

# **THE MOTIVATING AND MOBILIZING EFFECT OF INEQUALITY ON CIVIL CONFLICT**

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## Enduring Question since "The Communist Manifesto" (Marx, 1848)

- **[Class Struggle]** Inequality among individuals → Internal Conflict
- Current Discussions
  - ▶ Meta analyses & Annual reviews: **No significant correlations** (Bahgat et al, 2017; Ray & Esteban, 2017)
  - ▶ Alternative approach (2011) - **ethnic group** not social class
    - (Political Science) Theory of horizontal inequality
    - (Economics) Theory of within-group Inequality
    - Empirically inconclusive and remained correlation at best

# RESEARCH QUESTIONS

## Questions:

**Causation** Does Inequality Cause Civil Conflict?

**Subject** By Which Channels?

**Mechanism** How does the Ethnic Group motivate and mobilize Collective Violence?

# CONCEPTUAL FRAMEWORKS

## **G.E of Social Conflict (Dalbo et al, 2011) :**

Productive sectors & Appropriation sector (= rebellion)

The appropriated (looting) amount =  $W(L_A)[P_R R + P_L(L - L_A)]$

$$\frac{W(L_A)}{L_A} [P_R R + P_L(L - L_A)] = [1 - W(L_A)]P_L$$

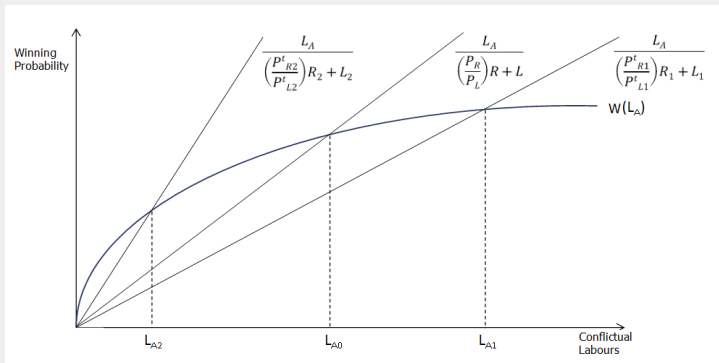
$$W(L_A) = \frac{L_A}{\left(\frac{P_R}{P_L}\right)R + L}$$

## **Heckscher-Ohlin and Stolper-Samuelson theorems:**

Income distribution determined by factor endowment & trade

$$\left(\frac{R}{L} \times \frac{1}{\text{tariff}}\right) \propto \Delta \frac{P_R^t}{P_L^t} \propto G$$

**Figure:** Inequality and Supply of Conflictual Labour



**Hypothesis 1** Income inequality among individuals should raise the risk of civil conflict onset.

**Public Good Dilemma:** Non-excludable Return → Free-rider Problem

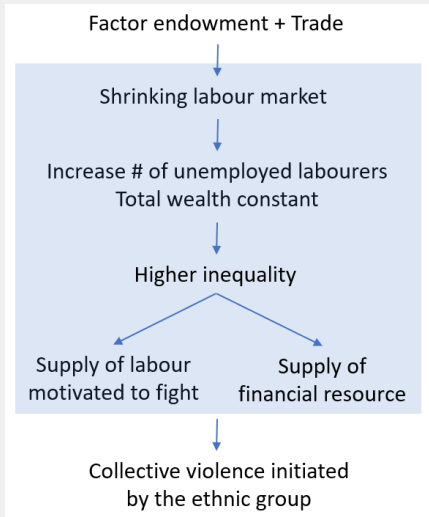
## Solutions

- **Community**: Solidarity - Ethnic Group (not Social Class)
- **Market**: Selective Incentive - Cost/Benefit Calculus

**Within-group Inequality** (cf. Horizontal Inequality) Info

- **[Community]** Channel = Ethnic group
- **[Market]** Cost/benefit = Hierarchical condition
  - ▶ Specializing the provision of public goods
  - ▶ Labourer from the unemployed and funds from the elites

# CHANNELS AND MECHANISM OF MOBILIZATION



## ■ Supply of Labour

- ▶ Lower opp.cost for the unemployed to fight

## ■ Supply of Resource

- ▶ Contest theory + Neutrality theorems
- ▶ Elites (Richer) - Expected larger share of the return + Better position

- **Hypothesis 2:** A higher unemployment rate within the ethnic group while holding aggregate wealth constant → Higher prob. conflict initiated by the group.



