc.
- (Fearon 1995, Powell 2006, Esteban-Ray 2001, Baliga-Sjostrom 2012)

FRAMEWORK


Ethnicity
Public Prize
Private Prize
Incidence
Conflict
Onset
Demographic
Economic
Bilateral
Multilateral
Class

FRAMEWORK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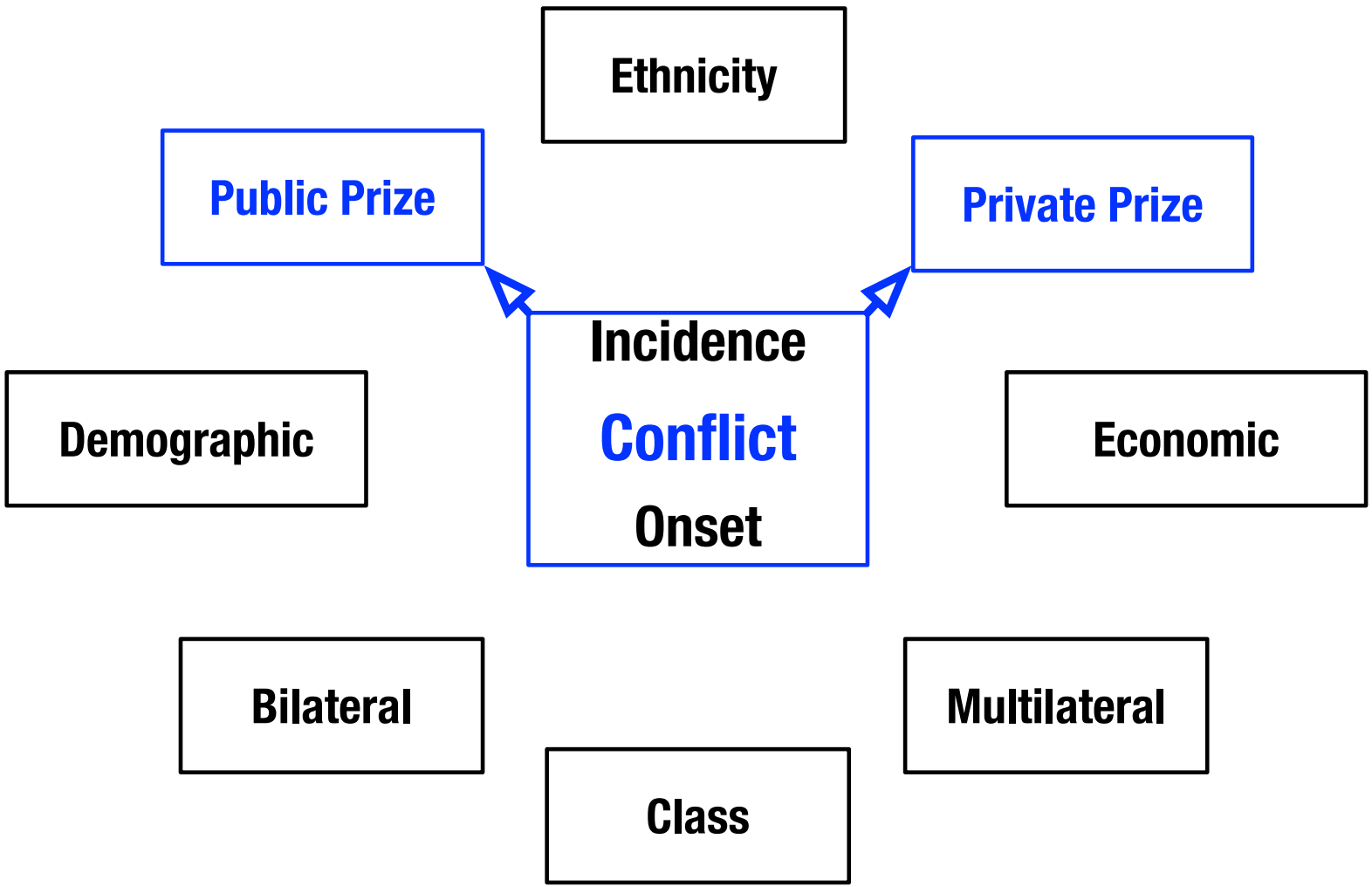
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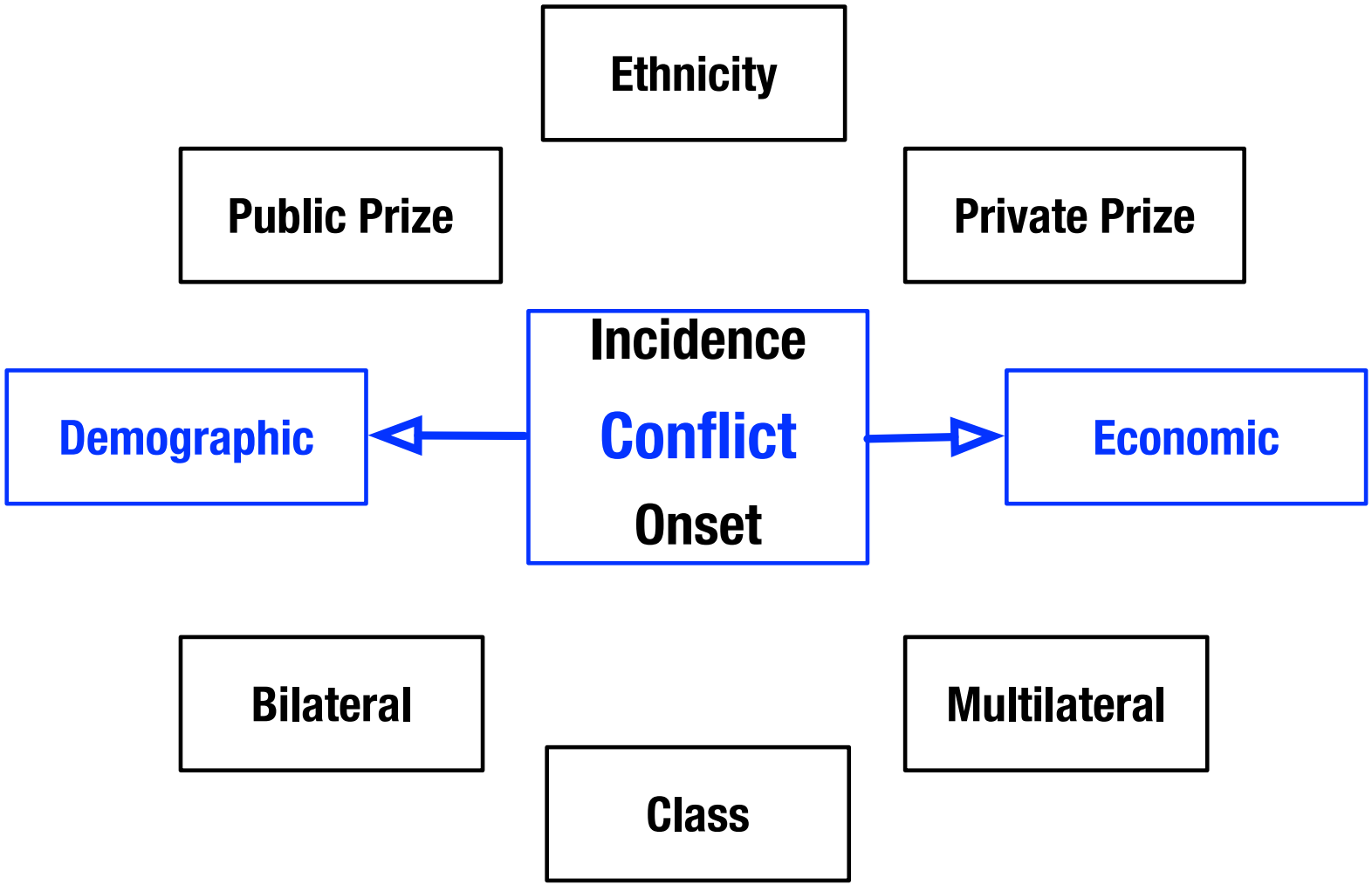
