

The Study

Not always contagious?

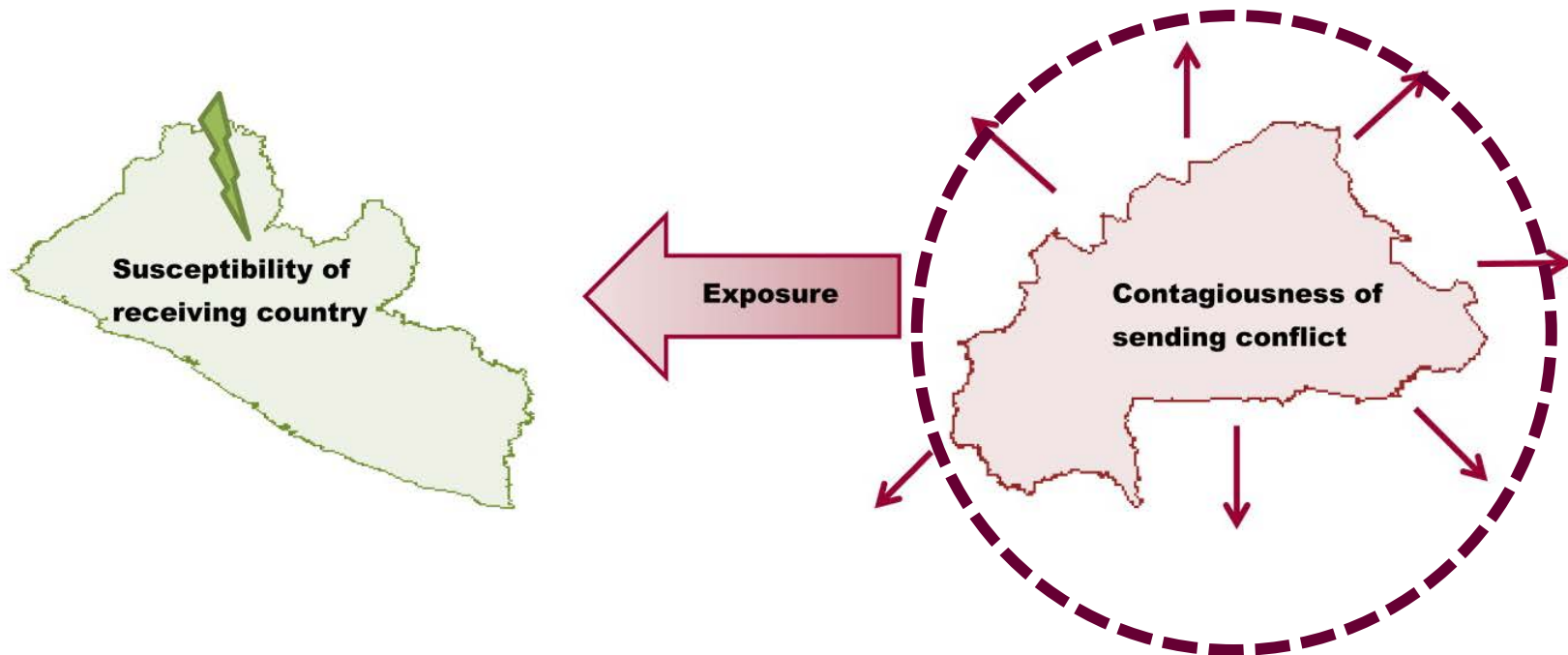
Explaining the timing of conflict diffusion

When are conflicts most likely to spill over?

Why do they spill over ***at a certain point in time***, some after having been active for years or even decades?

Conflict diffusion: Analytical framework

Figure 1. Conflict diffusion as a function of susceptibility, exposure, and contagiousness.



The contagiousness of civil conflicts

Why is conflict contagious?

Because it produces externalities that “travel”

- Refugee movements → time-variant, but also spatial variance = exposure!
- Transnational movement of rebels and/or weapons
- Intangible externalities (knowledge, motivation, ideology, etc.)