# EMPIRICAL ANALYSIS

# IDENTIFICATION STRATEGY I: MOTIVATING EFFECT

**Causation** Does Inequality Cause Civil Conflict?

$$\mathbf{H1} \quad \left( \frac{R}{L} \times \frac{1}{\text{tariff}} \right) \propto \Delta \frac{P_R^t}{P_L^t} \propto G \propto L_A$$

**IV Method** Isolating Exogenous Variation in Inequality

$$G_{ct} = \alpha \left( F_{ct} \times \frac{1}{T_{ct}} \right) + X_{ct}\Pi + \delta_c + \theta_t + \lambda_c Y_t + \varepsilon_{ct}$$

$$C_{ct} = \beta \hat{G}_{ct} + X_{ct}\Pi + \delta_c + \theta_t + \lambda_c Y_t + \epsilon_{ct}$$

- Inequality (Gini coefficient,  $G_{ct}$ ): Gini coefficient in Country  $c$  in Year  $t$
- Instrument ( $F_{ct} \times (1/T_{ct})$ ): Factor endowment  $\times$  (1/tariff rate)
- Civil Conflict Onset ( $C_{ct}$ ): Armed conflict with 25+ casualties
- Controls ( $X_{ct}$ ): All controls prominently cited in previous literature

## Components of Instrumental Variable [More info](#)

- Land: Area of Agricultural Land (Temporary cultivation + Potentially cultivable but not temporary cultivated)
- Labour: Working Age Population (15-64)
- Tariff: Simple Average Tariff for All Traded Products
- $(\text{Agricultural Land}/\text{Working-age Population}) \times (1/\text{Tariff})$

## To Satisfy Conditions of Instrument

- Exogeneity: Selecting Measures and Including Fixed Effects
- Relevance: Controlling Gross Capital, Rents, Population and Population density

# DATA: CROSS COUNTRY-YEAR ANALYSIS

VARIABLES	(1) Mean	(2) Std. Dev	(3) Min	(4) Max
Onset of Civil Conflict	0.0448	0.207	0	1
ln (Death)/ ln (Population)	0.0585	0.132	0	0.663
<b>Gini Coefficient<sup>1</sup></b>	0.384	0.0849	0.175	0.670
Tariff rate	9.036	7.447	0.0400	105.4
Agricultural Land (1000 ha)	25,851	67,743	0.300	528,635
Population 15-64	2.243e+07	8.750e+07	39,196	9.960e+08
Factor Endowments x (1/ tariff)	0.00106	0.0346	5.46e-07	1.811
Gross capital formation (percent GDP)	23.26	8.362	-2.424	67.91
ln GDP per capita	7.998	1.634	4.546	11.69
GDP growth rate (annual percent)	2.148	6.544	-65.00	140.5
Fuel export (percent of merchandise exports)	15.29	26.04	0	99.97
Total natural resource rent (percent of GDP)	7.554	11.69	0	82.59
Net Foreign Direct Investment	-3.439e+08	1.763e+10	-2.320e+11	1.770e+11
Polity Score	2.860	6.754	-10	10
ln Population	15.40	2.193	9.077	21.04
Population Density	168.8	490.6	0.136	7,807
ln Mountainous terrain	2.151	1.414	0	4.421
Intake of Primary Education	102.1864	21.23117	23.49629	260.9783
Ethnic Fractionalization	0.406	0.281	0.00100	0.925
Employment to Population ratio	57.55	11.41	29.18	89.24

<sup>1</sup>The data is from the Standardized World Income Inequality Database SWIID

