Lecture series "Inequality and...?" Inequality and Conflict

Joan Esteban, IAE-CSIC and Barcelona GSE

joint work with Debraj Ray, NYU, and Laura Mayoral, IAE-CSIC, BGSE

Luxembourg, 28 November 2013

- Internal Conflict is Endemic
- Since 1945: 25 interstate wars with battle deaths approx. 3-8 million

- Internal Conflict is Endemic
- Since 1945: 25 interstate wars with battle deaths approx. 3-8 million
- Since 1945: 240 civil wars in 73 states, of which 114 with more than 1000 dead. An approximate death toll of 16m+ as a direct result.

 Plus 12-25 million civilian non-combatant casualties (estimated by the Political Instability Task Force, 2010)

- Internal Conflict is Endemic
- Since 1945: 25 interstate wars with battle deaths approx. 3-8 million

Since 1945: 240 civil wars in 73 states, of which 114 with more than 1000 dead. An approximate death toll of 16m+ as a direct result.

 Plus 12-25 million civilian non-combatant casualties (estimated by the Political Instability Task Force, 2010)

We also have forced displacements (42 million people in 2008).

- Internal Conflict is Endemic
- Since 1945: 25 interstate wars with battle deaths approx. 3-8 million

Since 1945: 240 civil wars in 73 states, of which 114 with more than 1000 dead. An approximate death toll of 16m+ as a direct result.

 Plus 12-25 million civilian non-combatant casualties (estimated by the Political Instability Task Force, 2010)

- We also have forced displacements (42 million people in 2008).
- Huge human costs, but also economic.

- Internal Conflict is Endemic
- Since 1945: 25 interstate wars with battle deaths approx. 3-8 million

Since 1945: 240 civil wars in 73 states, of which 114 with more than 1000 dead. An approximate death toll of 16m+ as a direct result.

 Plus 12-25 million civilian non-combatant casualties (estimated by the Political Instability Task Force, 2010)

- We also have forced displacements (42 million people in 2008) .
- Huge human costs, but also economic.
- Economic costs of civil wars: 8% of world GDP (Hess (2003))

- Internal Conflict is Endemic
- Since 1945: 25 interstate wars with battle deaths approx. 3-8 million

Since 1945: 240 civil wars in 73 states, of which 114 with more than 1000 dead. An approximate death toll of 16m+ as a direct result.

 Plus 12-25 million civilian non-combatant casualties (estimated by the Political Instability Task Force, 2010)

- We also have forced displacements (42 million people in 2008).
- Huge human costs, but also economic.
- Economic costs of civil wars: 8% of world GDP (Hess (2003))

Bozzoli, Bruck, and de Groot find that global GDP in 2007 would have been 14.3 % higher if there had not been any conflict since 1960.

This translates to 9.1 trillion dollar, of which Asia suffers the largest share. In relative terms, Africa would have gained the most, had there not been conflicts since 1960.

How much conflict: intensity 1946-2009



How much conflict: civil vs international war 1946-2008



How much conflict: violent regions 1946-2008



There are two remarkable facts about social conflict that deserve notice:

 First, within-country conflicts account for an enormous share of deaths and hardship in the world today.

Second, internal conflicts often appear to be ethnic in nature rather than driven by economic class differences.

For most of the 20th C class struggle, or more generally, economic inequality has been viewed as the main driver of social conflict in industrial or semi-industrial society.

This clearly is Marx's dominant influence in the social sciences. In Sen's [1972] words: *"the relation between inequality and rebellion is indeed a close one".*

For most of the 20th C class struggle, or more generally, economic inequality has been viewed as the main driver of social conflict in industrial or semi-industrial society.

This clearly is Marx's dominant influence in the social sciences. In Sen's [1972] words: *"the relation between inequality and rebellion is indeed a close one".*

Intuitive as it might seem, this relationship has garnered no empirical endorsement.

M. I. Midlarsky remarks on the "fairly typical finding of a weak, barely significant relationship between inequality and political violence . . . rarely is there a robust relationship between the two variables."

For most of the 20th C class struggle, or more generally, economic inequality has been viewed as the main driver of social conflict in industrial or semi-industrial society.

This clearly is Marx's dominant influence in the social sciences. In Sen's [1972] words: *"the relation between inequality and rebellion is indeed a close one".*

Intuitive as it might seem, this relationship has garnered no empirical endorsement.