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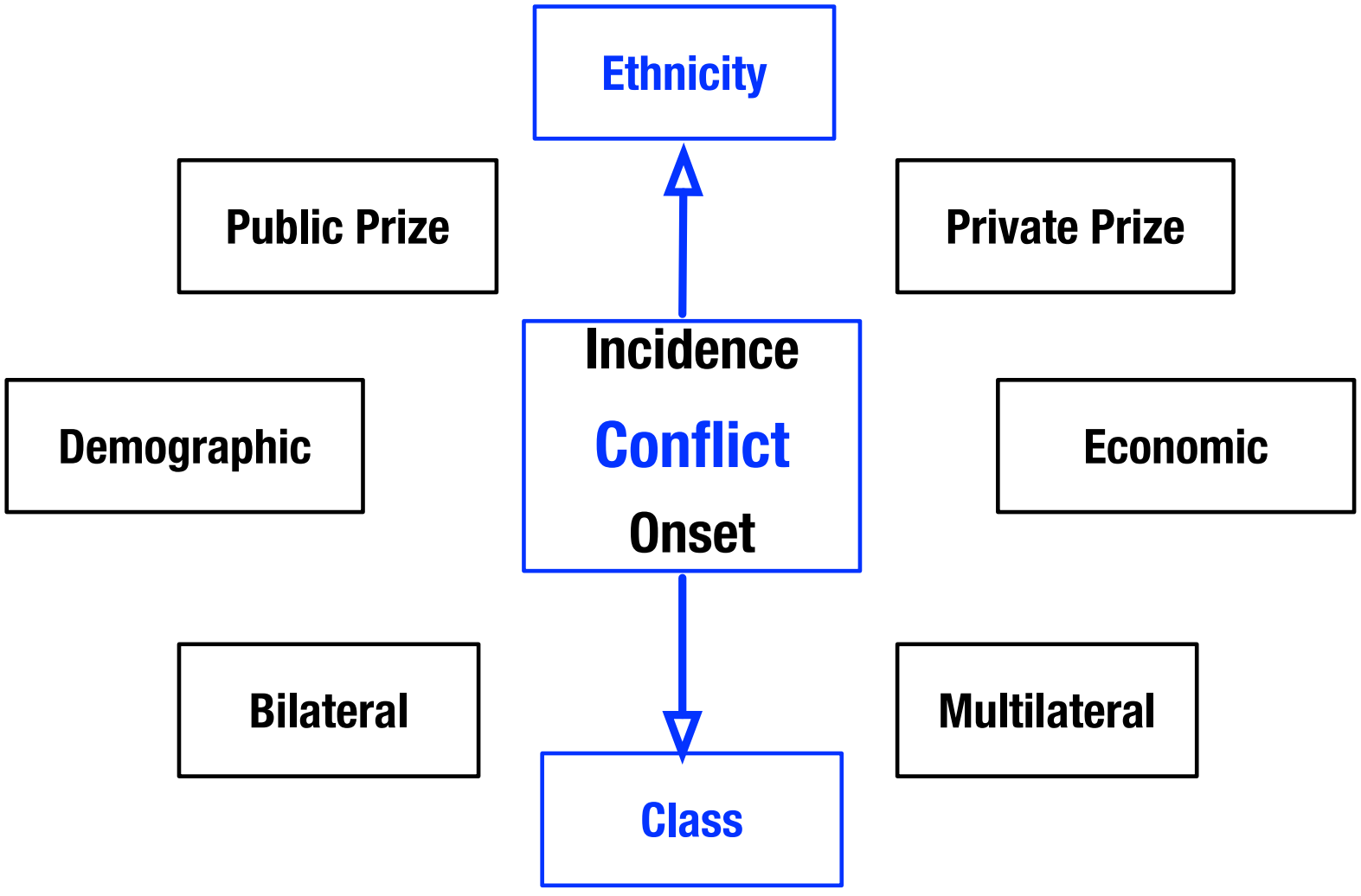
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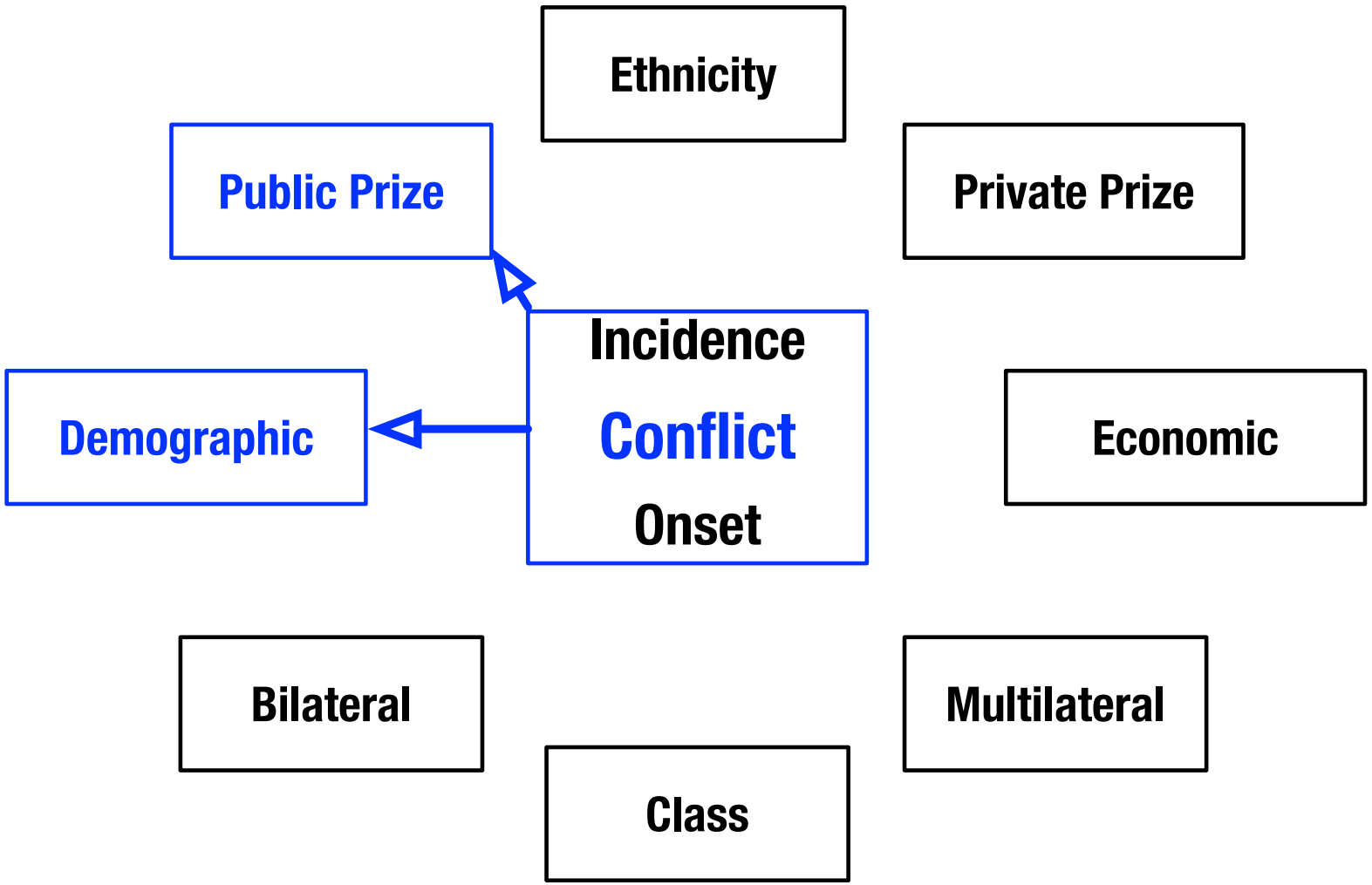
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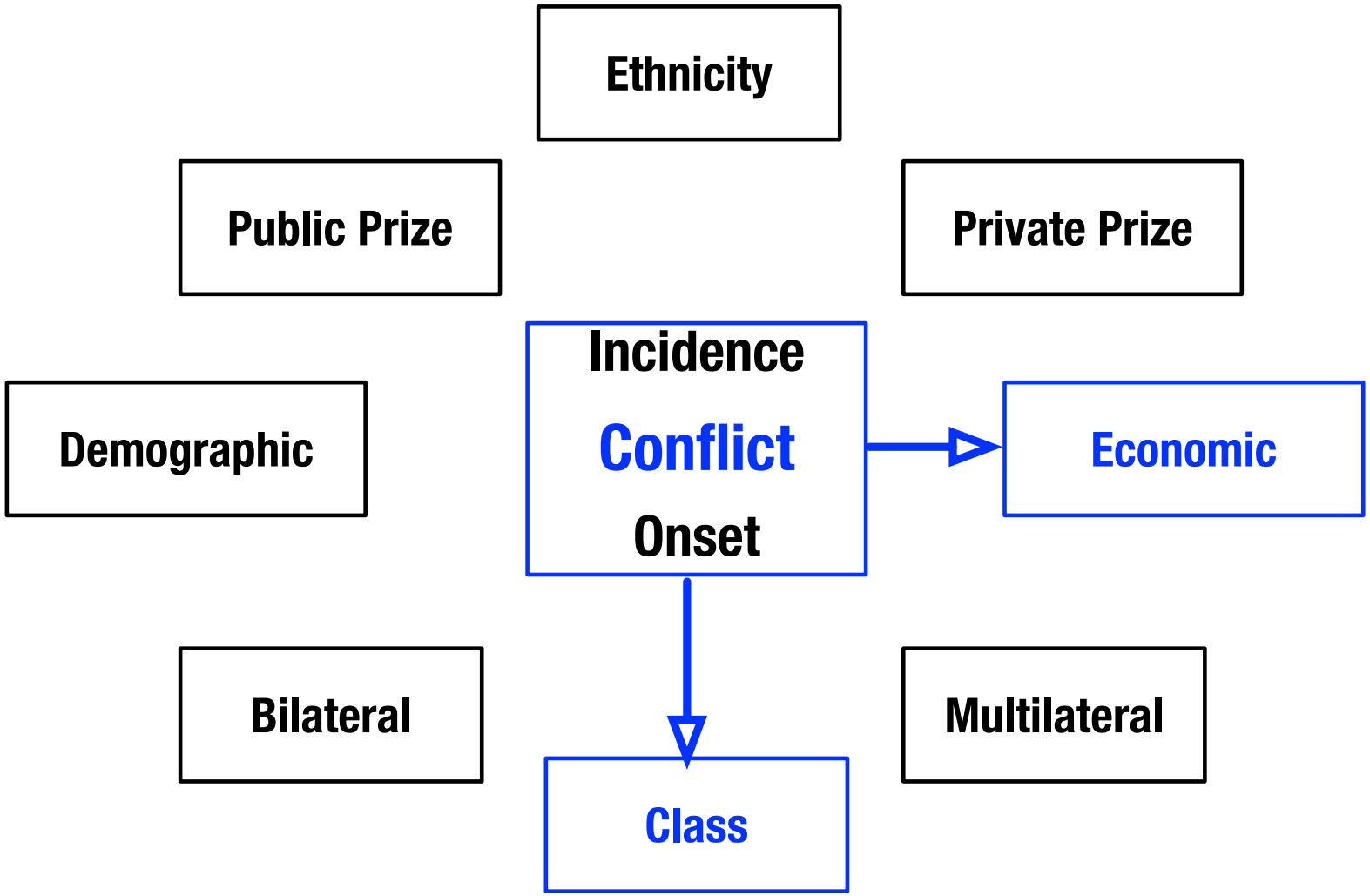
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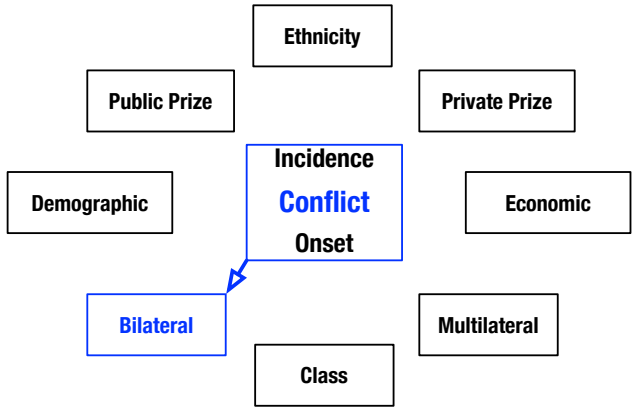
BILATERAL CONFLICT