# FINDINGS: BASELINE ESTIMATES

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable:	Civil Conflict Onset					
Panel A: OLS estimates						
Gross Income Inequality	0.064 (0.048)	-0.016 (0.051)	-0.029 (0.064)	0.190 (0.292)	0.179 (0.376)	0.458 (0.416)
Panel B: Reduced Form						
Factor Endowments x (1/tariff)	-0.019*** (0.006)	-0.006 (0.008)	-0.0005 (0.008)	0.010* (0.006)	0.022* (0.012)	0.021* (0.011)
Panel C: SLS estimates						
Gross Income Inequality	0.738* (0.420)	-0.009 (0.107)	0.012 (0.110)	0.631* (0.371)	<b>1.806**</b> (0.784)	<b>1.791**</b> (0.745)
Dependent variable:	Gross Income Inequality					
Panel D: First Stage estimates						
Factor Endowments x (1/tariff)	-0.0207*** (0.0077)	-0.0666*** (0.0109)	-0.0783*** (0.01482)	0.0187*** (0.0009)	0.0173*** (0.0013)	0.0174*** (0.0014)
Kleibergen-Paap F-statistic	5.517	46.31	27.63	311.5	190.1	173.2
Number of countries	147	125	106	147	125	111
Observations	2,297	1,945	921	2,297	1,945	1,477
Contrl	NO	YES	YES	NO	YES	YES
Edu.Contrl	NO	NO	YES	NO	NO	YES
Country FE	NO	NO	NO	YES	YES	YES
Year FE	NO	NO	NO	YES	YES	YES
Country Specific Time Trend	NO	NO	NO	YES	YES	YES

# FINDINGS: MAIN ESTIMATES

	Main Specification	
	(5)	(6)
Dependent variable: Panel A: OLS estimates Gross Income Inequality	Civil Conflict Onset	
	0.179 (0.376)	0.458 (0.416)
Panel B: Reduced Form Factor Endowments x (1/tariff)	<b>0.022*</b> (0.012)	<b>0.021*</b> (0.011)
Panel C: SLS estimates Gross Income Inequality	<b>1.806**</b> (0.784)	<b>1.791**</b> (0.745)
Dependent variable: Panel D: First Stage estimates Factor Endowments x (1/tariff)	Gross Income Inequality	
	<b>0.0173***</b> (0.0013)	<b>0.0174***</b> (0.0014)
Kleibergen-Paap F-statistic	<b>190.1</b>	<b>173.2</b>
Number of countries	125	111
Observations	1,945	1,477
Contrl	YES	YES
Edu.Contrl	NO	YES
Country FE	YES	YES
Year FE	YES	YES
Country Specific Time Trend	YES	YES

## 2SLS Estimates

- Identify **Causal Impact** of Inequality on Conflict
- Cote d'Ivoire (Gini: 0.368) vs. Congo (Gini: 0.452) in 2005: Approx. 1.5 times greater risk in Congo
- Similar magnitude with the causal effect of GDP growth (Miguel et al, 2004)

## First Stage Estimates

- F-stat  $\gg 10$ , Strong relevance  
→ Consistent 2SLS estimate
- The change in labour market driven by trade is a **strong predictor** of inequality variation

# FINDINGS: ALTERNATIVE SPECIFICATIONS

	Baseline (1)	Battle Death (2)	Net Income (3)	Non-Western (4)	Low income (5)
Panel A: OLS estimates					
Income Inequality	0.179 (0.376)	-0.255 (0.249)	0.342 (0.253)	0.296 (0.487)	0.381 (0.535)
Panel B: Reduced Form					
Factor Endowments x (1/tariff)	0.022* (0.012)	0.012** (0.005)	0.022* (0.012)	0.028** (0.013)	0.029* (0.015)
Panel C: SLS estimates					
Income Inequality	<b>1.806**</b> (0.784)	<b>0.704**</b> (0.337)	<b>2.830**</b> (1.435)	<b>2.198***</b> (0.828)	<b>1.979**</b> (0.802)
Panel D: First Stage estimates					
Factor Endowments x (1/tariff)	0.017*** (0.001310)	0.017*** (0.001310)	0.009*** (0.001850)	0.018*** (0.001412)	0.019*** (0.001528)
Kleibergen-Paap F-statistic	190.1	190.1	29.07	173.2	155.7
Number of countries	125	125	125	104	104
Observations	1,945	1,945	1,891	1,451	1,275
Contrl	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Country Specific Time Trend	YES	YES	YES	YES	YES