M. I. Midlarsky remarks on the "fairly typical finding of a weak, barely significant relationship between inequality and political violence ... rarely is there a robust relationship between the two variables."

The inequality-conflict nexus seems natural. A carefully implemented theory might teach us how to better read the data.

For most of the 20th C class struggle, or more generally, economic inequality has been viewed as the main driver of social conflict in industrial or semi-industrial society.

This clearly is Marx's dominant influence in the social sciences. In Sen's [1972] words: *"the relation between inequality and rebellion is indeed a close one".*

Intuitive as it might seem, this relationship has garnered no empirical endorsement.

M. I. Midlarsky remarks on the "fairly typical finding of a weak, barely significant relationship between inequality and political violence ... rarely is there a robust relationship between the two variables."

The inequality-conflict nexus seems natural. A carefully implemented theory might teach us how to better read the data.

Economic demarcation across classes is a two-edged sword: while it breeds resentment, the very poverty of the have-nots deprives them from the means for a successful insurrection.

Instead, internal conflicts often appear to be ethnic in nature. More than half of the civil conflicts have been recorded as ethnic or religious.

Instead, internal conflicts often appear to be ethnic in nature. More than half of the civil conflicts have been recorded as ethnic or religious.

This case-based evidence has had an enormous influence on the way of thinking about the main drivers of civil conflict:

Instead, internal conflicts often appear to be ethnic in nature. More than half of the civil conflicts have been recorded as ethnic or religious.

This case-based evidence has had an enormous influence on the way of thinking about the main drivers of civil conflict:

D. Horowitz, author of a monumental treatise on the subject of ethnic conflict, observes that "[t]he 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. ... In much of Asia and Africa, it is only modest hyperbole to assert that the Marxian prophecy has had an ethnic fulfillment".

Instead, internal conflicts often appear to be ethnic in nature. More than half of the civil conflicts have been recorded as ethnic or religious.

This case-based evidence has had an enormous influence on the way of thinking about the main drivers of civil conflict:

D. Horowitz, author of a monumental treatise on the subject of ethnic conflict, observes that "[t]he 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. ... In much of Asia and Africa, it is only modest hyperbole to assert that the Marxian prophecy has had an ethnic fulfillment".

Brubaker and Laitin (1998), "[An] aspect of the post-Cold War world to highlight is the eclipse of the left-right ideological axis that has defined the grand lines of much political conflict — and many civil wars — since the French Revolution [T]his has led to a marked ethnicization of violent challenger-incumbent contests."

- The widespread ethnic nature of conflict, provokes several questions:
- Do "ethnic divisions" predict conflict within countries?
- How do we conceptualize those divisions?
- If it is indeed true that ethnic cleavages and conflicts are related, how do we interpret such a result?
- Is ethnic conflict driven by "primordial", ancestral ethnic hatreds?

Or, are they driven by "more rational" forms of antagonism, such as the instrumental use of ethnicity to achieve political power or economic gain?

- The widespread ethnic nature of conflict, provokes several questions:
- Do "ethnic divisions" predict conflict within countries?
- How do we conceptualize those divisions?
- If it is indeed true that ethnic cleavages and conflicts are related, how do we interpret such a result?
- Is ethnic conflict driven by "primordial", ancestral ethnic hatreds?

Or, are they driven by "more rational" forms of antagonism, such as the instrumental use of ethnicity to achieve political power or economic gain?

Our work tries to provide answer to some of these questions.

First contributions to the study of the role of ethnicity in civil conflicts:

Collier (2001), Collier and Hoffler (2004), Fearon and Laitin (2003), Miguel et al. (2004) or Montalvo and Reynal-Querol (2005). Survey by Blattman and Miguel (JEL 2010).

What drives ethnic conflicts?

Greed: the main goal is to appropriate rents after controlling the state.

First contributions to the study of the role of ethnicity in civil conflicts:

Collier (2001), Collier and Hoffler (2004), Fearon and Laitin (2003), Miguel et al. (2004) or Montalvo and Reynal-Querol (2005). Survey by Blattman and Miguel (JEL 2010).

- What drives ethnic conflicts?
- Greed: the main goal is to appropriate rents after controlling the state.

Grievance: the main goal is the ethnic pride or revenge for ancestral grievances.

First contributions to the study of the role of ethnicity in civil conflicts:

Collier (2001), Collier and Hoffler (2004), Fearon and Laitin (2003), Miguel et al. (2004) or Montalvo and Reynal-Querol (2005). Survey by Blattman and Miguel (JEL 2010).

