

From civil war to political violence

Evidence from Burundi

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Motivation and Research Question

- The transition from dictatorship and civil war to democracy and peace is very complex and very fragile
- The demobilization and reintegration of former rebels and former soldiers is a key part of a successful transition, politically as well as economically

Did ex-rebels' polarization affect the likelihood of violence during Burundi's 2010 elections ?

where :

- **Ex-rebels' polarization.** Demobilized (ex-)rebel factions have turned into **political** parties (\approx political polarization)
- **Electoral violence.** Violent incidents reported by focal points (local monitors) in each commune of Burundi during the election period (April - Sept. 2010).

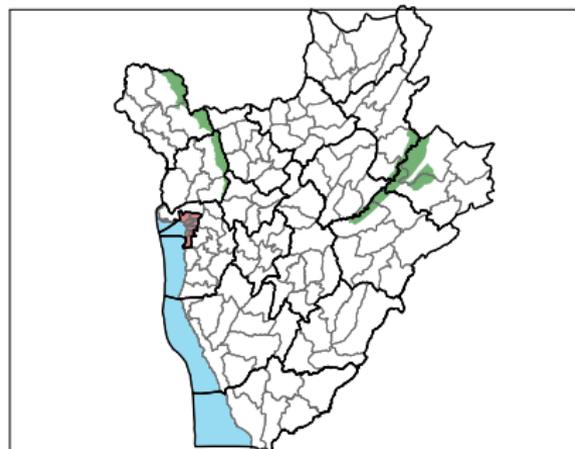
Contribution

- Literature focused on the impact of ethnic heterogeneity on violence
 - ▶ Mostly cross-country
 - ▶ Political heterogeneity disregarded
- Few studies on the impact of demobilization programs, none on violence relapse
- Policy-wise, contribution to post-conflict management

Outline

- 1 Burundi : the context
- 2 Historical Perspective
- 3 Identification Strategy
- 4 Data
- 5 Results
- 6 Conclusion
- 7 Next steps

Burundi : the context



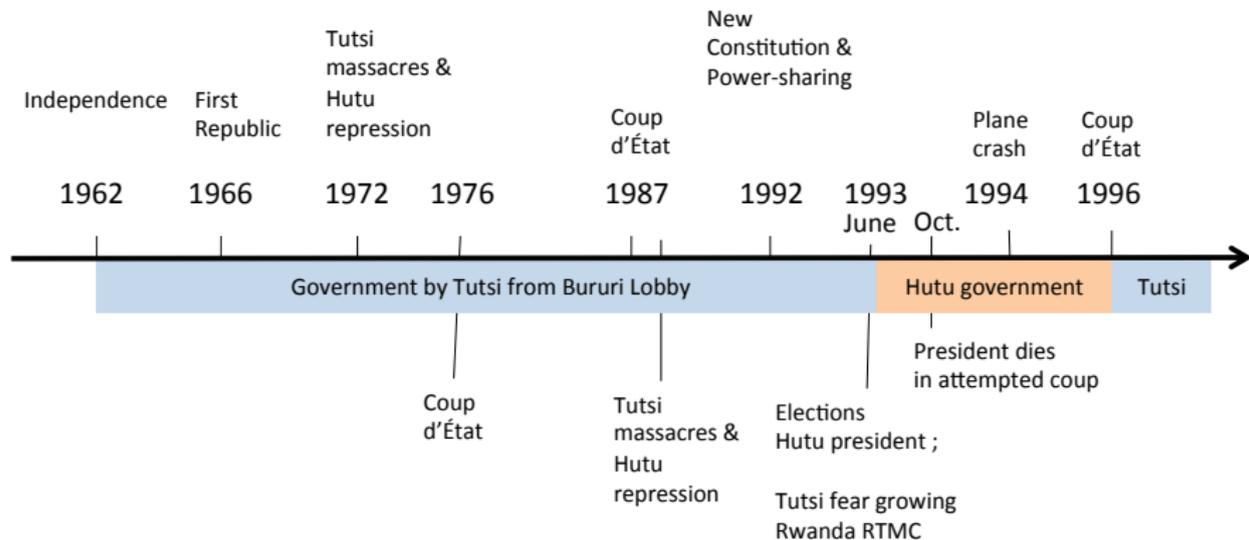
Demography in 2010

- Population : 9,863,117 (US-census bureau)
- 46% below 14
- 10% Urban population
- Three ethnic groups : Hutus (85%), Tutsis (14%) and Twa (1%)