# ROBUSTNESS CHECK

VARIABLES	(1) Capital	(2) Tech	(3) Politics	(4) Tech and Capital	(5) Politics and Capital	(6) Full
Inequality	<b>2.163**</b> (1.045)	<b>2.759*</b> (1.411)	<b>2.436*</b> (1.458)	<b>2.575**</b> (1.111)	<b>2.044**</b> (1.032)	<b>2.478**</b> (1.091)
Net ODA	0.001 (0.001)			0.001 (0.001)	0.00023 (0.006)	-0.00017 (0.00048)
Net Financial Account	1.14e-12*** (3.92e-13)			1.18e-12*** (3.27e-13)	1.16e-12*** (4.04e-13)	1.18e-12*** (3.45e-13)
Remittance	1.33e-12 (3.20e-12)			1.69e-12 (2.83e-12)	1.40e-12 (3.43e-12)	1.65e-12 (3.15e-12)
Net National Incom	-4.68e-06 (.000011)			-4.37e-07 (9.65e-06)	-7.17e-06 (.00001)	-2.68e-06 (9.28e-06)
High-technology exp		4.24e-13 (5.05e-13)		2.71e-13 (0.000)		0.000 (5.34e-13)
Regulation of Execut' Recruit			0.022 (0.092)		0.115* (0.062)	0.112* (0.062)
Competitiven' of Execut'			0.010 (0.065)		-0.040 (0.045)	-0.040 (0.045)
Regulation of Participat'			0.009 (0.028)		0.046 (0.038)	0.053 (0.037)
Competitiven' of Participat'			0.004 (0.023)		-0.003 (0.023)	-0.013 (0.022)
Observations	1,037	1,709	1,706	1,031	1,023	1,017
R-squared	0.213	0.138	0.186	0.187	0.241	0.219
KP F-Stat	84.55	125.5	111.5	102.6	80.05	95.17
Fixed & Contrl	YES	YES	YES	YES	YES	YES



# FALSIFICATION TEST

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	tariff, t-3	tariff, t-2	tariff, t-1	<b>tariff, t</b>	tariff, t+1	tariff, t+2	tariff, t+3
Dependent variable:	Civil Conflict Onset						
Panel A: Reduced form							
Factor Endowments x (1/tariff)	-0.005 (0.017)	-0.006 (0.020)	-0.002 (0.014)	<b>0.023*</b> (0.012)	0.005 (0.013)	0.002 (0.019)	0.011 (0.023)
Panel B. 2SLS estimates:							
Gross Income Inequality	-3.373 (2.051)	-1.575 (1.766)	-0.952 (1.374)	<b>1.806**</b> (0.784)	2.362 (2.459)	1.928 (2.940)	-4.410 (3.503)
KP F-Stat	17.65	57.64	66.15	<b>190.1</b>	21.19	22.18	18.30
Observations	1,672	1,707	1,730	1,736	1,672	1,610	1,548
Contrl	YES	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES
Country Specific Time Trend	YES	YES	YES	YES	YES	YES	YES

## Exclusion Restriction Condition of IV

- **Fixed Effects** Year F.E & Country-Specific time trend address *Spurious Time Trend*
- **No effects on Placebo Treatments:** Civil Conflict Variation Only Corresponds to Tariff, not any other concurrent events

## IDENTIFICATION STRATEGY 2: MOBILIZING EFFECT

**Subject** Whose Opportunity Cost and By Which Channel?

**Assumptions** the Unemployed and the Ethnic Group

**Sub-Group** Heterogeneous Effect Conditional on the Contexts

$$C_{ct} = \beta(G_{ct} \times D_{ct}) + X_{ct}\Gamma + \gamma_c + \delta_t + \lambda_c Y_t + \epsilon_{ct}$$