Conflict subgame:

- Blocking coalition size n.
- Generates r per-capita of conflict resources at per-capita cost $c(r)$.
- Rival coalition: $\bar{r}$ per-capita at per-capita cost $\bar{c}(r)$.
- Coalition wins with probability $p = \dfrac{nr}{nr + (1-n)\bar{r}}$.
- Victory payoff π, otherwise 0 (likewise $\bar{\pi}$ and 0 for Rival).

BILATERAL CONFLICT

- Max $p\pi - c(r) = \left[\frac{nr}{nr + (1-n)\bar{r}}\right]\pi - c(r)$
- likewise for Rival
- First order conditions for both parties:

$$\boxed{\pi p\,(1-p) = rc'(r) \quad \text{and} \quad \bar{\pi} p(1-p) = \bar{r}\bar{c}'(\bar{r})}$$

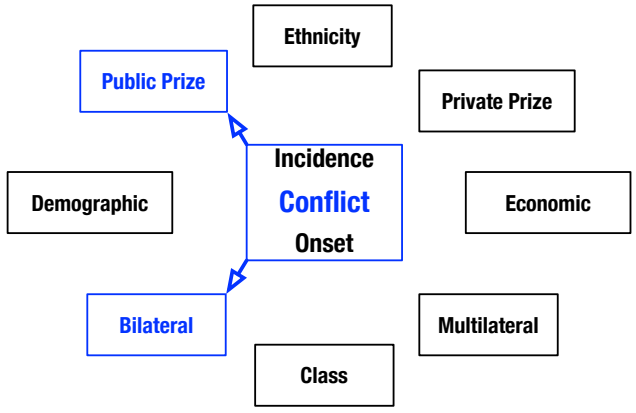
Grabbing v. Opportunity Cost

$$\pi p\left(1-p\right)=rc'(r) \quad \text{and} \quad \bar{\pi}p(1-p)=\bar{r}\bar{c}'(\bar{r})$$

- An increase in income:
- increases π if related to rival wealth $\Rightarrow$ conflict $\uparrow$
- increases cost of violence if r in labor units $\Rightarrow$ conflict $\downarrow$
- decreases cost of violence if r is financial contributions $\Rightarrow$ conflict $\uparrow$

- For poor societies, in which labor is the main input into conflict:
- These two effects work in opposite directions
- Dube-Vargas (2013) on coffee v. oil, Mitra-Ray (2014) on Hindu-Muslim violence

BILATERAL CONFLICT WITH PUBLIC PRIZES



Public Prize Examples

- religion, power, ethnic hatred, reservations ...

