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Human Development, disasters and conflict

Linkages and empirical evidence from the last three decades

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Representing the project **'When Disaster meets Conflict'**

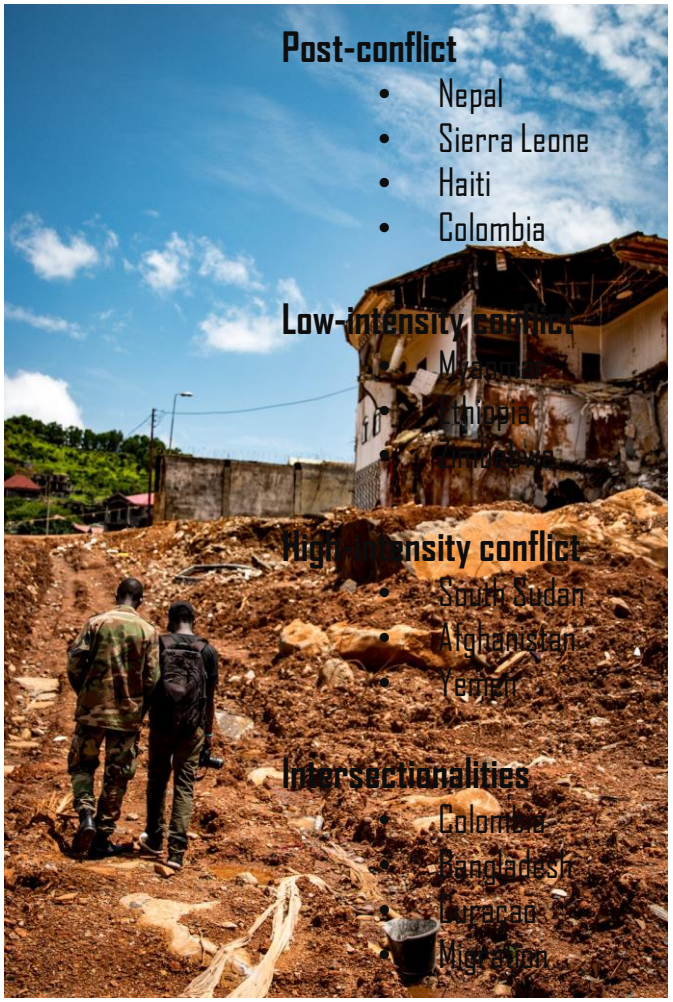
https://www.iss.nl/whendisastermeetsconflict

Erasmus University Rotterdam
Make it happen.