- Subgroup  $D_{ct}$  : Dummies divided by the median value of 'Employment rate' or 'Ethnic Fractionalization'

# HETEROGENEOUS ANALYSIS

	Baseline	Employment rate (15-64)		Ethnic Fractionalization	
	(1)	(2)	(3)	(4)	(5)
Intensity (Low < Median < High)		Low	High	Low	High
Panel A: 2SLS estimates					
Gross Income Inequality	1.806** (0.784)	<b>2.737**</b> (1.339)	0.738 (2.752)	-1.528 (1.498)	<b>2.364*</b> (1.243)
KP F-Stat	190.1	<b>56.24</b>	1.166	2.243	<b>73.70</b>
Panel B: Reduced form					
Factor Endowments x (1/tariff)	0.022* (0.012)	<b>0.080**</b> (0.032)	-5.910 (6.194)	6.723 (10.433)	<b>0.042*</b> (0.023)
Number of countries	125	69	70	54	56
Observations	1,945	928	961	1,123	797
Samples exl. Western Europe and North America					
Panel C: 2SLS estimates					
Gross Income Inequality	2.198*** (0.828)	<b>3.540**</b> (1.454)	-0.143 (3.403)	-0.852 (2.957)	<b>3.304**</b> (1.337)
KP F-Stat	173.2	<b>62.93</b>	1.241	1.681	<b>53.92</b>
Panel D: Reduced form					
Factor Endowments x (1/tariff)	0.028** (0.013)	<b>0.093**</b> (0.035)	-8.928 (8.730)	-1.574 (23.631)	<b>0.058**</b> (0.024)
Number of countries	104	55	57	39	52
Observations	1,451	722	741	766	706
R-squared	0.177	0.217	0.272	0.219	0.224
Controls	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Country Specific Time Trend	YES	YES	YES	YES	YES

# FINDINGS: HETEROGENEOUS ANALYSIS

Intensity (Low < Median < High)	Employment	Ethnic
	(1) <b>Low</b>	(2) <b>High</b>
Panel A: 2SLS estimates		
Gross Income Inequality	<b>2.737**</b> (1.339)	<b>2.364*</b> (1.243)
KP F-Stat	<b>56.24</b>	<b>73.70</b>
Panel B: Reduced form		
Factor Endowments x (1/tariff)	<b>0.080**</b> (0.032)	<b>0.042*</b> (0.023)
Controls	YES	YES
Country FE	YES	YES
Year FE	YES	YES
Country Specific Time Trend	YES	YES

## Main Agent of Initiating Conflict

- Whose opp.cost? **the Unemployed** motivated to fight.
- Which channel? **Ethnic group** Channel of mobilizing collective action

- Factor endowment & trade → Changes in Labour Market → Inequality (First-stage estimates) → **Agent: the Unemployed and the Ethnic group** (Sub-group analysis) → Internal Conflict

# IDENTIFICATION STRATEGY 2: MOBILIZING EFFECT

**Mechanism** What Characteristics of the Ethnic Group allows the Ethnic Group to Mobilize Collective Violence?

**H2** Within-Ethnic Group Inequality

**Method** Estimating the Effect of the Unemployed While holding Total Wealth Constant

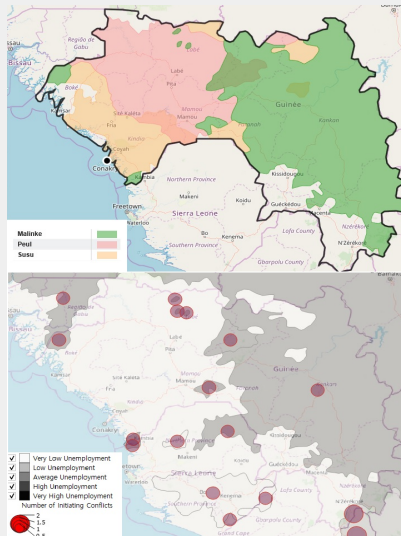
$$C_{ec} = \beta U_{ec} + \gamma A_{ec} + X_{ec}\Theta + \eta_c + \psi_r + \varepsilon_{ec}$$