- What drives ethnic conflicts?
- Greed: the main goal is to appropriate rents after controlling the state.

Grievance: the main goal is the ethnic pride or revenge for ancestral grievances.

Why is ethnicity relevant?

Primordialist: Ethnicity plays a role because of ancestral hatred between ethnicities. Huntington's clash of civilisations. Also implicit in many case studies.

First contributions to the study of the role of ethnicity in civil conflicts:

Collier (2001), Collier and Hoffler (2004), Fearon and Laitin (2003), Miguel et al. (2004) or Montalvo and Reynal-Querol (2005). Survey by Blattman and Miguel (JEL 2010).

What drives ethnic conflicts?

Greed: the main goal is to appropriate rents after controlling the state.

Grievance: the main goal is the ethnic pride or revenge for ancestral grievances.

Why is ethnicity relevant?

Primordialist: Ethnicity plays a role because of ancestral hatred between ethnicities. Huntington's clash of civilisations. Also implicit in many case studies.

Instrumentalist: Ethnicity is used as a marker to achieve other goals, typically political or economic benefits.

Remark: If instrumentalist, conflict only when there are gains. If primordialist, needs no gains.

Fractionalization and social antagonism

How to measure ethnic diversity in a society?

Fractionalization

This is the Hirschman-Herfindahl index

$$F = \sum_{i} n_i (1 - n_i),$$

Has been a most used index of ethnic diversity. Intuition.

Fearon and Laitin (2003) or Montalvo and Reynal Querol (2005): ethnic fractionalization is not statistically significant in explaining conflict.

Fractionalization and social antagonism

How to measure ethnic diversity in a society?

Fractionalization

This is the Hirschman-Herfindahl index

$$F = \sum_{i} n_i (1 - n_i),$$

Has been a most used index of ethnic diversity. Intuition.

Fearon and Laitin (2003) or Montalvo and Reynal Querol (2005): ethnic fractionalization is not statistically significant in explaining conflict.

This is a problematic measure for potential conflict:

 More groups increase fractionalisation... but this should reduce potential conflict

Makes all groups equally alien

Fractionalization and social antagonism

How to measure ethnic diversity in a society?

Fractionalization

This is the Hirschman-Herfindahl index

$$F = \sum_{i} n_i (1 - n_i),$$

Has been a most used index of ethnic diversity. Intuition.

Fearon and Laitin (2003) or Montalvo and Reynal Querol (2005): ethnic fractionalization is not statistically significant in explaining conflict.

This is a problematic measure for potential conflict:

 More groups increase fractionalisation... but this should reduce potential conflict

Makes all groups equally alien

The measure of polarisation seems more appropriate to capture potential conflict. What is meant by the degree of polarisation of a distribution?

Example: progressive transfers and their effect on the Lorenz curve



Example: progressive transfers and their effect on the Lorenz curve



Income or Wealth



Income or Wealth



Income or Wealth

Starts with the premise that the cause of domestic conflict is social antagonism.

Starts with the premise that the cause of domestic conflict is social antagonism.

Define: antagonism between a member of group *i* towards a member of group j = i's group identity $[\Phi(n_i)] \times \text{alienation i versus j } [\Psi(d_{ij})].$

Starts with the premise that the cause of domestic conflict is social antagonism.

- Define: antagonism between a member of group *i* towards a member of group j = i's group identity $[\Phi(n_i)] \times \text{alienation i versus j } [\Psi(d_{ij})]$.
- Define: Polarization = sum of all inter-personal antagonisms=

$$=\sum_{i}n_{i}\sum_{j}n_{j}A[\Phi(n_{i}),\Psi(d_{ij})].$$

Starts with the premise that the cause of domestic conflict is social antagonism.

Define: antagonism between a member of group *i* towards a member of group j = i's group identity $[\Phi(n_i)] \times \text{alienation i versus j } [\Psi(d_{ij})]$.