Peacetime budget B:

- $s : 1 - s$ between religious and secular.

Conflict: $\pi = \bar{\pi} = B$.

- FOC: $Bp\,(1-p) = rc'(r) = \bar{r}c'(\bar{r}) \Rightarrow r = \bar{r}$, and so $p = n$.
- So overall conflict R (per capita) solves

$$\boxed{Rc'(R) = Bn(1-n)}$$

- Conditional on incidence, maxed at 50-50 population split.

BILATERAL CONFLICT WITH PUBLIC PRIZES

Onset

- Payoffs $Bp - c(r) = Bp - \left[\frac{c(r)}{rc'(r)}\right] rc'(r) = Bn - \frac{1}{\alpha(r)} Bn(1-n)$

  where $\alpha(r) = rc'(r)/c(r)$.

- Block if this exceeds peacetime payoff.

BILATERAL CONFLICT WITH PUBLIC PRIZES

Onset

- Payoffs $B\left\{k(r)n + [1-k(r)]n^2\right\}$

  where $k(r) = [\alpha(r)-1]/\alpha(r)$ (and $\alpha(r) = rc'(r)/c(r)$).

- Block if this exceeds peacetime payoff.

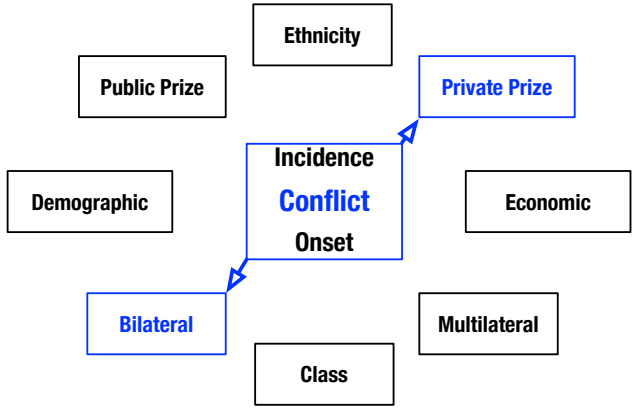
- Peacetime with horizontal equity: $s = 1/2$, with payoff $B/2$.

- Blocking condition: $k(r)n + [1-k(r)]n^2 > 1/2$

- Sufficient: $n > \dfrac{1}{\sqrt{2}} \simeq 70\%$, independent of α.

- Large groups block when the prize is public.

BILATERAL CONFLICT WITH PRIVATE PRIZES



Private Prize Examples

- oil, land, transfers from tax revenues ...

Peacetime budget B:

- $s : 1 - s$ between group and others
- Payoff sB/n to group per-capita and $(1 - s)B/(1 - n)$ to others.
- Horizontal equity: $s = n$.

Conflict: $\pi = B/n, \bar{\pi} = B/(1 - n)$.

- FOC: $Bp\,(1 - p) = nrc'(r) = (1 - n)\bar{r}c'(\bar{r})$.

$$\Rightarrow \qquad \boxed{\frac{rc'(r)}{\bar{r}c'(\bar{r})} = \frac{1 - n}{n}} \qquad \text{Pareto-Olson thesis}$$

BILATERAL CONFLICT WITH PRIVATE PRIZES

$$\frac{rc'(r)}{\bar{r}c'(\bar{r})} = \frac{1-n}{n}$$

"[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 protectionist measure into practice."

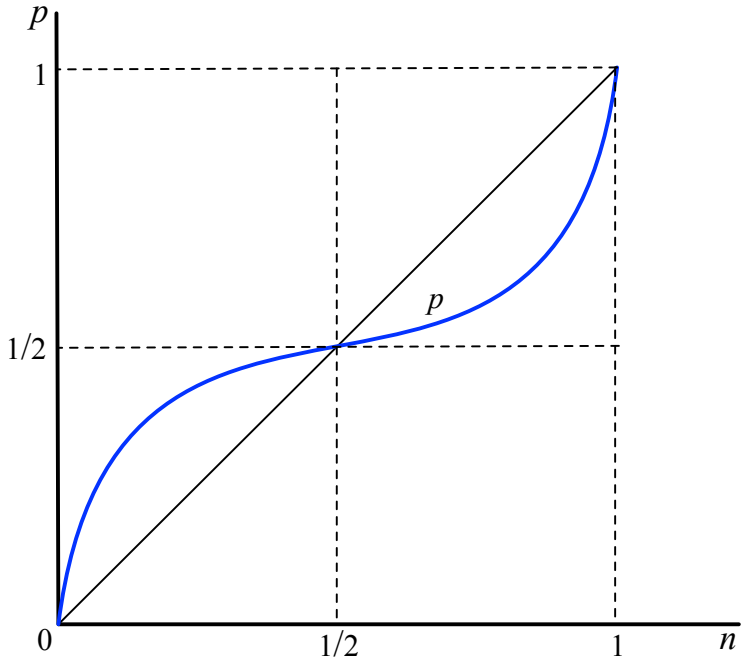
Pareto 1906, trans. 1971

- **Win probability function:** explicit form when $c(r) = \frac{1}{\alpha}r^{\alpha}$, $\alpha > 1$.

$$p = \frac{nr}{nr + (1-n)\bar{r}} = \frac{n^k}{n^k + (1-n)^k}$$

where recall that $k = (\alpha - 1)/\alpha$.

BILATERAL CONFLICT WITH PRIVATE PRIZES



- Overall conflict still inverted-U in group size

  (Proof nontrivial)

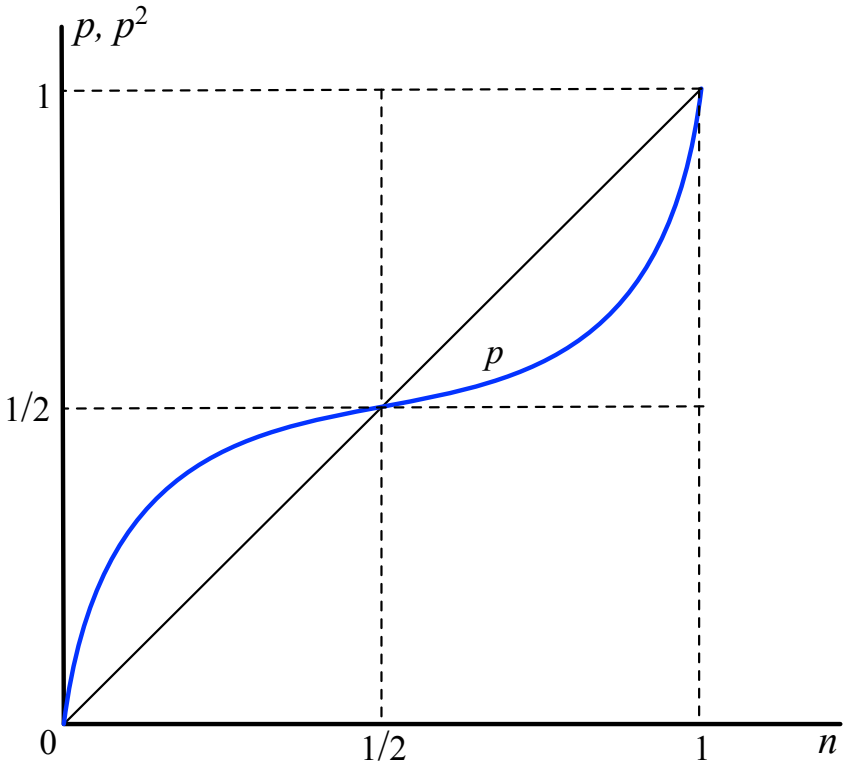
- Conditional on incidence, still maxed at 50-50 population split.