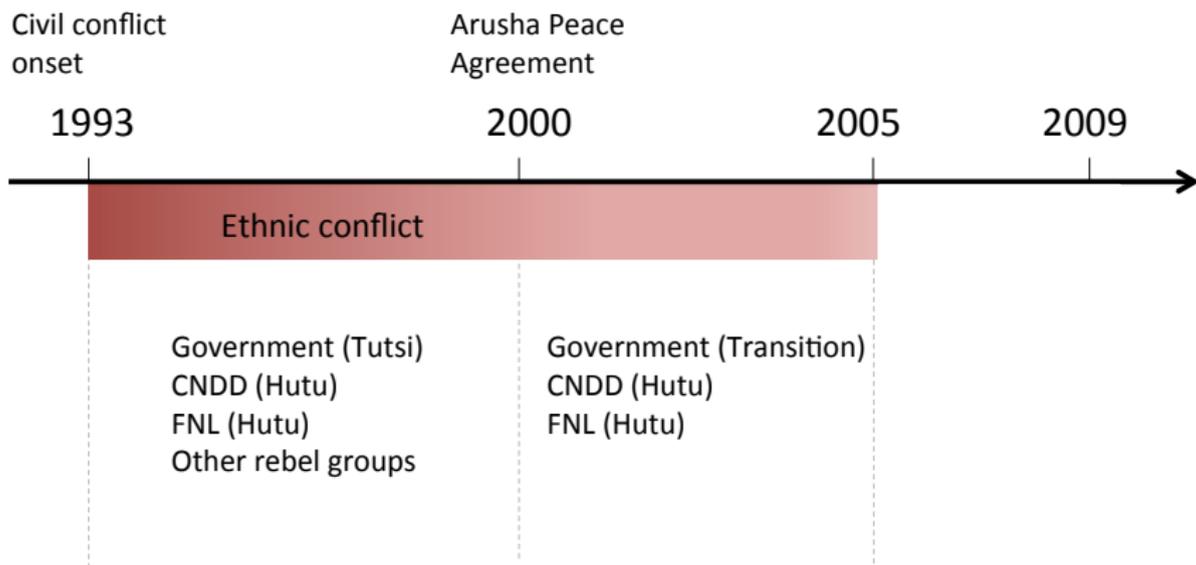
Situation

- GDP per capita in PPP : \$340 in 2005 (\$410 in 2010). Ranked 178 out of 187 on the 2012 HDI.
- Last civil conflict : 1993-2009

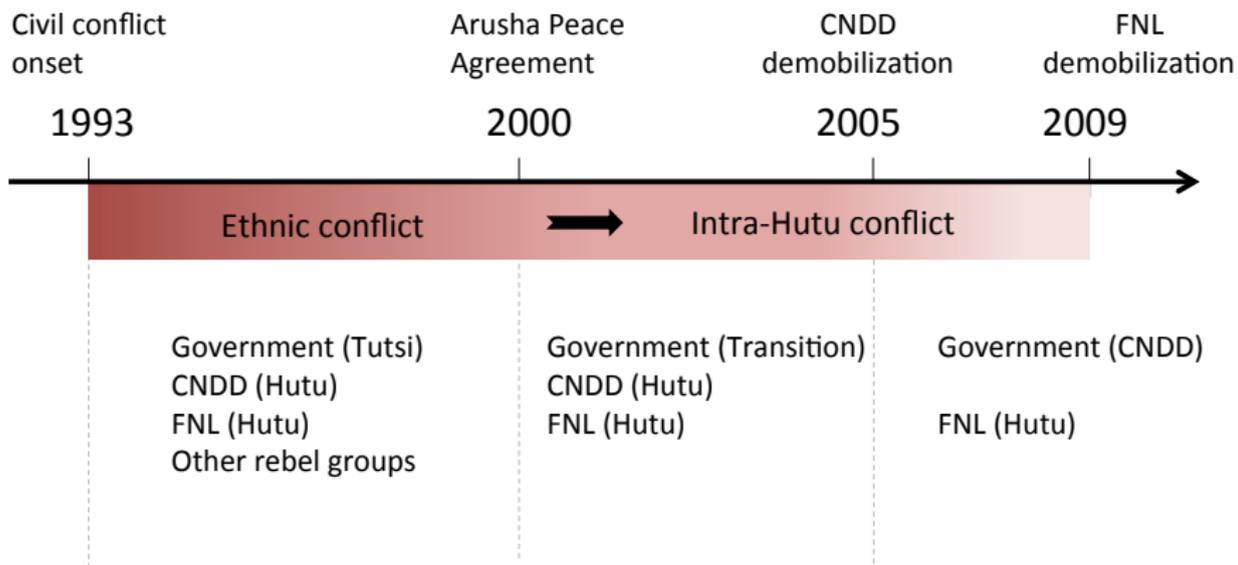
The post-colonial period



The conflict in Burundi : Stage 2



The conflict in Burundi : Stage 3



2010 Elections

- FNL (just turned into a legal political party) seen as most viable opposition to CNDD
- 5 ballots from May to September
 - ▶ "Commune"
 - ★ After the communal election, won by a wide margin by the CNDD, all other parties boycotted the poll by withdrawing from the elections, leaving the incumbent as only candidate.
 - ▶ Presidential
 - ▶ Legislative
 - ▶ Senatorial
 - ▶ "Collinaires"

Methodology

- Identification strategy

$$\begin{aligned} \text{Violence incidence}_j &= \beta_0 + \beta_1 \text{political polarization}_j \\ &+ \beta_2 \text{ethnic fractionalization}_{j,1993} + \beta_3 \text{nr. demob}_j + \\ &\beta_4 \text{log violence}_{j,1997-2009} + \beta'_6 Z_k + \epsilon_j \end{aligned}$$

where Z_k are province fixed effects.