Define: Polarization = sum of all inter-personal antagonisms=

$$=\sum_{i}n_{i}\sum_{j}n_{j}A[\Phi(n_{i}),\Psi(d_{ij})].$$

Esteban and Ray (1994) derive from three axioms the index

$$P = \sum_i \sum_j n_i^{1+lpha} n_j d_{ij}.$$












Polarization: axiom 2







Polarization: axiom 3



Polarization and social antagonism

We start with the generic polarisation index

Polarization and social antagonism

We start with the generic polarisation index

$$P = \sum_{i} n_{i} \sum_{j} n_{j} A[\Phi(n_{i}), \Psi(d_{ij})].$$

Polarization and social antagonism

We start with the generic polarisation index

$$P = \sum_{i} n_{i} \sum_{j} n_{j} A[\Phi(n_{i}), \Psi(d_{ij})].$$

If we agree that the three axioms capture how this measure should react to these changes, there is one and only one measure that behaves accordingly

$$P = \sum_{i} \sum_{j} n_i^{1+\alpha} n_j d_{ij}.$$

But, how does polarization relate to conflict?

But, how does polarization relate to conflict?

In Esteban-Ray (2011), and Esteban, Mayoral, Ray (2012a,b) we build a theory from which we obtain the specific relationships to be tested.

But, how does polarization relate to conflict?

In Esteban-Ray (2011), and Esteban, Mayoral, Ray (2012a,b) we build a theory from which we obtain the specific relationships to be tested.

m groups in conflict (onset not studied) to control government.

 N_i is population of group *i*, $\sum_{i=1}^m N_i = N$.

But, how does polarization relate to conflict?

In Esteban-Ray (2011), and Esteban, Mayoral, Ray (2012a,b) we build a theory from which we obtain the specific relationships to be tested.

- m groups in conflict (onset not studied) to control government.
- N_i is population of group *i*, $\sum_{i=1}^m N_i = N$.
- Individuals decide resource contribution r at convex utility cost c(r).

(We also have a model with contributions being either money or time.)

But, how does polarization relate to conflict?

In Esteban-Ray (2011), and Esteban, Mayoral, Ray (2012a,b) we build a theory from which we obtain the specific relationships to be tested.

- m groups in conflict (onset not studied) to control government.
- N_i is population of group *i*, $\sum_{i=1}^m N_i = N$.
- Individuals decide resource contribution r at convex utility cost c(r).

(We also have a model with contributions being either money or time.)

 $R_i = \sum_{k \in i} r_i(k)$ is total contributions by group *i* and $R = \sum_{i=1}^m R_i$.

But, how does polarization relate to conflict?

In Esteban-Ray (2011), and Esteban, Mayoral, Ray (2012a,b) we build a theory from which we obtain the specific relationships to be tested.

- m groups in conflict (onset not studied) to control government.
- N_i is population of group *i*, $\sum_{i=1}^m N_i = N$.
- Individuals decide resource contribution r at convex utility cost c(r).

(We also have a model with contributions being either money or time.)

 $R_i = \sum_{k \in i} r_i(k)$ is total contributions by group *i* and $R = \sum_{i=1}^m R_i$.

Probability of conquering power is given by

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

The winning group controls the government and decides on general policies and on the allocation of economic resources.

```
Public good prize: \pi per-capita scale \left[ \pi u_{ij} \right]
```

(religious dominance, political control, public goods... also hatred)

The winning group controls the government and decides on general policies and on the allocation of economic resources.

Public good prize: π per-capita scale $\left[\pi u_{ij} \right]$

(religious dominance, political control, public goods... also hatred)

Private good prize: μ per-capita [$\mu N/N_i = \mu/n_i$]

(Rents from oil, diamonds, scarce land, infrastructures in own region)

Payoffs (per-capita) to a member of group i

- If group i wins $\pi u_{ii} + \mu/n_i$, and
- If group j wins [and i doesn't] πu_{ij} .

- Payoffs (per-capita) to a member of group i
- If group i wins $\pi u_{ii} + \mu/n_i$, and
- If group j wins [and i doesn't] πu_{ij} .
- Net expected payoff to an individual k in group i is

$$artheta_i(k) = \sum_{j=1}^m p_j \pi u_{ij} + p_i rac{\mu}{n_i} - c\left(r_i(k)
ight).$$
pub priv cost

- Group commitment
- One extreme: individuals maximize own payoff.
- Another extreme: individuals act (as if) to maximize group payoffs.

- Group commitment
- One extreme: individuals maximize own payoff.
- Another extreme: individuals act (as if) to maximize group payoffs.