  (Of course not at 50-50 with asymmetric cost functions.)

BILATERAL CONFLICT WITH PRIVATE PRIZES

Onset with horizontal equity $s = n$.

- Blocking condition: $\boxed{kp(n) + (1-k)p(n)^2 > n}$.



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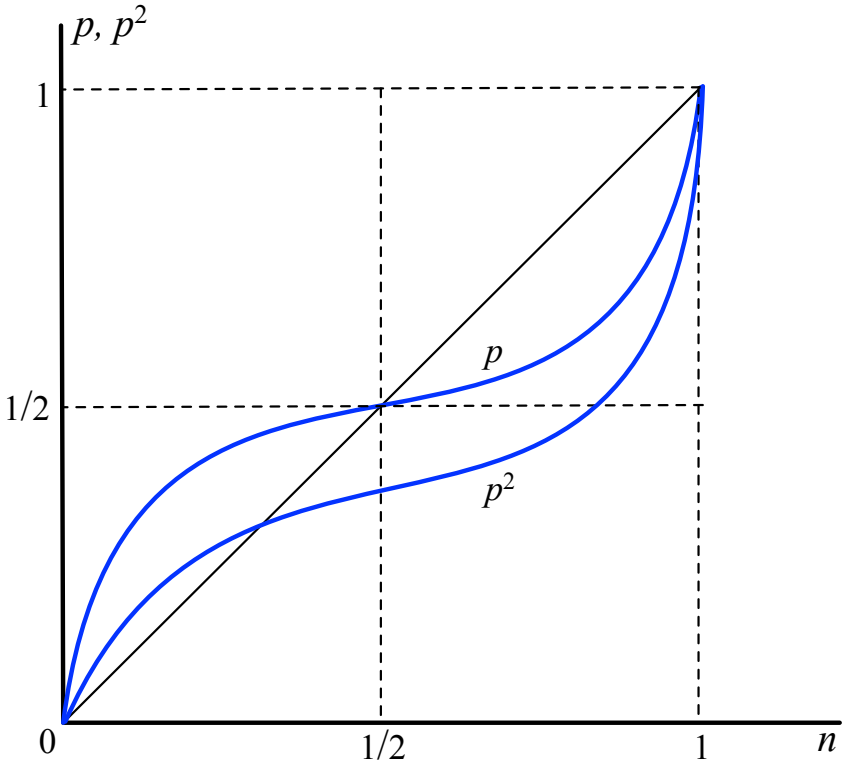

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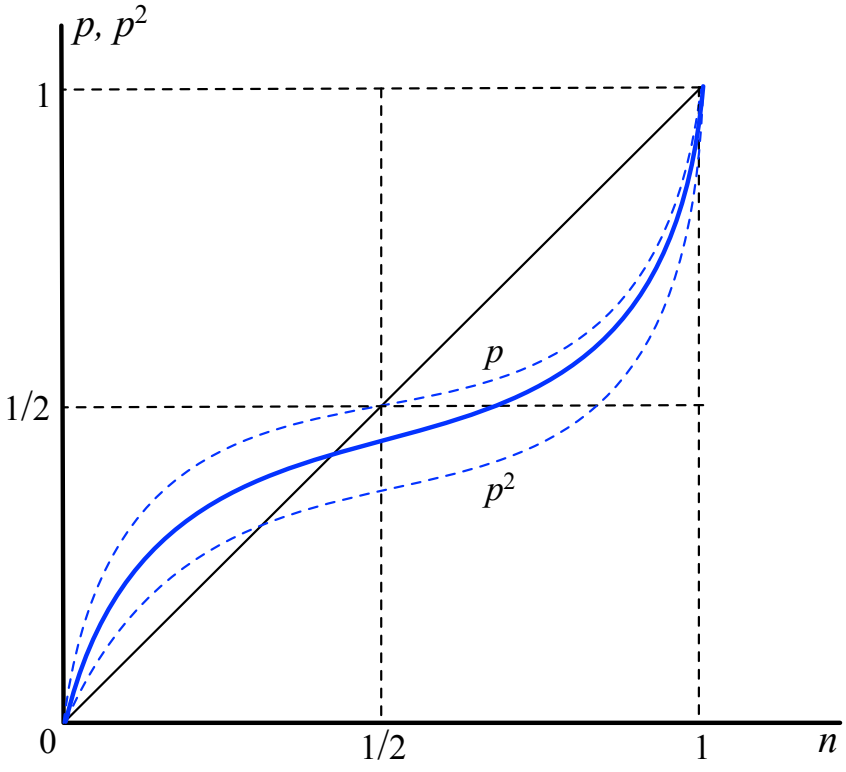

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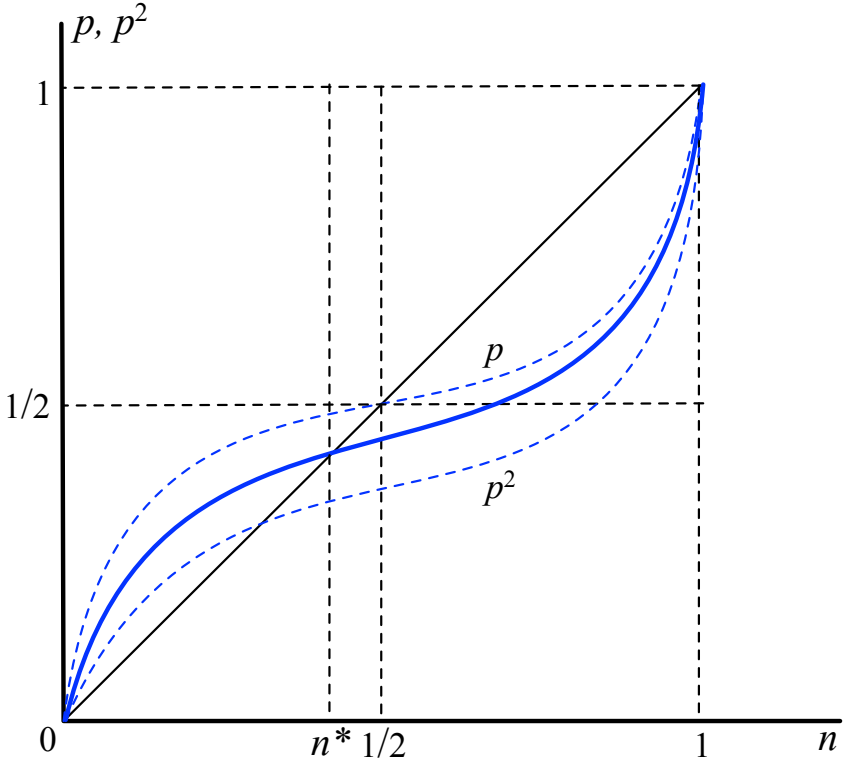
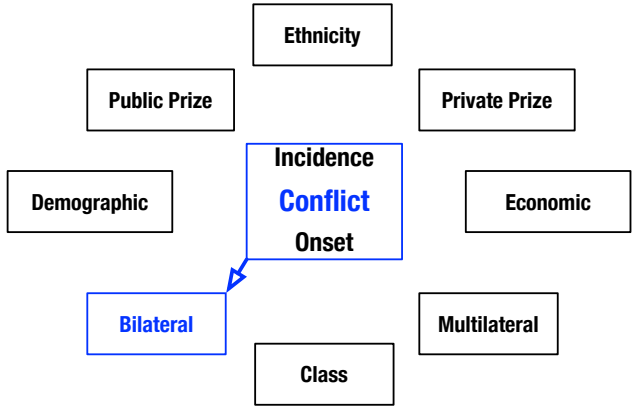


- **Small groups block** when the prize is private.