- Civil Conflict Initiated by the Ethnic group  $e$  in Country  $c$  ( $C_{ec}$ )
- Unemployment Rate Within the Ethnic group  $e$  in Country  $c$  ( $U_{ec}$ )
- Aggregate Wealth of the Ethnic Group  $e$  in Country  $c$  ( $A_{ec}$ )

# DATA: WITHIN-ETHNIC GROUP ANALYSIS

## Merging Data

- UCDP data (rebellion-govt)
  - ▶ Identified ethnic groups joined in the rebellion
- EPR data
  - ▶ Ethnic total wealth, geographical location and etc
- International IPUMS census data (obs: 100 millions)
  - ▶ Status of employment, residential area, ethnicity, religion etc.



# DATA: WITHIN-ETHNIC GROUP ANALYSIS

VARIABLES	(1) Mean	(2) Std.Dev	(3) Min	(4) Max
A. Conflict Measures (1988-2015)				
Average of Civil Conflict Onset 1988-2015	0.00384	0.0147	0	0.107
Average of Conflict Incidence 1988-2015	0.0296	0.130	0	0.929
B. Unemployment Measures				
Unemployment Rate	0.0890	0.112	0	0.544
Unemployment Rate in Rural area	0.0445	0.0636	0	0.372
Unemployment Rate in Urban area	0.0641	0.0715	0	0.383
Aggregated Night Light	433,748	1.805e+06	5.000	1.959e+07
Average of Ethnic-level GDP 1990-2005	64.59	285.2	0.00618	3,149
C. Demographic Characteristics				
Rural Residence	0.602	0.269	0.0207	0.991
Marital Status	0.675	0.0886	0.380	0.915
Education Attainment	1.911	0.530	1.049	3.348
Literacy	2.109	3.552	1.100	34.33
Age	33.02	4.269	0.491	42.22
Sex	0.511	0.0831	0.169	1
Number of Child	1.335	0.388	0.0795	2.694
Ethnic Group's Population Portion	0.178	0.284	1.12e-05	0.981
Proportion of Christian	0.557	0.391	0	1
Proportion of Muslim	0.237	0.375	0	1
Proportion of Hindu	0.0140	0.0989	0	1
Proportion of Buddhist	0.0444	0.190	0	1
Proportion of Other religions	0.0575	0.160	0	1

# FINDINGS: WITHIN-ETHNIC GROUP ANALYSIS

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable:	Average of Conflict Initiation from 1988-2015					
<b>Unemployment</b>	<b>0.131*</b> (0.065)	<b>0.132*</b> (0.066)	<b>0.135*</b> (0.068)	<b>0.237***</b> (0.075)	<b>0.237***</b> (0.076)	<b>0.233***</b> (0.062)
<b>GDP of ethnic group</b>	5.22e-06 (6.33e-06)		-0.0001 (0.0016)	0.00003* (0.000013)		0.00016 (0.0027)
<b>Night Light</b>		8.68e-10 (1.01e-09)	1.31e-08 (2.45e-08)		3.75e-09* (2.00e-09)	-2.18e-08 (4.24e-08)
Demographic controls:						
Rural residence	0.015	0.016	0.014	0.032	0.031	0.039
Age	0.002	0.002	0.002	0.010	0.010	0.010
Sex	-0.034	-0.038	-0.038	0.060	0.055	0.042
Literacy	-0.015	-0.014	-0.013	-0.009	-0.008	-0.008
Years of education	0.018	0.018	0.017	0.036	0.034	0.036
Marital status	-0.069	-0.071	-0.068	-0.244	-0.244	-0.274
Number of child	0.019*	0.019*	0.019*	0.058**	0.058**	0.059**
Population	2.2e-10	1.84e-10	5.53e-10	1.95e-09	2.12e-09	1.36e-09
Proportion of Population	-0.014	-0.013	-0.015	-0.029	-0.029	-0.025
Observations	94,068,879	94,068,879	94,068,879	85,125,936	72,483,049	72,483,049
Included ethnic groups	144	143	143	85	84	84
R-squared	0.452	0.452	0.455	0.555	0.553	0.559
<b>Religion FE</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
Country FE	YES	YES	YES	YES	YES	YES