Offset : log population_j (number at risk)

estimated using the negative binomial model.

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Data

- The information was collected in the 129 "communes" of Burundi
- We consider four datasets (for now) :
 - 1 The Ushahidi electoral violence dataset
→ dependent variable
 - 2 The Demobilization dataset
→ explanatory variables
 - 3 The Armed Conflict Location & Event Data Project dataset
→ control
 - 4 The 1993 election results dataset
→ control

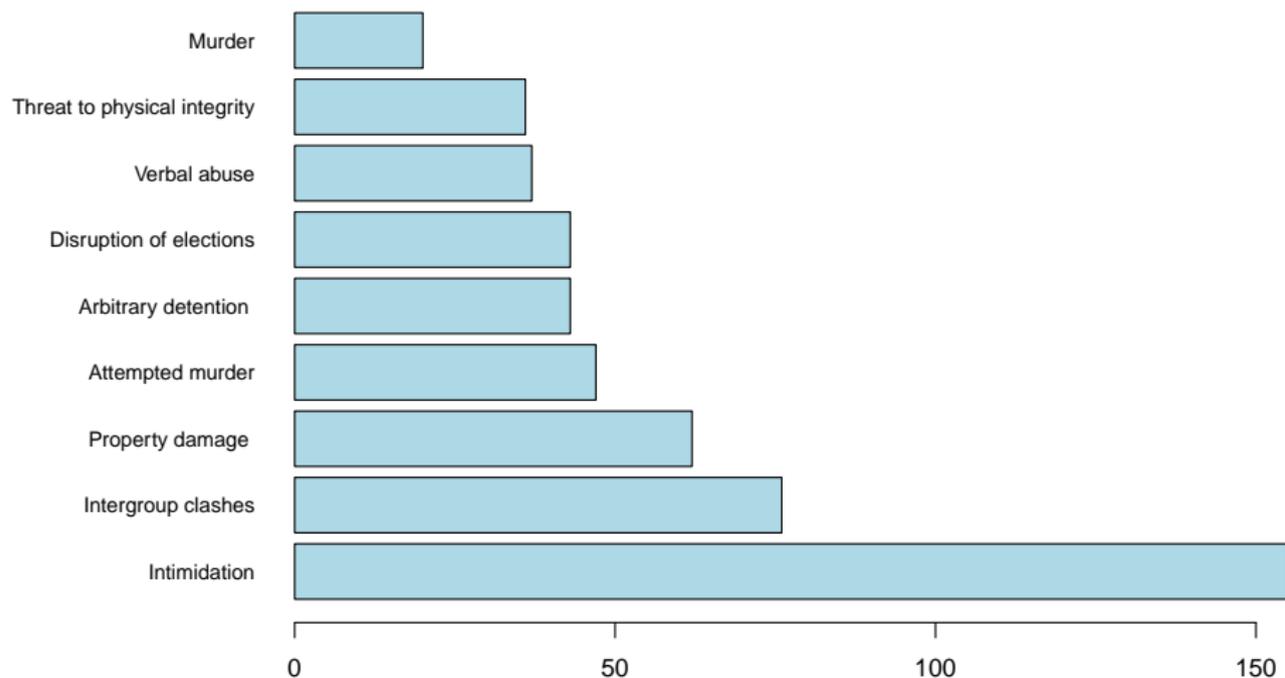
1. Ushahidi electoral violence : incidents reported

- Amatora Mu Mahoro initiative, part of a larger project on "Electoral Violence Education and Resolution", led by the International Foundation for Electoral Systems.
- Incidents directly observed and reported by SMS by at least two focal points from April to September 2010 as **dependent variable**

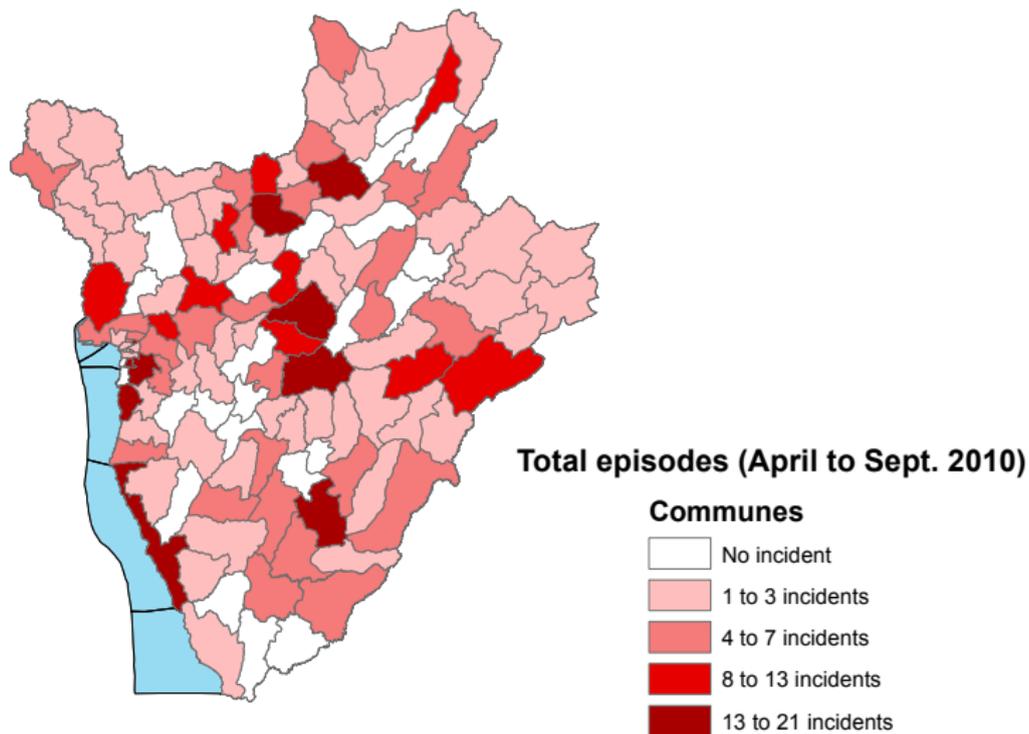
Table : Summary statistics on Electoral Violence