Intangible externalities

Argument: Intangible externalities of a sending conflict create demonstration effects. Potential rebel groups in receiving countries may draw lessons from the conflict they observe abroad, so that neighboring conflict provides inspiration as well as strategic and tactical guidance.

But: New conflicts are more newsworthy, increasing the chance that groups abroad will read and learn about a conflict in the neighborhood through the media. This initial motivation effect may vanish over time, maybe as a result of “negative learning” or simply because the people’s and the media’s attention is directed elsewhere after a while.

Hypothesis 1a: The beginning of conflict in the sending country temporarily increases the hazard of onset in the receiving country, all else equal.

Hypothesis 1b: A rebel victory in the sending country increases the hazard of onset in potential receiving countries, all else equal.

Transnational movement of rebels and/or weapons

Argument: When rebel groups make use of external sanctuaries, this increases the risk of contagion because rebel leaders bring expertise, arms, or ideologies to their host countries, recruit new rebels in refugee camps, or stir up local conflicts in their wake.

Also, ongoing conflicts decrease the regional price of arms and increase their availability, making it easier /cheaper for potential rebels abroad to organize a rebellion.

But: Why should transnational rebels start a conflict in their country of “asylum” while their own conflict at home is still ongoing? Once their conflict is over, however, rebels are unemployed, and have difficulty reintegrating into peace-time economies.

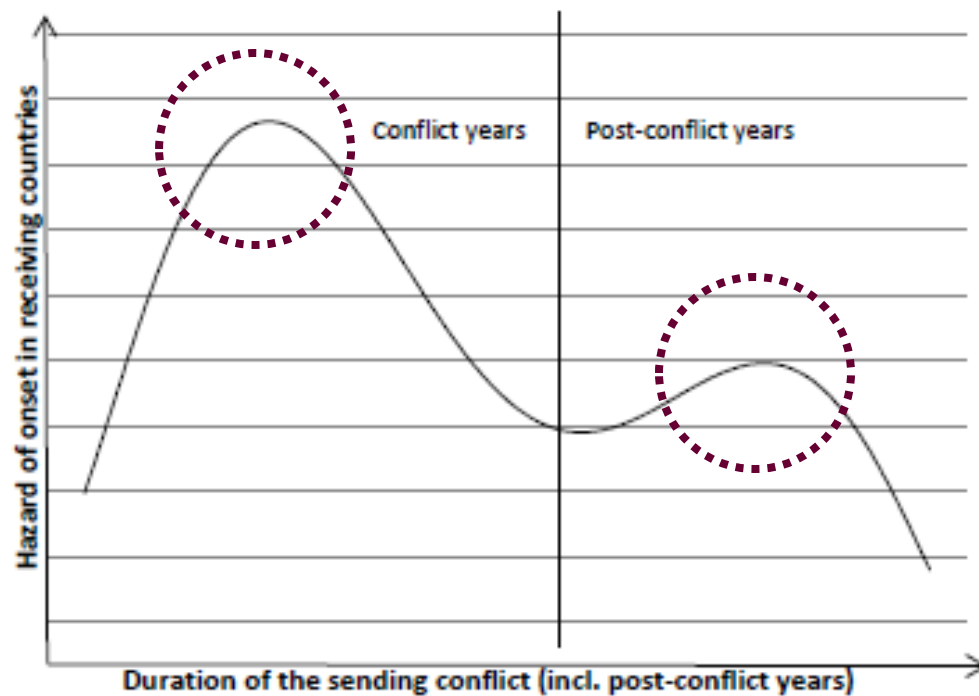
Arms prices typically *increase* in the early stages of conflict, reflecting a shortage of arms. The prices plummet, however, in the post-conflict period, when supply increases.

Hypothesis 2a: The end of conflict in the sending country temporarily increases the hazard of conflict onset in potential receiving countries, all else equal.

Hypothesis 2b: The deployment of peacekeepers to the sending conflict decreases the hazard of onset in potential receiving countries, all else equal.