BILATERAL CONFLICT: A SUMMARY



Two Tyrannies

- Public prize ⇒ "tyranny of the majority."
- Private prize ⇒ "tyranny of the minority."

Appeasement?

- Yes, without horizontal equity.
- No, if allocations may be market-driven. But even so:
- The appeasement allocation must vary with the potential threat.

MULTIPLE THREATS AND THE FAILURE OF THE COASE THEOREM

Orthogonal Threats: [Skip?]

- No central subgroups common to all potential blockers:
- $\{12\}, \{23\}, \{31\}$. ✓
- Any partition. ✓
- $S \in \mathcal{S}$ iff $S \supseteq [0, 1/2]$. ✗

A society faces orthogonal threats if:

- there is a finite collection $\mathcal{S}$ of potential Rebel groups,
- with weights $\mu(S) \in [0, 1]$ for each $S \in \mathcal{S}$, such that

$$\sum_{S \in \mathcal{S}, i \in S} \mu(S) = 1 \text{ for every } i \text{ in society}$$

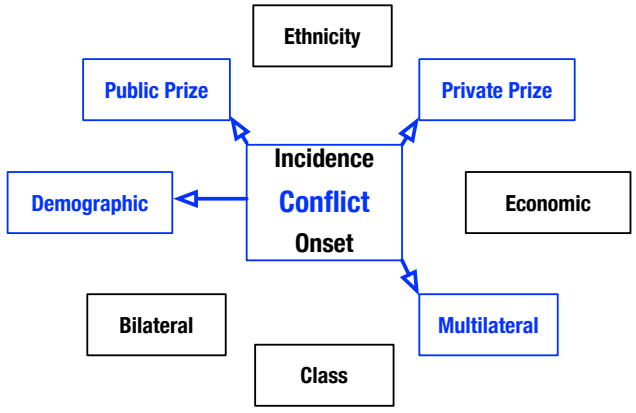
MULTIPLE THREATS AND THE FAILURE OF THE COASE THEOREM

Proposition. Let society face orthogonal threats, each $S \in \mathcal{S}$ meeting the bilateral conflict threshold size.

- Then no appeasement allocation exists, horizontally equitable or not.

MULTILATERAL CONFLICT

[Skip?]



- m groups
- $\sum_{i=1}^{m} n_i = 1$ population shares

Combine public and private prizes:

- Public: payoff matrix (u_{ij}) per unit of prize.
- Private: $1/n_i$ per unit of prize.
- Per-capita payoff to group i is

$$\Psi_i = \Psi \left[\sum_{j=1}^{m} p_j u_{ij} \right] + (1 - \Psi) \left[p_i \frac{1}{n_i} \right] - c(r_i)$$

public private cost

MULTILATERAL CONFLICT

- Per-capita payoff to group i is

$$\Psi_i = \Psi \left[\sum_{j=1}^{m} p_j u_{ij} \right] + (1 - \Psi) \left[p_i \frac{1}{n_i} \right] - c(r_i)$$

- Conflict determined in Nash equilibrium across groups.

Proposition. Define $d_{ij} \equiv u_{ii} - u_{ij}$. Then

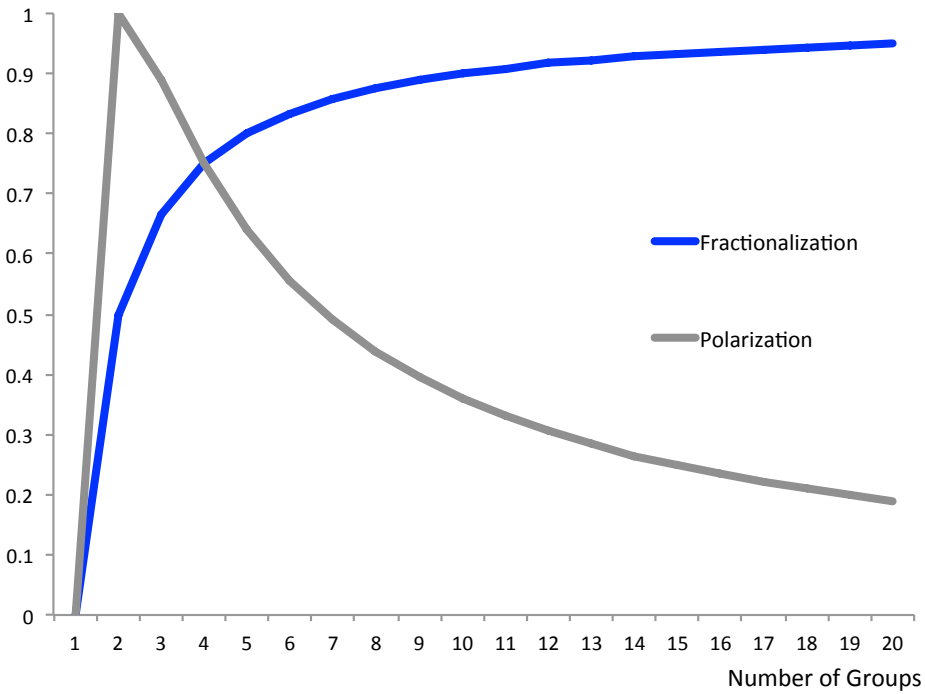
$$\boxed{Rc'(R) \simeq \Psi P + (1 - \Psi) F,} \text{ where:}$$

- $P = \sum_i \sum_j n_i^2 n_j d_{ij}$ is squared polarization (Esteban and Ray 1994)
- $F = \sum_i n_i(1 - n_i) = \sum_i \sum_{j \neq i} n_i n_j$ is fractionalization (ANM 1964)

MULTILATERAL CONFLICT

Polarization favors deep cleavages, fractionalization favors diversity.

- Example. m groups with population share $1/m$ in each group, d_{ij} binary.
- $P = \sum_i \sum_j n_i^2 n_j d_{ij}$ is maximal when $m = 2$, declines thereafter.
- $F = \sum_i n_i(1 - n_i)$ rises monotonically with m.