Variable	Mean	Std. Dev.	Min.	Max.	Sum
Intimidation	1.202	1.738	0	7	155
Intergroup clashes	0.589	1.254	0	9	76
Property damage	0.481	0.821	0	4	62
Attempted murder	0.364	0.77	0	5	47
Disruption of elections	0.333	0.764	0	4	43
Arbitrary detention	0.333	0.743	0	5	43
Verbal abuse	0.287	0.575	0	3	37
Threat to physical integrity	0.279	0.637	0	4	36
Murder	0.155	0.605	0	5	20
Total Episodes	4.023	4.638	0	21	519

1. Ushahidi electoral violence : incidents reported

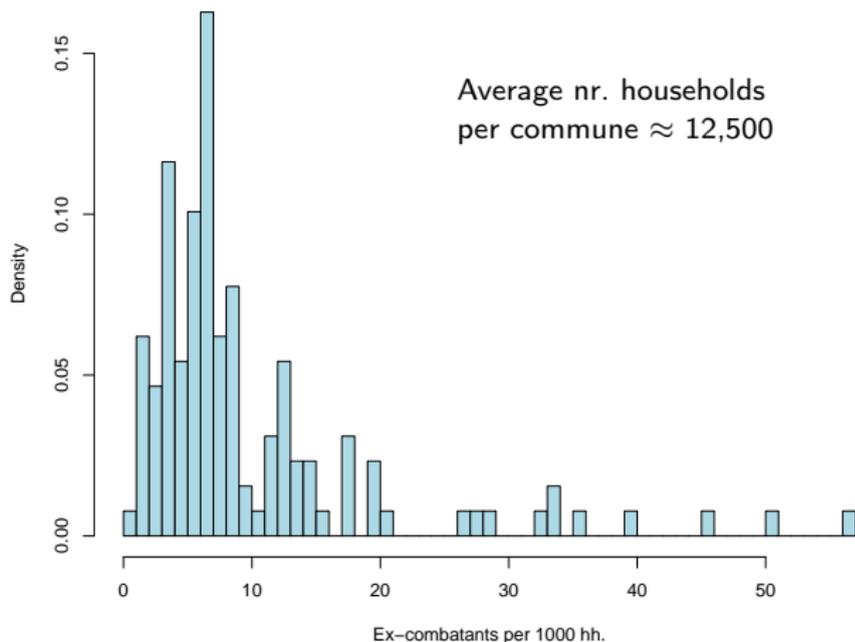


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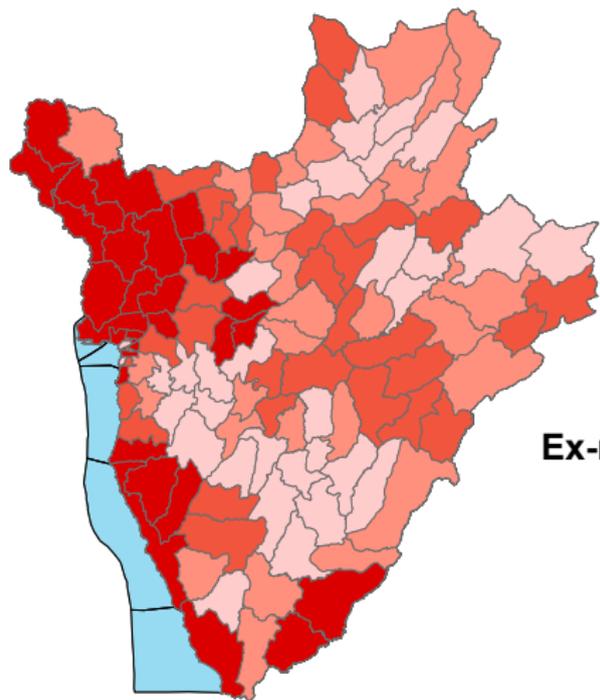
2. Demobilization Data

- Taken from official demobilization registers at the Center of Operations of the DDR program in Burundi
- **First explanatory variable** : nr. of ex-combatants per 1000 households in each commune



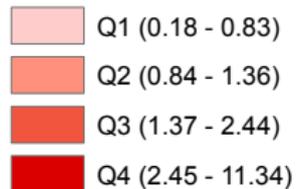
2. Demobilization Data

Nr. ex-rebels



Ex-rebels per 1000 inhab.