More generally: define k's extended utility by

$$V_{i(k)} = (1 - \alpha)\vartheta_i(k) + \alpha \sum_{\ell \in i} \vartheta_i(\ell) =$$
$$= \left[(1 - \alpha) + \alpha n_i \right] \left[\sum_{j=1}^m p_j \pi u_{ij} + p_i \frac{\mu}{n_i} \right] - c \left(r_i(k) \right) - \alpha \sum_{\ell \neq k \in i} c \left(r_i(\ell) \right).$$

- Group commitment
- One extreme: individuals maximize own payoff.
- Another extreme: individuals act (as if) to maximize group payoffs.

More generally: define k's extended utility by

$$\begin{split} V_{i(k)} &= (1 - \alpha)\vartheta_i(k) + \alpha \sum_{\ell \in i} \vartheta_i(\ell) = \\ &= \left[(1 - \alpha) + \alpha n_i \right] \left[\sum_{j=1}^m p_j \pi u_{ij} + p_i \frac{\mu}{n_i} \right] - c \left(r_i(k) \right) - \alpha \sum_{\ell \neq k \in i} c \left(r_i(\ell) \right). \end{split}$$

Equilibrium: Every k unilaterally maximizes her extended utility.

It is useful to rewrite the expected payoff in terms of losses.

- Loss in public payoff: $d_{ij} \equiv u_{ii} u_{ij}$.
- Individual total loss if j wins: $\Delta_{ii} \equiv 0$, and $\Delta_{ij} \equiv \pi d_{ij} + \mu/n_i$ for all $j \neq i$.

It is useful to rewrite the expected payoff in terms of losses.

- Loss in public payoff: $d_{ij} \equiv u_{ii} u_{ij}$.
- Individual total loss if j wins: $\Delta_{ii} \equiv 0$, and $\Delta_{ij} \equiv \pi d_{ij} + \mu/n_i$ for all $j \neq i$.

The expected payoff

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

can be rewritten as

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

It is useful to rewrite the expected payoff in terms of losses.

- Loss in public payoff: $d_{ij} \equiv u_{ii} u_{ij}$.
- Individual total loss if j wins: $\Delta_{ii} \equiv 0$, and $\Delta_{ij} \equiv \pi d_{ij} + \mu/n_i$ for all $j \neq i$.

The expected payoff

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

can be rewritten as

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

Hence,

$$V_{i(k)} = \left[(1-\alpha) + \alpha n_i \right] \left[u_{ii} + \frac{\mu}{n_i} - \pi \sum_{j=1}^m p_j \Delta_{ij} \right] - c \left(r_i(k) \right) - \alpha \sum_{\ell \neq k \in i} c \left(r_i(\ell) \right).$$

$$V_{i(k)} = \left[(1-\alpha) + \alpha n_i \right] \left[u_{ii} + \frac{\mu}{n_i} - \pi \sum_{j=1}^m p_j \Delta_{ij} \right] - c \left(r_i(k) \right) - \alpha \sum_{\ell \neq k \in i} c \left(r_i(\ell) \right).$$

The first order condition implies that

$$\pi \Big[(1-\alpha) + \alpha n_i \Big] p_i \sum_{j=1}^m p_j \Delta_{ij} = c' \left(r_i(k) \right) r_i(k).$$

Adding over the first order conditions and assuming that in equilibrium $p_i \approx n_i$ for all *i*, writing $\lambda = \frac{\pi}{\pi + \mu}$, and opening up Δ_{ij} , we obtain

$$V_{i(k)} = \left[(1-\alpha) + \alpha n_i \right] \left[u_{ii} + \frac{\mu}{n_i} - \pi \sum_{j=1}^m p_j \Delta_{ij} \right] - c \left(r_i(k) \right) - \alpha \sum_{\ell \neq k \in i} c \left(r_i(\ell) \right).$$

The first order condition implies that

$$\pi \left[(1-\alpha) + \alpha n_i \right] p_i \sum_{j=1}^m p_j \Delta_{ij} = c' \left(r_i(k) \right) r_i(k).$$

Adding over the first order conditions and assuming that in equilibrium $p_i \approx n_i$ for all *i*, writing $\lambda = \frac{\pi}{\pi + \mu}$, and opening up Δ_{ij} , we obtain

Theorem. In equilibrium

$$\frac{c'(\rho)\rho}{\pi+\mu} \approx \alpha \left[\lambda P + (1-\lambda)F \right] + (1-\alpha)\lambda \frac{G}{N} + \frac{\text{Constant}}{N}$$

$$\frac{c'(\rho)\rho}{\pi+\mu}\approx \alpha\big[\lambda P+(1-\lambda)F\big]+(1-\alpha)\lambda\frac{G}{N}+\frac{\text{Constant}}{N}$$
 Meaning of LHS