# FINDINGS: WITHIN-ETHNIC GROUP ANALYSIS

	Within-Group Inequality Models			Horizontal Inequality Models		
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable:	Average of Conflict Initiation from 1988-2015					
<b>Unemployment</b>	<b>0.237***</b> (0.075)	<b>0.237***</b> (0.076)	<b>0.233***</b> (0.062)			
<b>GDP of ethnic group</b>	0.00003* (0.000013)		0.00016 (0.0027)	<b>4.23e-06</b> (0.000013)		<b>0.002</b> (0.00034)
<b>Night Light</b>		3.75e-09* (2.00e-09)	-2.18e-08 (4.24e-08)		<b>2.49e-10</b> (3.09e-09)	<b>-2.97e-08</b> (5.67e-08)
Observations	85,125,936	72,483,049	72,483,049	85,125,936	72,483,049	71,777,299
Included ethnic groups	85	84	84	85	84	84
R-squared	0.555	0.553	0.559	0.490	0.490	0.498
Demographic Contrls	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES
Religion FE	YES	YES	YES	YES	YES	YES

## Significant and Substantial Mobilizing Effect of Within-Ethnic Group Inequality

- While holding total wealth constant, 1 p.p increase in the unemployed raises **53% increase** of the sample mean of civil conflict initiated by this ethnic group
- **No effects on total wealth:** Absolute poverty of ethnic group is not associated with the probability of conflict initiation.

# CONCLUSION

# CONCLUSION

## Contributions

- Empirically Prove the Causal Effect of Inequality on Internal Conflict
- Identify the Channel & Mechanism
  - ▶ Provide empirical evidence for within-group inequality
  - ▶ Case studies: Rich Elites Provoking Conflict + Rural Unemployed Youth Recruited as Combatants (e.g. Rwanda, Sri Lanka, and India [Details](#))

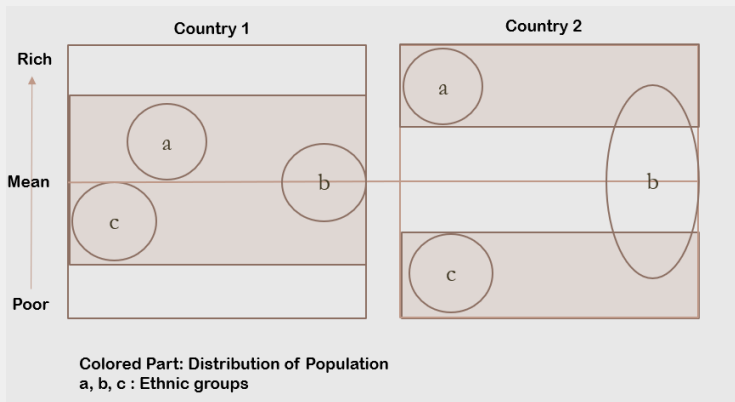
## Policy Implications

- Trade-induced inequality - Rational approach to resolve the conflict
- Aid Policy: Raising industry's capacity of absorbing labours



# HORIZONTAL INEQUALITY

Horizontal inequality vs. Within-group inequality [back](#)



# HORIZONTAL INEQUALITY

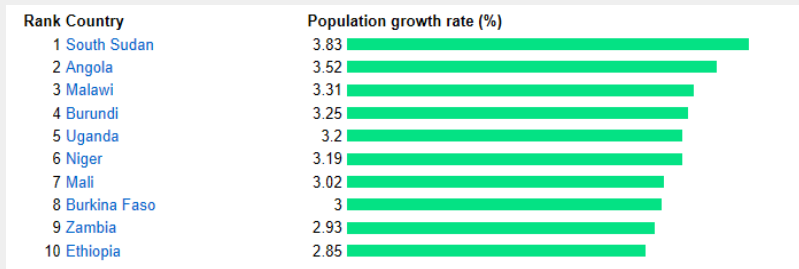
Inequality between ethnic groups [back](#)