Communes



2. Demobilization Data

Political polarization

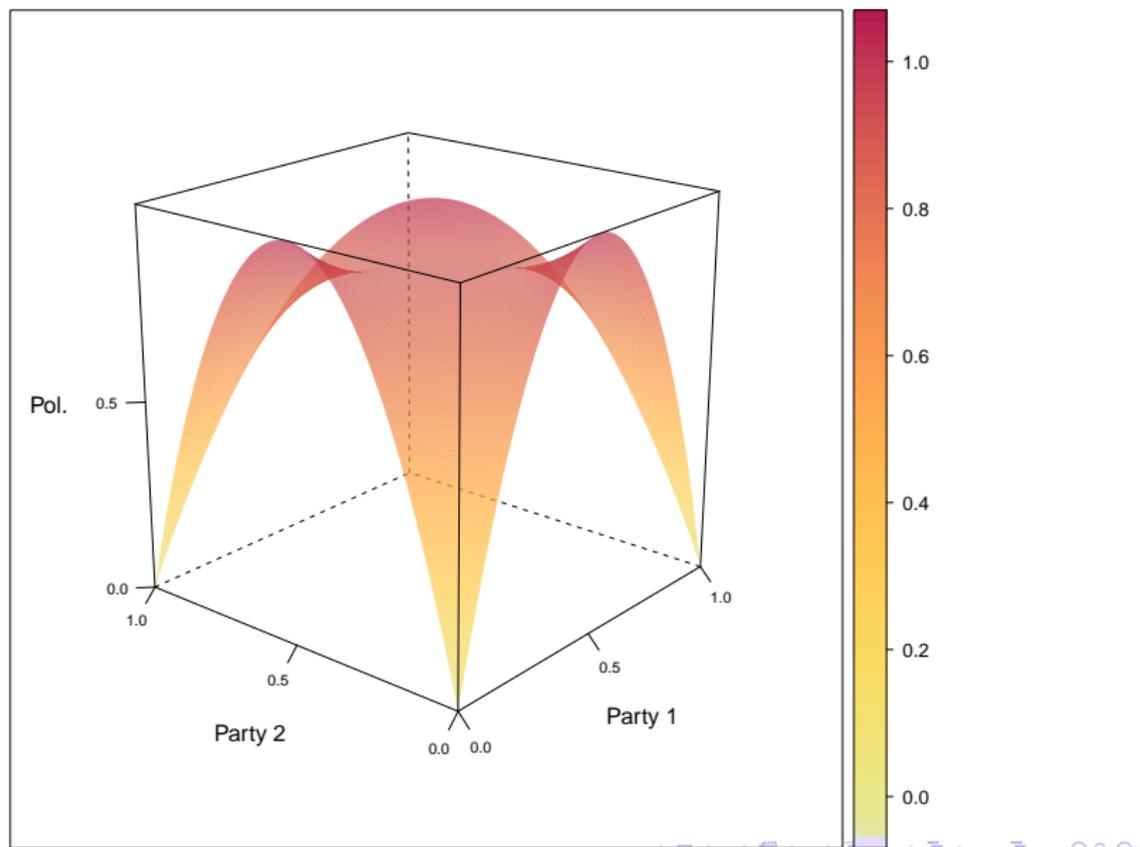
- Inspired by literature on ethnic polarization and conflict likelihood (Montalvo and Reynal-Querol (2005))
- We build our **second explanatory variable** : Q , political polarization index

$$Q = 1 - \sum_{i=1}^8 \left(\frac{0.5 - \pi_i}{0.5} \right)^2 \pi_i$$

with π_i being the proportion of ex-rebels belonging to the i party with respect to the total number of ex-rebels.

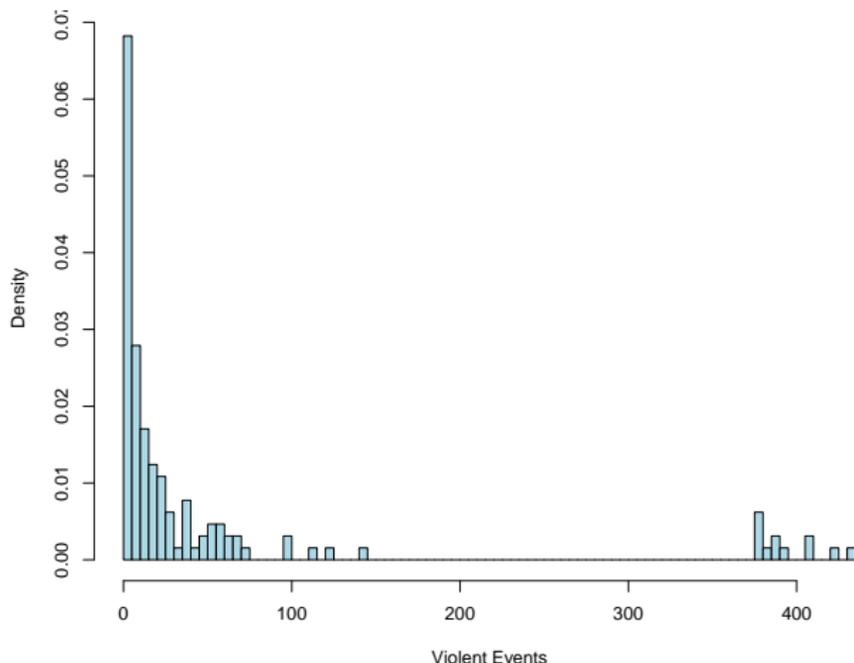
- Intuition :
 - ▶ How far from the bipolar scenario the region stands
 - ▶ Two regions, A and B ; three parties running for elections.