WHEN DISASTER MEETS CONFLICT

Research Project

Source: Kabul, 2018, R. Mena



Source: Mudslide Sierra Leone, 2017, S. Melis

WHEN DISASTER MEETS CONFLICT

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Contents

Contents

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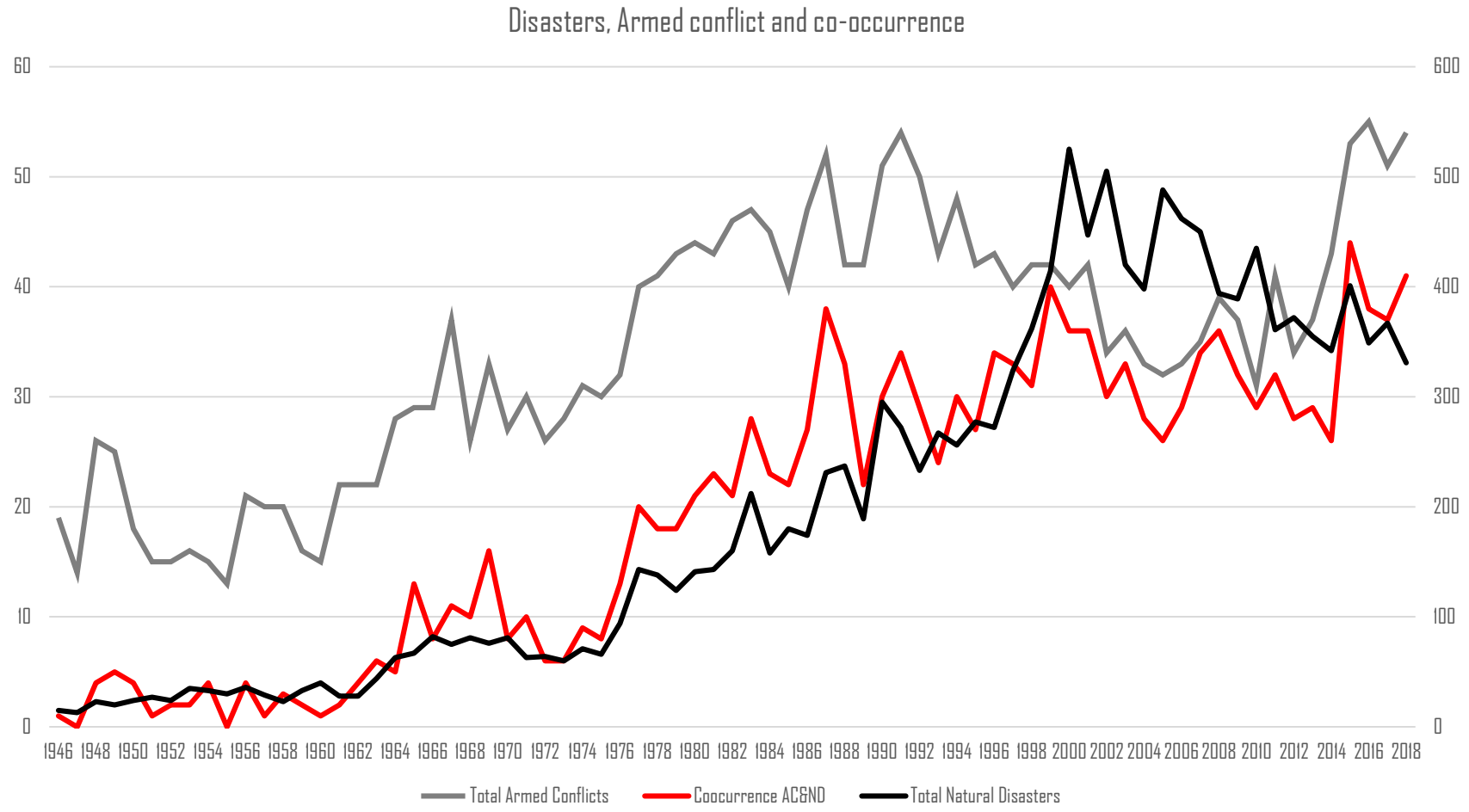
When disaster meets conflict

Disasters and ongoing armed conflicts

Disasters, armed conflicts and co-occurrence on the rise



Human losses of both events in 2018

Source: EM-DAT & UCDP/PRIO Armed conflict dataset

11,804 due to **disasters**

392,641 battle related deaths

18%

of these deaths occurred in the the same country at the same time.

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Research Question

Research question

And sub-questions

Can disasters trigger or intensify ongoing armed conflicts?

From an armed conflict perspective

Can disasters trigger conflicts?

Can disasters intensify ongoing armed conflicts?

Do these effects vary between wars and minor conflicts?

From a disasters perspective

Can different types of disasters have different impacts?

Is there an specific difference between those climate-related disasters and other disasters?

Do these effects depend (are conditional) on other conflict preconditions?