- Meaning of RHS
- We have derived from the model that the relation between conflict intensity and the distributional measures is linear.
- When group concern is maximal, $\alpha = 1$, only F and P play a role. With pure egoism, $\alpha = 0$, only G matters [but G/N is negligeable].

$$\frac{c'(\rho)\rho}{\pi+\mu} \approx \alpha \left[\lambda P + (1-\lambda)F \right] + (1-\alpha)\lambda \frac{G}{N} + \frac{\text{Constant}}{N}$$

Meaning of LHS

- Meaning of RHS
- We have derived from the model that the relation between conflict intensity and the distributional measures is linear.
- When group concern is maximal, $\alpha = 1$, only F and P play a role. With pure egoism, $\alpha = 0$, only G matters [but G/N is negligeable].
- When conflict is on a public good, $\lambda = 1$, only G and P and with a purely private payoff, $\lambda = 0$, only F matters.

$$\frac{c'(\rho)\rho}{\pi+\mu} \approx \alpha \left[\lambda P + (1-\lambda)F \right] + (1-\alpha)\lambda \frac{G}{N} + \frac{\text{Constant}}{N}$$

Meaning of LHS

- Meaning of RHS
- We have derived from the model that the relation between conflict intensity and the distributional measures is linear.
- When group concern is maximal, $\alpha = 1$, only F and P play a role. With pure egoism, $\alpha = 0$, only G matters [but G/N is negligeable].
- When conflict is on a public good, $\lambda = 1$, only G and P and with a purely private payoff, $\lambda = 0$, only F matters.
- With $\lambda = \alpha = 1 P$ is the only relevant indicator for conflict.

$$\frac{c'(\rho)\rho}{\pi+\mu} \approx \alpha \left[\lambda P + (1-\lambda)F \right] + (1-\alpha)\lambda \frac{G}{N} + \frac{\text{Constant}}{N}$$

Meaning of LHS

- Meaning of RHS
- We have derived from the model that the relation between conflict intensity and the distributional measures is linear.
- When group concern is maximal, $\alpha = 1$, only F and P play a role. With pure egoism, $\alpha = 0$, only G matters [but G/N is negligeable].
- When conflict is on a public good, $\lambda = 1$, only G and P and with a purely private payoff, $\lambda = 0$, only F matters.
- With $\lambda = \alpha = 1 P$ is the only relevant indicator for conflict.

Because of large populations we estimate (in three steps)

conflict intensity $= b_1 \alpha (1 - \lambda)F + b_2 \alpha \lambda P + b_3 X + \text{ error.}$

- Dependent variable
- Conflict intensity
- Key independent variables:
- Importance of material versus moral payoffs, λ
- Degree of social polarization and relevance of inter-group distances, δ_{ij}
- Sense of group commitment α

- Dependent variable
- Conflict intensity
- Key independent variables:
- Importance of material versus moral payoffs, λ
- Degree of social polarization and relevance of inter-group distances, δ_{ij}
- Sense of group commitment α

Controls: : population size [pop]; gross domestic product per capita [gdppc]; natural resources [nr], measured by the presence of oil or diamonds; the percentage of mountainous terrain [mount]; non-contiguity [ncont], countries separated from the land area; extent of democracy [democ]; the degree of power [pub] afforded to those who run the country, which is a proxy for the size of the public prize (more on this below); time dummies to capture possible global trends; and regional dummies to capture patterns affecting entire world regions. Finally, because current conflict is deeply affected by past conflict, we use lagged conflict as an additional control.

We study 138 countries over 1960–2008, with the time period divided into five-year intervals. That yields a total of 1125 observations (in most cases).

Conflict intensity

As death toll: PRIO dataset.

prio-c is equal to 0 if the country is at peace in those five years; to 1 if it has experienced low-intensity conflict (more than 25 battle related deaths but less than 1000) in any of these years, or to 2 if the country has been in high-level conflict (more than 1000 casualties) in any of the five years.

As social unrest: the Index of Social Conflict, isc, computed by the Cross-National Time-Series Data Archive.

It provides a continuous measure of several manifestations of social unrest with no threshold dividing "peace" from "war". The index isc is formed by taking a weighted average over eight different manifestations of internal conflict, such as politically motivated assassinations, riots, guerrilla warfare, etc.