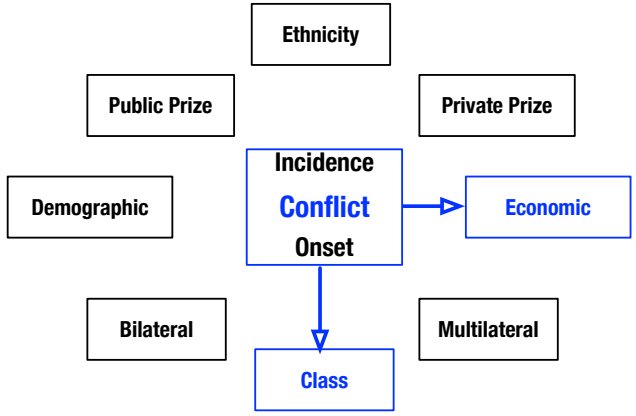


MULTILATERAL CONFLICT

Onset

- Can study onset in exactly the same way as for bilateral conflict
- Polarization/fractionalization now replaces the 50-50 benchmark

CONFLICT AND ECONOMICS: CLASS



Political economy of equilibrium tax rates

- Voting
- The threat of conflict

Classical progressive taxation:

- $F_*(y)$ with mean μ_*.
- Disposable income $= (1-t)y + t\mu_*$
- Find unblocked t.

Class-Based Blocking With Utilitarian Leaders

- Left [λ] = below the mean, Right [ρ] = above the mean
- V_i and D_i = victory and defeat payoffs, $i = \lambda, \rho$.
- Left victory: $V_\lambda = D_\rho = u(\mu_*)$.
- Right victory: $D_\lambda = \int_0^\infty u(y)dF_\lambda(y)$ and $V_\rho = \int_0^\infty u(y)dF_\rho(y)$.

Capital and Labor in Conflict:

- Production function per capita $r = \Gamma(k, b)$
- $k =$ finance, $b =$ bodies (in-group or mercenary)
- Contributions: Each y asked to give $k(y)$ and/or $b(y) \in [0, 1]$.
- No net taking: $b(y)y + k(y) \geq 0$ (though possibly $k(y) < 0$).
- Contribution limit: $[1 - b(y)]y - k(y) \geq d(y)$, where $u(y) - u(d(y)) \equiv a$.
- Group per-capita contribution:
- $k = \left[\int k(y)dF(y) - \text{mercenary payout}\right]$, and $b = \left[\int b(y)dF(y) + \text{ mercenaries }\right]$

Objective: Group i's leader maximizes

$$(1-\theta)\left[\int_0^{\infty} u\big([1-b(y)]y - k(y)\big)dF_i(y)\right] + \theta\big[p_i V_i + (1-p_i)D_i\big]$$

during conflict | post-conflict

- subject to

$$p_i = \frac{n_i r_i}{n_\lambda r_\lambda + n_\rho r_\rho}$$

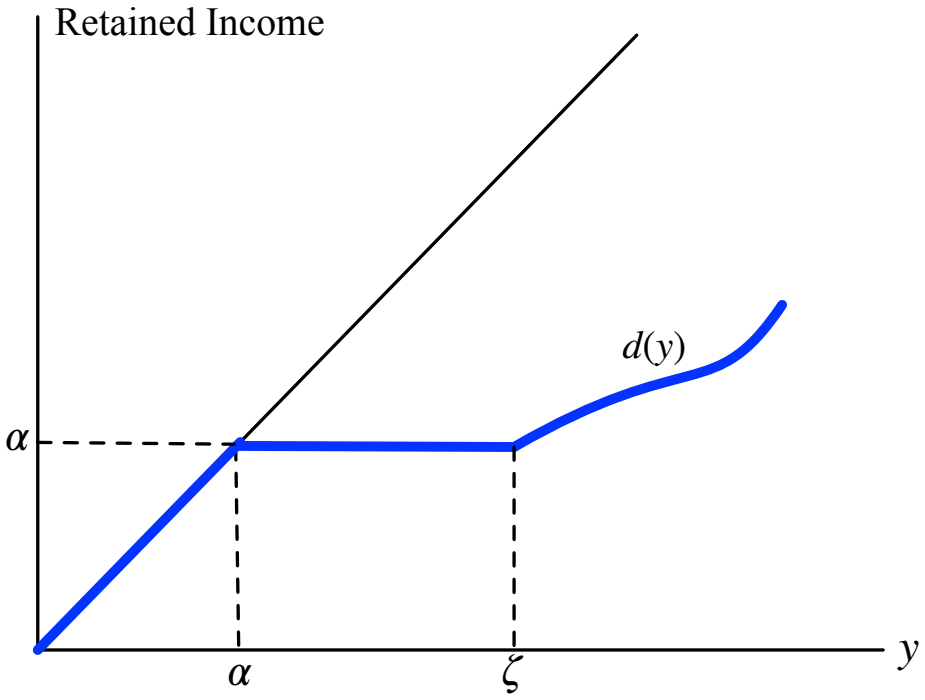
- where $r_i = \Gamma(k_i, b_i)$.

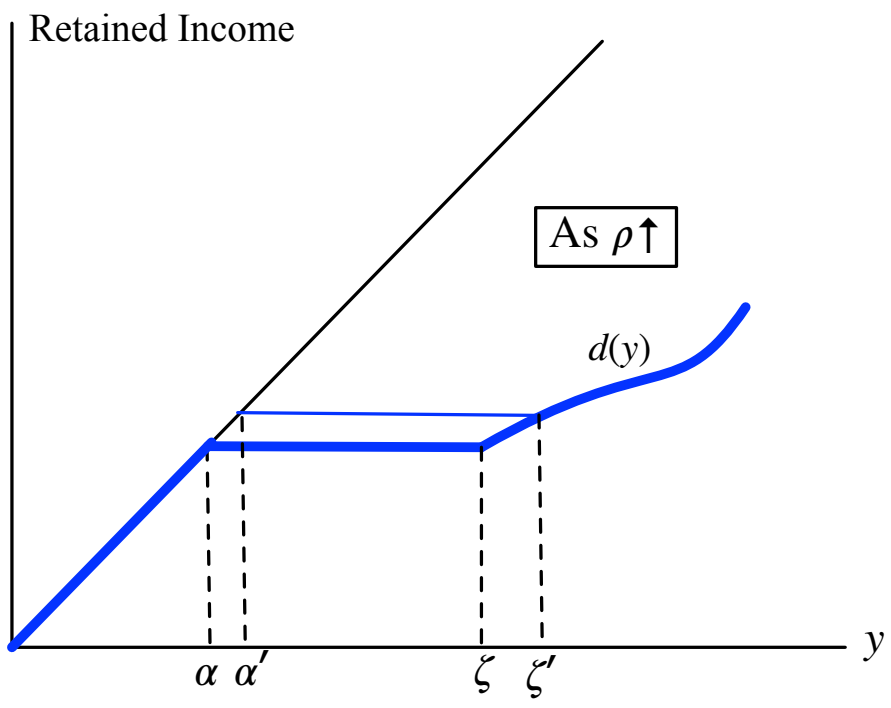
[Skip to unblocked tax rates?]

Sufficient Statistic for Payoff During Conflict

$$\rho_i \equiv \mu_i - e_i(b) - k_i$$

group mean — exp. on bodies — exp. on capital





CONFLICT AND ECONOMICS: CLASS

Cost function for supplying conflict resources r

$$\text{Minimize } e(b) + k, \text{ subject to } \Gamma(k, b) \geq r.$$

- Works best with high within-group inequality, or mercenaries.
- The poor contribute labor.
- The rich contribute capital.