Polarization scenarios graphically...

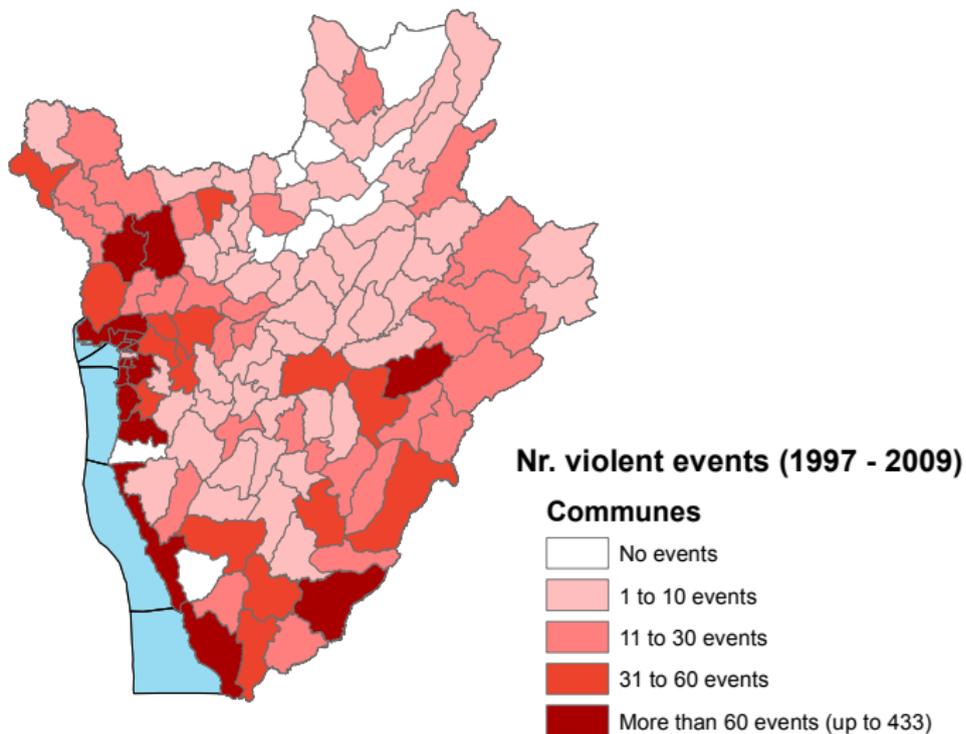


Armed Conflict Location & Event Data Project

- Geo-referenced dataset on violence. Date, location records of battles, killings, riots, and recruitment activities of rebels, governments, militias, armed groups, protesters and civilians.
- **Control variable** : log nr. violent events over the period 1997-2009



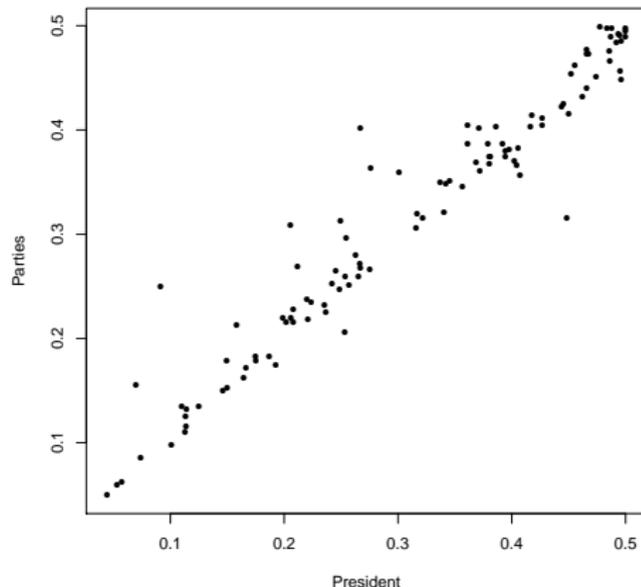
Armed Conflict Location & Event Data Project



1993 election results

Ethnic measures

- No mixed parties at the time
- From the results of the 1993 election, we know the proportion of people that voted for a Hutu or a Tutsi president, as well as for Hutu or Tutsi parties
- No data for new communes
- On average, 74% voted for Hutu ; 26% for Tutsi (\approx national average)
- Both can be used as **control proxies** for ethnic heterogeneity
- Ethnic fractionalization was computed ($= 1/2$ ethnic polarization since there are only 2 groups)