Fractionalization and Polarization, F and P

Two inputs needed: group size of every ethnicity and cultural distances.

Ethnic group sizes

We have use the data assembled and standardised by J. Fearon. But we also use the definition of linguistic groups provided by Ethnologue.

Fractionalization and Polarization, F and P

Two inputs needed: group size of every ethnicity and cultural distances.

Ethnic group sizes

We have use the data assembled and standardised by J. Fearon. But we also use the definition of linguistic groups provided by Ethnologue.

Cultural distances

Using Ethnologue we know the dominant language of each ethnic group. We proxy cultural distance by the number of step back in the language tree since the two languages split apart.

Group concern, α

We used the World Values Surveys. From the answers to questions like adherence to social norms, identification with the local community, the importance of helping others, and so on. We compute the national average.
Empirical implementation

Relative publicness of the payoff, λ .

Our proxy for the relative publicness of the prize is given by

 $\Lambda \equiv (\gamma pub*gdppc) / (\gamma pub*gdppc + oilrsvpc)$

Private payoff

We use the value of oil reserves per-capita as an indicator of appropriable rents, hence private payoff, OILRSVPC.

Empirical implementation

 $\Lambda \equiv (\gamma pub*gdppc) / (\gamma pub*gdppc + oilrsvpc)$

Public payoff

We create an index of public payoff, PUB, by measuring the degree of power afforded to those who run the country, "more democratic" being regarded as correlated with "less power".

We use four different proxies for the index: (i) the lack of executive constraints, (ii) the level of autocracy, (iii) the degree to which political rights are flouted, and (iv) the extent of suppression of civil liberties.

We use time-invariant dummies of these variables based on averages over the sample, since short-run changes are likely to be correlated with the incidence of conflict.

We multiply the PUB indicator by per-capita GDP to convert the "public payoff" estimate into monetary equivalents.

The "conversion factor" γ makes the privateness and publicness variables comparable, and allows us to combine them to arrive at the ratio Λ . In the empirical exercise we present here, we set $\gamma = 1$. But the results are robust to the precise choice of this parameter.

Mariable	(1)	(2)	(3)	(4)	(5)	(6)
Variable	prio-c	ISC	prio-c	ISC	prio-c	150
Р	$*** 5.16 \\ (0.001)$	$^{***}_{(0.002)}$	$-1.48 \\ (0.606)$	$-16.33 \ (0.227)$	$^{-1.47}_{(0.701)}$	$^{-23.80}_{(0.212)}$
F	$^{* }_{(0.070)} \overset{0.93}{_{(0.070)}}$	$^{\boldsymbol{*}}_{\substack{3.56\\(0.061)}}$	$0.76 \\ (0.196)$	$0.31 \\ (0.878)$	$\underset{(0.403)}{0.87}$	$^{-0.16}_{(0.710)}$
$P\lambda$			$^{***}_{(0.003)}$	$61.89 \\ (0.001) \\ ***$		
$F(1-\lambda)$			$1.19 \\ (0.097)$	$10.40 \\ (0.000)$	*	***
$P\lambda\alpha$					$12.65 \\ (0.087)$	90.32 (0.010) **
$F(1-\lambda)lpha$					$\begin{array}{c} 2.54 \\ (0.164) \end{array}$	$\begin{array}{c}13.15\\(0.018)\end{array}$
gdppc	$^{**}_{(0.047)}$	$*** - 2.26 \\ (0.004)$	* - 0.36 (0.080)	$*** - 3.02 \\ (0.001)$	$- \begin{array}{c} 0.25 \\ (0.375) \end{array}$	$*** - 3.68 \\ (0.007)$
рор	$^{***}_{(0.000)}$	$^{***}_{(0.000)}$	$^{***}_{(0.001)} \\ 0.21_{(0.001)}$	$^{***}_{(0.000)}$	$* 0.09 \\ (0.166)$	$^{**}_{(0.013)}$
nr	$^{-0.27}_{(0.178)}$	$- \begin{array}{c} 0.53 \\ (0.497) \end{array}$	$^{-0.00}_{(0.570)}$	$\substack{0.00\\(0.432)}{*}$	$^{**}_{(0.011)}^{0.00}$	${f \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$
mount	$0.00 \ (0.537) \ ***$	$0.02 \\ (0.186) \\ ***$	$0.00 \\ (0.362) \\ **$	0.03 (0.061) ***	0.01 (0.060) ***	0.05 (0.020) ***
ncont	$1.06 \\ (0.001)$	$4.55 \\ (0.001)$	$0.77 \\ (0.026)$	$4.28 \\ (0.001) \\ **$	$1.37 \\ (0.004)$	$5.89 \\ (0.000)$
politics	$0.18 \\ (0.498) \\ * * *$	$0.29 \\ (0.789) \\ * * *$	-0.00 (0.328)	- 0.00 (0.026)	$0.00 \\ (0.886) \\ * * *$	-0.00 (0.374)
lag	$1.99 \\ (0.000)$	$0.46 \\ (0.000)$	$1.94 \\ (0.000)$	0.44 (0.000)	1.84 (0.000)	$0.40 \\ (0.000)$
const	-	$0.90 \\ (0.915)$	-	$9.19 \\ (0.398)$	-	$\begin{array}{c} 15.40 \\ (0.328) \end{array}$
(Pseudo)- R^2	0.35	0.43	0.36	0.44	0.40	0.43
Observations Countries	1125 138	1111 138	1104 138	1090 138	44 <i>1</i> 53	443 53