- Motivation: Grievance by intergroup comparison
- Mobilization: Solidarity shared in ethnic group
- Channel/Mechanism - Deprived ethnic group more likely to initiate the conflict

## IV- POPULATION

Variation of instrument driven largely by population change [back](#)

- Africa - Land rich and High Population Rates
- Underestimate the effect of factor endowment on civil conflict



## IV ENDOGENEITY

Endogeneity Problem: Factor endowment (land or population) reduced by the conflict [back](#)

- Land including cultivable area as well as temporarily cultivated ones
- Civil conflict death: Average of 15-64 population is 20 million
- the median of of battle death is 205 and the average of battle death is 1143
- Controlling total population and population density



# HOW TO SELECT A SWIID GINI INDEX AMONG 100?

## SWIID Dataset [back](#)

- Use *mi estimate* But, not support IV estimation
- Different versions cover different periods
- Tariff data covers upto 1988 - missed in the recent version
- Gap between 1994 in SWIID 3 and 1995 in SWIID 7 indices

## Bartusevicius, 2014

- Construct imputed data based on SWIID covering 1970-2010
- Select the most similar Gini index in SWIID 7 with the imputed data of SWIID 3
- Connect the omitted time trend

# ROBUST CHECK WITH MEAN AND MEDIAN INDICES

VARIABLES	(1) Gini Index	(2)	(3) Average Gini	(4)	(5) Median Gini	(6)
Gini coefficient	<b>1.905*</b> (1.003)	<b>1.686*</b> (1.000)	<b>10.269**</b> (5.141)	<b>9.751*</b> (5.576)	<b>11.017*</b> (5.696)	<b>10.371*</b> (6.013)
Net financial account	5.61e-13 (3.45e-13)	5.86e-13 (3.42e-13)	3.69e-13 (3.69e-13)	4.00e-13 (3.64e-13)	3.41e-13 (3.71e-13)	3.74e-13 (3.60e-13)
Personal remittances, received	-1.79e-12 (2.88e-12)	-1.77e-12 (2.79e-12)	-3.33e-12 (5.45e-12)	-2.67e-12 (5.23e-12)	-3.37e-12 (5.81e-12)	-2.99e-12 (5.58e-12)
Adjusted net national income_pc	-5.99e-07 (8.63e-14)	-3.01e-07 (1.11e-06)	-1.43e-06 (2.38e-06)	-1.03e-06 (2.29e-06)	-1.18e-06 (2.53e-06)	-1.01e-06 (2.41e-06)
Executive (Exct) Constraints		-0.021 (0.037)		-0.050 (0.041)		-0.0558 (0.044)
Regulation of Chief Exct Recruitm't		0.057 (0.074)		0.039 (0.080)		0.011 (0.084)
Competitiveness Exct Recruitm't		0.008 (0.076)		-0.013 (0.077)		0.032 (0.062)
Openness of Exct Recruitm't		-0.025 (0.031)		-0.009 (0.030)		-0.024 (0.020)
KP F-Stat	126	119.3	8.752	7.236	8.283	6.769
Observations	1,679	1,665	1,679	1,665	1,679	1,665
R-squared	0.181	0.207	0.014	0.059	-0.019	0.030
Controls	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Country Specific Trend	YES	YES	YES	YES	YES	YES

## Case Studies [back](#)

### ■ Supply of Labour from the Unemployed

- ▶ The poor unemployed Hindu youth in India (Gujarat, 2002)
- ▶ 'Lumpen-proletariat' in Rwanda (Huggins et al, 2004)
- ▶ Rural youth from the poorest family in Sri Lanka (Kapferer, 1998)

### ■ Supply of financial Resources from Elites

- ▶ Rich Elites Provoke Conflict to gain, maintain or increase their hold on political power (Horowitz, 1985; Fearon & Laitin, 2000)
- ▶ Funds contributed by elites beyond borders (Anderson, 1992)