The Negative Binomial regression model

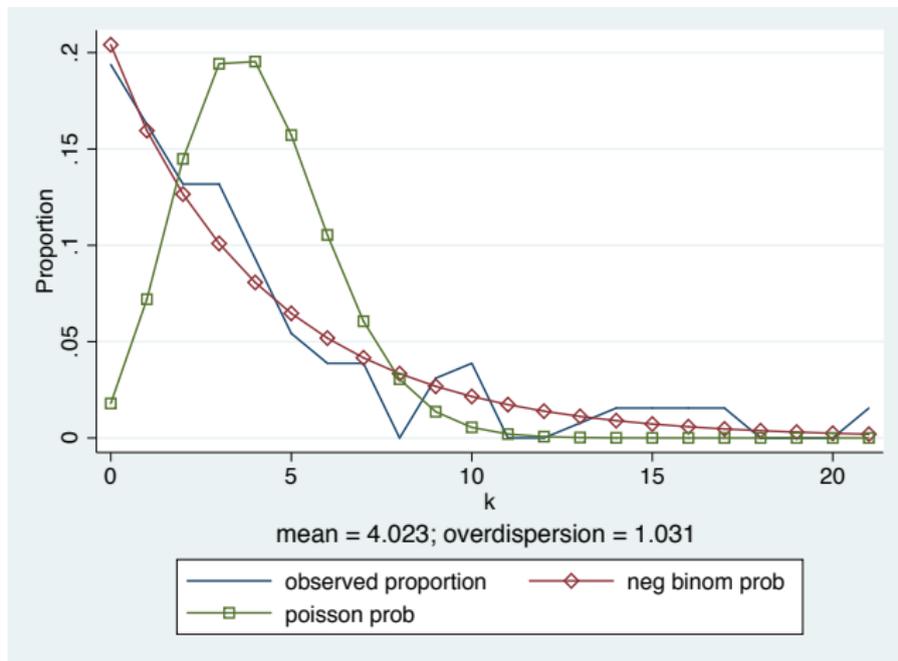
- Based on the structure of the Poisson Regression Model, it adds a parameter controlling for over-dispersion, α . Variance is now

$$\text{Var}(y|x) = \mu + \alpha\mu^2$$

- Negative Binomial model solves our troubles with count-nature of the data and over-dispersion.
- Likelihood-ratio test of $\alpha=0$ rejected

Poisson vs NegBin

How well does the *total incidents* fits both the Poisson and the Negative Binomial Distributions?



Results

Intergroup clashes

Dependent variable : Intergroup clashes

	(1)	(2)	(3)	(4)	(5)	(6)
Demob. polarization	0.287 (0.192)	0.480** (0.211)	0.485** (0.241)	0.246 (0.276)	1.057*** (0.305)	0.979*** (0.296)
Past violence		0.025 (0.134)	-0.020 (0.136)	-0.003 (0.138)	0.327* (0.196)	0.415** (0.203)
Nr. demob. per 1000 hh.			0.035* (0.020)	0.030* (0.018)	-0.002 (0.027)	-0.019 (0.032)
Nr. demob. * Polarization				0.032 (0.023)		
Ethnic fractionalization						-0.323 (0.220)
Constant	-11.606*** (0.184)	-12.303*** (0.801)	-13.568*** (1.284)	-13.929*** (1.359)	-13.658*** (1.408)	-13.648*** (1.479)
Province FE	No	Yes	Yes	Yes	Yes	Yes
Observations	129	129	129	129	108	108

(5) and (6) include only communes that have a match in 1993

Ethnic fractionalization measured with the results from the 1993 presidential election.

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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Results

Intimidation

Dependent variable : Intimidation

	(1)	(2)	(3)	(4)	(5)	(6)
Demob. polarization	0.028 (0.110)	0.194* (0.115)	0.196* (0.113)	-0.001 (0.138)	0.478** (0.209)	0.515*** (0.194)
Past violence		0.204* (0.109)	0.207* (0.113)	0.232* (0.121)	0.405*** (0.132)	0.363*** (0.131)
Nr. demob. per 1000 hh.			-0.002 (0.020)	-0.009 (0.018)	-0.034 (0.024)	-0.021 (0.022)
Nr. demob. * Polarization				0.030 (0.020)		
Ethnic fractionalization						0.261* (0.158)
Constant	-10.834*** (0.124)	-11.942*** (0.894)	-11.871*** (1.226)	-12.023*** (1.358)	-11.493*** (1.318)	-11.647*** (1.242)
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Results

Disruption of elections

Dependent variable : Disruption of election

	(1)	(2)	(3)	(4)	(5)	(6)
Demob. polarization	-0.109 (0.199)	0.186 (0.227)	0.198 (0.235)	-0.062 (0.283)	0.308 (0.260)	0.307 (0.247)
Past violence		0.419* (0.238)	0.411* (0.239)	0.426* (0.249)	0.378 (0.258)	0.339 (0.249)
Nr. demob. per 1000 hh.			0.010 (0.030)	0.020 (0.032)	0.018 (0.031)	0.036 (0.028)
Nr. demob. * Polarization				0.041 (0.029)		
Ethnic fractionalization						0.464 (0.291)
Constant	-12.168*** (0.200)	-13.805*** (1.181)	-14.234*** (1.686)	-15.261*** (1.852)	-14.517*** (1.825)	-14.708*** (1.699)
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Results