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Model specification

Model specification

Ongoing armed conflict explanatory model

$$AC_{i,t} = AC_{i,t-1} + LLAC_{i,t} + DEV_{i,t} + POL.STA_{i,t} + POP_{i,t} + NRDEP_{i,t} + u_{it} + DIS_{it}$$

- $AC_{i,t}$: Presence of armed conflict in a country "i" during year "t"
- $AC_{i,t-1}$: Presence of armed conflict in a country "i" during year "t-1"
- $LLAC_{i,t}$: Existence of an ongoing long lasting conflict in country "i" during year "t"
- $DEV_{i,t}$: Development x of a country "i" during year "t"
- $POL.STA_{i,t}$: Political stability of a country "i" during year "t"
- $POP_{i,t}$: Population of f a country "i" during year "t"
- $NRDEP_{i,t}$: Natural resources dependence of a country "i" during year "t"

Armed conflict explanatory model
→ Conflict preconditions

Model specification

Ongoing armed conflict explanatory model

$$AC_{i,t} = AC_{i,t-1} + LLAC_{i,t} + HDI_{i,t} + POIV_{i,t} + \log(POP)_{i,t} + NRGDP_{i,t} + \boldsymbol{DIS_{it}} + u_{it}$$

Conflict

▽

UCDP

Uppsala armed conflict dataset

▽

Department of Peace and Conflict Research

▽

UPPSALA UNIVERSITET

$HDI_{i,t}$: Human Development Index of a country "i" during year "t"

$POIV_{i,t}$: Polity Index for a country "i" during year "t"

$\log(POP)_{i,t}$: Population of a country "i" during year "t"

$NRGDP_{i,t}$: Nat. Res rents as a % of GDP of a country "i" during year "t"

Disasters

▽

EM – DAT

(Emergency events dataset)

▽

Centre for Research of the Epidemiology of Disasters

▽

Centre for Research on the Epidemiology of Disasters CRED

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Results

Results

Ongoing conflict explanatory model

Table 1 - Marginal effects after logit regression on ongoing armed conflict dummy

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
						Ongoing Conflict	Ongoing Conflict
Armed conflict dummy, lag1						2.79	2.79
						(0.17)***	(0.17)***
Long lasting conflict dummy						1.09	1.04
						(0.19)***	(0.19)***
GDP Per Capita (in US `000s)						-0.05	
						(0.01)***	
Human Development Index							-2.420
							(0.49)***
Polity IV Democracy Index						-0.06	-0.05
						(0.02)***	(0.02)***
Log of Population						0.65	0.69
						(0.11)***	(0.11)***
Natural Resources rents as a % of GDP						1.32	1.09
						(0.93)	(0.88)
Total observations						4,234	4,328
Number of countries	230	196	187	161	161	161	163
Average observations per country	56	28	28	27	27	26	27
Pseudo R2	0.35	0.88	0.87	0.78	0.78	0.71	0.71

Standard error in parenthesis below coefficients, * p-value < 0.1; ** p-value < 0.05: ***p - value < 0.01

1. The "explanatory capacity" of the model increases while including the relevant variables.

Results

Ongoing conflict explanatory model

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Dependent Variable:	(6)	(7)
	Ongoing Conflict	Ongoing Conflict
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	(0.93)	(0.88)
Total observations	4,234	4,328
Number of countries	161	163
Average observations per country	26	27
Pseudo R2	0.71	0.71
Standard error in parenthesis below coefficients, * p-value < 0.1; ** p-value < 0.05; ***p - value < 0.01		

2. All the variables enter the model significantly besides the natural resources rents variable.

Results

Ongoing conflict explanatory model

Table 1 - Marginal effects after logit regression on ongoing armed conflict dummy

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Armed conflict dummy, lag1	2.79	2.79
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Long lasting conflict dummy	1.09	1.04
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3. Coefficients:

- Experiencing conflict in the last period increases the likelihood by 2.8 times.
- If a country has experienced a long-lasting conflict for more than 3 periods is 104% more likely of experiencing conflict.
- **The more developed a country the less likely to suffer from conflict.** An increase of 1.000 US dollars in the GDP per capita (in PPP at 2011), decreases the likelihood of experiencing conflict by 5%. In the same way an increase of 0.1 in the HDI decreases the likelihood by 24.
- **The more democratic a country the less likely it is to experience conflict**. An increase of 1 point in the Polity IV can decrease up to a 5% the likelihood of conflict.
- **An increase of 1% of the population increases in 6.9% the likelihood of experiencing conflict.**