- The links between ethnicity and conflict are significant and strong.
- The theory allows us to draw additional interesting inferences:

The links between ethnicity and conflict are significant and strong.

The theory allows us to draw additional interesting inferences:

We find conclusive evidence that monetary gains, "greed", is not the only significant driver: public payoffs are significant and very important. Otherwise only fractionalization would matter, not polarization.

The links between ethnicity and conflict are significant and strong.

The theory allows us to draw additional interesting inferences:

We find conclusive evidence that monetary gains, "greed", is not the only significant driver: public payoffs are significant and very important. Otherwise only fractionalization would matter, not polarization.

Theory says that P and F have to enter interacted with publicness and α . Indeed, once interacted are the only ones to remain significant.

■ The disappearance of the effects of *P* and *F* once interactions are introduced suggests that ethnicity matters, not intrinsically [primordialists], but rather instrumentally when ethnic markers are used to restrict political power or economic benefits to a subset of the population.

The links between ethnicity and conflict are significant and strong.

The theory allows us to draw additional interesting inferences:

We find conclusive evidence that monetary gains, "greed", is not the only significant driver: public payoffs are significant and very important. Otherwise only fractionalization would matter, not polarization.

Theory says that P and F have to enter interacted with publicness and α . Indeed, once interacted are the only ones to remain significant.

■ The disappearance of the effects of *P* and *F* once interactions are introduced suggests that ethnicity matters, not intrinsically [primordialists], but rather instrumentally when ethnic markers are used to restrict political power or economic benefits to a subset of the population.

■ The model works well with both high intensity civil wars [PRIO-C] and smaller scale social unrest [ISC].

The links between ethnicity and conflict are significant and strong.

The theory allows us to draw additional interesting inferences:

We find conclusive evidence that monetary gains, "greed", is not the only significant driver: public payoffs are significant and very important. Otherwise only fractionalization would matter, not polarization.

Theory says that P and F have to enter interacted with publicness and α . Indeed, once interacted are the only ones to remain significant.

■ The disappearance of the effects of *P* and *F* once interactions are introduced suggests that ethnicity matters, not intrinsically [primordialists], but rather instrumentally when ethnic markers are used to restrict political power or economic benefits to a subset of the population.

■ The model works well with both high intensity civil wars [PRIO-C] and smaller scale social unrest [ISC].

■ No regional effects: we use regional controls. Also have repeated the exercise by removing one continent at a time.

The links between ethnicity and conflict are significant and strong.

The theory allows us to draw additional interesting inferences:

We find conclusive evidence that monetary gains, "greed", is not the only significant driver: public payoffs are significant and very important. Otherwise only fractionalization would matter, not polarization.

Theory says that P and F have to enter interacted with publicness and α . Indeed, once interacted are the only ones to remain significant.

■ The disappearance of the effects of *P* and *F* once interactions are introduced suggests that ethnicity matters, not intrinsically [primordialists], but rather instrumentally when ethnic markers are used to restrict political power or economic benefits to a subset of the population.

■ The model works well with both high intensity civil wars [PRIO-C] and smaller scale social unrest [ISC].

■ No regional effects: we use regional controls. Also have repeated the exercise by removing one continent at a time.

Caveat: ethnicity is one factor of conflict but this does not say that economic class differences might also be relevant. In research agenda.