Property damage

Dependent variable : Property damages

	(1)	(2)	(3)	(4)	(5)	(6)
Demob. polarization	0.215 (0.171)	0.523** (0.253)	0.547** (0.271)	0.145 (0.446)	0.734*** (0.222)	0.695*** (0.211)
Past violence		0.190 (0.127)	0.167 (0.120)	0.163 (0.120)	0.284** (0.120)	0.333** (0.136)
Nr. demob. per 1000 hh.			0.016 (0.034)	0.012 (0.033)	-0.004 (0.033)	-0.021 (0.035)
Nr. demob. * Polarization				0.055 (0.039)		
Ethnic fractionalization						-0.232 (0.192)
Constant	-11.801*** (0.143)	-27.702*** (0.736)	-27.743*** (1.674)	-28.681*** (1.503)	-29.729*** (1.505)	-27.979*** (1.466)
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Robust standard errors in parentheses

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Results

Arbitrary detention

Dependent variable : Arbitrary detention

	(1)	(2)	(3)	(4)	(5)	(6)
Demob. polarization	-0.103 (0.127)	0.056 (0.184)	-0.006 (0.200)	0.114 (0.248)	0.183 (0.289)	-0.034 (0.372)
Past violence		0.325* (0.181)	0.268 (0.181)	0.237 (0.185)	0.494** (0.200)	0.567*** (0.212)
Nr. demob. per 1000 hh.			0.045** (0.020)	0.048** (0.021)	0.029 (0.042)	0.022 (0.041)
Nr. demob. * Polarization				-0.018 (0.024)		
Ethnic fractionalization						-0.395 (0.336)
Constant	-12.134*** (0.201)	-14.033*** (1.267)	-15.898*** (1.697)	-15.771*** (1.690)	-16.102*** (2.440)	-16.591*** (2.565)
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Results

Murder

Dependent variable : Murder

	(1)	(2)	(3)	(4)	(5)	(6)
Demob. polarization	-0.405 (0.280)	0.008 (0.184)	0.234 (0.229)	0.354 (0.252)	1.365 (0.884)	1.695* (0.961)
Past violence		0.843** (0.329)	1.137* (0.581)	1.034* (0.580)	1.420 (1.529)	2.286* (1.280)
Nr. demob. per 1000 hh.			-0.124*** (0.044)	-0.119** (0.049)	-0.168*** (0.063)	-0.275*** (0.106)
Nr. demob. * Polarization				-0.021 (0.039)		
Ethnic fractionalization						-1.379 (1.165)
Constant	-12.852*** (0.384)	-15.332*** (1.558)	-12.010*** (2.027)	-11.619*** (2.008)	-12.123** (5.656)	-12.695** (6.057)
Province FE	No	Yes	Yes	Yes	Yes	Yes
Observations	129	129	129	129	108	108

(5) and (6) include only communes that have a match in 1993

Ethnic fractionalization measured with the results from the 1993 presidential election.

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Results

Murder

Dependent variable : Murder

	(1)	(2)	(3)	(4)	(5)	(6)
Demob. polarization	-0.405 (0.280)	0.008 (0.184)	0.234 (0.229)	0.354 (0.252)	1.365 (0.884)	1.695* (0.961)
Past violence		0.843** (0.329)	1.137* (0.581)	1.034* (0.580)	1.420 (1.529)	2.286* (1.280)
Nr. demob. per 1000 hh.			-0.124*** (0.044)	-0.119** (0.049)	-0.168*** (0.063)	-0.275*** (0.106)
Nr. demob. * Polarization				-0.021 (0.039)		
Ethnic fractionalization						-1.379 (1.165)
Constant	-12.852*** (0.384)	-15.332*** (1.558)	-12.010*** (2.027)	-11.619*** (2.008)	-12.123** (5.656)	-12.695** (6.057)
Province FE	No	Yes	Yes	Yes	Yes	Yes
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Ethnic fractionalization measured with the results from the 1993 presidential election.

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Preliminary conclusions

- Ex-rebels' polarization and magnitude have different impacts depending on the type of incidents considered
- The conflict in Burundi has evolved into a tit-for-tat between Hutu, and ethnic considerations do not seem to matter anymore... at least with respect to electoral violence.

Next steps

Computerizing...

- Obtain the number of focal points per commune to implement a zero-inflated negative binomial
- Exploit variation across time
- Exploit election results from 2005 and 2010
- Construct more ethnic measures (either from archived colonial censuses, or derived from (recent) voters preferences) for robustness
- Build socio-economic index at the commune level from 2010 DHS

Fractionalization

How likely is it that two random ex-rebels (individuals) do not belong to the same political party (ethnic group).

$$FRAC = \sum_{i=1}^N \pi_i (1 - \pi_i)$$

How are the two indexes related (if $N > 2$)?