Results

Main results for several model specifications

Table 12 - Marginal effects after logit regression on ongoing armed conflict

Dependent Variable:	(7)*	(14)	(15)	(16)	(17)	(18)	(19)
	Ongoing Conflict	Ongoing Conflict	Ongoing Conflict	Ongoing Conflict	Ongoing Conflict	Ongoing Conflict	Ongoing Conflict
Armed conflict dummy, lag1	2.79	2.79	2.79	2.79	2.79	2.79	2.79
	(15.86)**	(15.85)**	(15.85)**	(15.85)**	(15.85)**	(15.83)**	(15.82)**
Long lasting armed conflict dummy	1.03	1.03	1.03	1.03	1.03	1.03	1.03
	(5.52)**	(5.51)**	(5.52)**	(5.52)**	(5.52)**	(5.50)**	(5.47)**
Human Development Index	-2.15	-2.17	-2.15	-2.15	-2.15	-2.15	-2.14
	(4.10)**	(4.15)**	(4.11)**	(4.10)**	(4.09)**	(4.10)**	(4.08)**
Polity IV Democracy Index	-0.03	-0.04	-0.03	-0.03	-0.03	-0.03	-0.04
	(1.82)***	(1.90)***	(1.78)***	(1.72)***	(1.73)***	(1.77)***	(1.83)***
Log of Population	0.66	0.63	0.67	0.70	0.69	0.67	0.65
	(6.06)**	(5.74)**	(5.65)**	(5.86)**	(5.66)**	(5.70)**	(5.93)**
Natural Resources rents as a % of GDP	0.64	0.67	0.64	0.65	0.66	0.63	0.63
	(0.70)	(0.73)	(0.70)	(0.70)	(0.71)	(0.68)	(0.69)
Disasters variables							
Disasters dummy		0.23					
		(1.18)					
Disasters total			-0.01		0.01		
			(0.24)		(0.27)		
Disasters total, lag1				-0.02	-0.03		
				(0.84)	(0.85)		
Climate-related disasters total						-0.01	
						(0.39)	
Non climate-related disasters total							0.02
							(0.26)
Regions							
South Asia	1.51	1.47	1.51	1.53	1.53	1.52	1.51
	(2.51)*	(2.46)*	(2.52)*	(2.53)*	(2.53)*	(2.52)*	(2.51)*
South-east Asia	0.78	0.76	0.79	0.81	0.80	0.79	0.78
	(1.38)	(1.35)	(1.39)	(1.42)	(1.41)	(1.40)	(1.37)
West Africa	0.54	0.51	0.54	0.54	0.54	0.54	0.54
	(1.13)	(1.07)	(1.12)	(1.11)	(1.12)	(1.11)	(1.12)
East Africa	0.69	0.66	0.69	0.69	0.69	0.69	0.69
	(1.45)	(1.40)	(1.45)	(1.45)	(1.45)	(1.44)	(1.44)
Central Africa	1.15	1.11	1.15	1.16	1.16	1.15	1.15
	(1.92)***	(1.85)***	(1.92)***	(1.93)***	(1.93)***	(1.92)***	(1.91)***
West Asia	1.29	1.33	1.28	1.28	1.28	1.28	1.29
	(2.74)**	(2.83)**	(2.73)**	(2.70)**	(2.71)**	(2.72)**	(2.74)**
Total observations	4,328	4,328	4,328	4,328	4,328	4,328	4,328
Number of countries	163	163	163	163	163	163	163
Average observations per country	27	27	27	27	27	27	27
Pseudo R2	0,71	0,71	0,71	0,71	0,71	0,71	0,71

Standard error in parenthesis below coefficients, ***p-value < 0.1; * p-value < 0.05: **p - value < 0.01

Erasmus

Results

In words…

- No form of disasters enters the model significantly.
- South Asia, Central Africa and West Asia have big and significant regional fixed effects.
- Other specifications were tested (interactions, ratios, other dependent variable forms) and disasters never enter the model significantly.

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Thank you