Unblocked Tax Rates

- $t_\lambda = t_\lambda(F_*)$: *smallest* tax rate that the Left will tolerate:

$$\int_0^{\mu_*} [(1-t_\lambda)u(y) + t_\lambda u(\mu_*)]dF_\lambda(y) \equiv \text{Conflict\_Payoff}_\lambda(F_*)$$

- $t_\rho = t_\rho(F_*)$: the *largest* tax rate that the Right will tolerate.

$$\int_{\mu_*}^{\infty} [(1-t_\rho)u(y) + t_\rho u(\mu_*)]dF_\rho(y) \equiv \text{Conflict\_Payoff}_\rho(F_*)$$

- Because conflict is inefficient, $t_\lambda(F_*) < t_\rho(F_*)$.

CONFLICT AND ECONOMICS: CLASS

Proposition. Consider any sequence of distributions $\{F_*^z\}$ with ever-increasing inequality in the sense of Lorenz-domination.

Then $t_\lambda(F_*^z) \leq t_\rho(F_*^z) \to 0$ as $z \to \infty$.

- Rising inequality $\Rightarrow$ one side gets the bodies; the other the money.
- But the terms of trade move against bodies with rising inequality.
- So money can buy bodies, while bodies cannot buy money.
- "Actually, there's been class warfare going on for the last 20 years, and my class has won." Warren Buffett, CNN interview, September 30, 2011

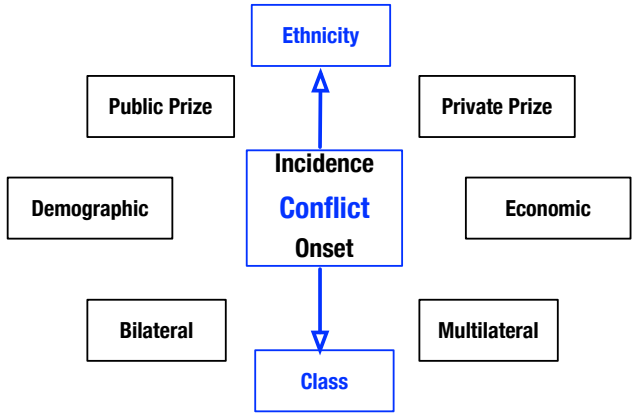
CONFLICT AND ECONOMICS: CLASS

Conflict battlestage is the market, not direct violence.

- Coase theorem
- Collapses under uncertainty or some incomplete information
- Or with multiple threats, as before —

  — A particularly dramatic example follows.

THE SALIENCE OF ETHNIC VIOLENCE

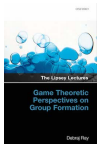


"[T]he Marxian prophecy has had an ethnic fulfillment." Horowitz 1985

THE SALIENCE OF ETHNIC VIOLENCE

- Class: $F_*(y)$, mean μ_*.
- Disposable income $= (1-t)y + t\mu_*$.
- Religion: H and M, sizes n and $1-n$.
- Each has distribution $F_*(y)$
- Religious budget: Value B
- Shared s for H, $1-s$ for M.

THE SALIENCE OF ETHNIC VIOLENCE

- Four potential groups (with utilitarian payoffs):
- Rich-H, Poor-H, Rich-M, Poor-M
- Limited tools: can propose within the public space (s, t).
- Group leaders enter into appropriate alliances if they accept a proposal
- e.g., [Rich-H + Poor-H], or [Poor-H + Poor-M].
- Methodology Ray 2007 

- Proposal-driven approach cuts deeper than blocking

  Esteban-Ray 2008, Ray-Vohra 1999, 2015

THE SALIENCE OF ETHNIC VIOLENCE

- Single-dimensional appeasement allocations:
- Set s to avoid religious conflict, and t to avoid class conflict.
- But this may not remain unblocked in the multi-dimensional case.

Proposition. Consider any sequence of distributions $\{F_*^z\}$ with increasing inequality. Then there is an index Z such that for $z \geq Z$, the only unblocked allocations involve ethnic conflict. In this case, t^z is even lower than the lowest appeasement tax for the Left.

UNDERLYING BUILDING BLOCKS FOR ETHNIC SALIENCE

Observability

- Clothing, bodily characteristics

Harder to appease when a society is committed to inter-group equity:

- Makes it easier for ethnic conflict to be an equilibrium outcome.

Within-group inequality

- Higher by definition under any cleavage relative to class.

The frustrations of high inequality:

- $\Rightarrow$ shift to secondary goals (e.g. religious dominance) Genicot-Ray 2020

Research Questions

A RESEARCH AGENDA FOR CONFLICT

I. Which economic changes (up or down) lead to greater conflict?

- Negative shocks:
  - Grosfeld-Sakalli-Zhuravskaya (2019): pogroms under negative shocks + political turmoil
  - Miguel (2015) on rainfall shocks and "witch-killing."
- Positive shocks:
  - Resources: Iraq, Syria, South Sudan, the Ukraine ...
  - Dube-Vargas (2013) on positive oil shocks in Colombia
  - positive changes leading to FOMO, elevated aspirations ...
  - Indian elections of 2014, the French Revolution ...

A RESEARCH AGENDA FOR CONFLICT

II. Is similarity more conducive to conflict than difference?

- Minorities in same occupation become targets of violence (Bates 1974, Horowitz 1985)
- Racial violence in the United States (Spilerman 1976, Olzak and Shanahan 1996)
- Increase in Muslim incomes $\rightarrow$ violence (Mitra and Ray 2014)
- German anti-semitism where Protestants entered moneylending (Becker-Pascali 2019)
- Complements vs substitutes in economic arrangements (Jha 2013)

III. Are majority or minority groups more likely to be involved in conflict?

- Group size and conflict: Mayoral-Ray (2020)

IV. Can high economic inequality lead to cross-group violence?

- Aspirations failure $\rightarrow$ orthogonal spillovers (Genicot and Ray 2020)

A RESEARCH AGENDA FOR CONFLICT

V. Is the presence of ethnic groupings conflictual?

- Fractionalization and conflict (Fearon-Laitin 2003, Collier-Hoffler 2004)
- Polarization and conflict (Montalvo and Reynal-Querol 2005, Esteban-Mayoral-Ray 2012)

VI. Is within-group inequality conflictual across groups?

- Yes: strongly predicts incidence, unlike cross-ethnic inequality (Huber-Mayoral 2019)
- See also Kuhn and Weidmann (2015) on within-group inequality and conflict onset.

VII. Do rich and poor collude in ethnic conflict?

- Dalit participation in 2002 Gujarat violence
- Low caste Hindu stance in recent West Bengal state elections

A RESEARCH AGENDA FOR CONFLICT

VIII. Is ethnic conflict primordial or instrumental?

- Samuel Huntington's Clash of Civilizations (Huntington 1996)
- Medieval origins of anti-Semitic outbreaks in Germany (Voth-Voigtlander 2012)
- Land grab in Rwanda under seemingly primordial violence (André-Platteau 1998)
- Educated unemployment and Tamil-Sinhala violence (Tambiah 1986)

IX. Do post-colonial fiscal institutions promote ethnic violence?

- Inherited fiscal institutions guard against class conflict; e.g., progressive taxation
- But door is left open to other forms of conflict

X. Do multiple overlapping identities promote peace?

- Promotes tolerance and understanding across cultures (Sen 2006)
- Multiple overlapping threats make it harder to buy everyone off (Ray 2010)

SUMMARY

Three (Mis)Perceptions in the study of conflict:

- The relationship between aggregate development and conflict
- The relationship between economic inequality and conflict
- The salience of ethnic violence

Beyond the Market

- A framework for the study of conflict, based on the notion of blocking.
- Generates several predictions regarding conflict incidence and onset
- Throws light on the peculiarities of ethnic salience in conflict

Research Questions