The hazard of conflict diffusion over time

Assumption: Hazard of contagion has a bimodal distribution



Method and data

Method: Cox proportional hazards (non-parametric, right/left censoring)

Unit of analysis: Dyad-years between 1975 and 2010

Event («dep. variable»): Receiving country has an onset, with multiple onsets possible (different conflict, same conflict after 3 years of peace)

Dyad	Sending conflict (SC)	SC country	Year	Potential receiving country (RC)	Time since SC	Onset in RC	SC contagiousness variables	Exposure variables (dyadic)	RC susceptibility variables
1	UCK (Kosovo)	Serbia	1998	Albania		0			
1	UCK (Kosovo)	Serbia	1999	Albania		0			
1	UCK (Kosovo)	Serbia	2000	Albania		0			
1	UCK (Kosovo)	Serbia	2001	Albania		0			
1	UCK (Kosovo)	Serbia	2002	Albania		0			
2	UCK (Kosovo)	Serbia	1998	Macedonia		0			
2	UCK (Kosovo)	Serbia	1999	Macedonia		0			
2	UCK (Kosovo)	Serbia	2000	Macedonia		0			
2	UCK (Kosovo)	Serbia	2001	Macedonia		1			
2	UCK (Kosovo)	Serbia	2002	Macedonia		0			

•peace-keeping
•rebel victory
•territorial

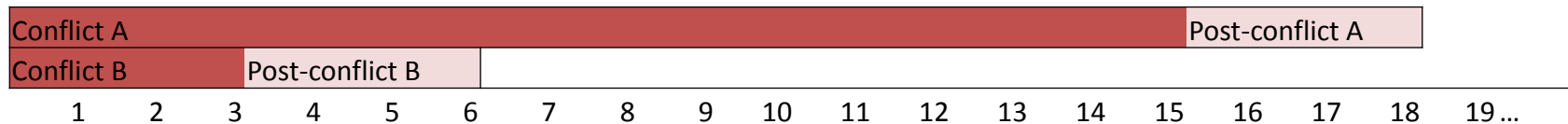
•contiguity
•rivalry
•refugees
•(ethnic ties)

•gdp/cap
•population
•gdp growth
•regime type
•pol. exclusion
•dummy ongoing

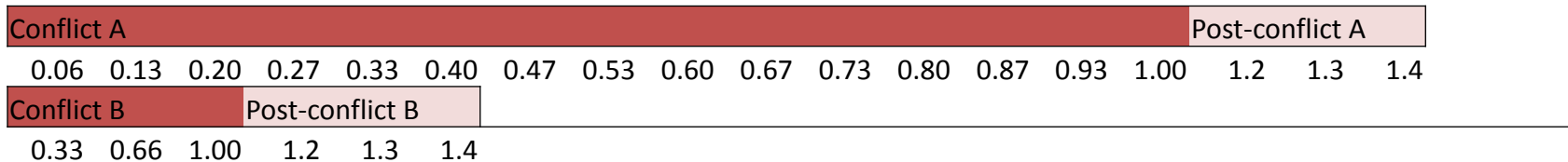
Analysis time

Analysis time: Time since the onset of the sending conflict

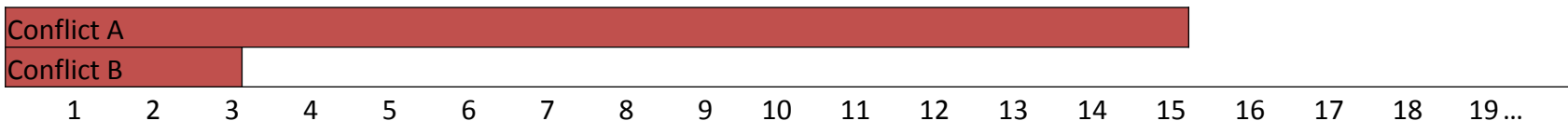
Problem with absolute time in years:



Analysis 1: Scaled time (time since onset / total duration without post-conflict years)

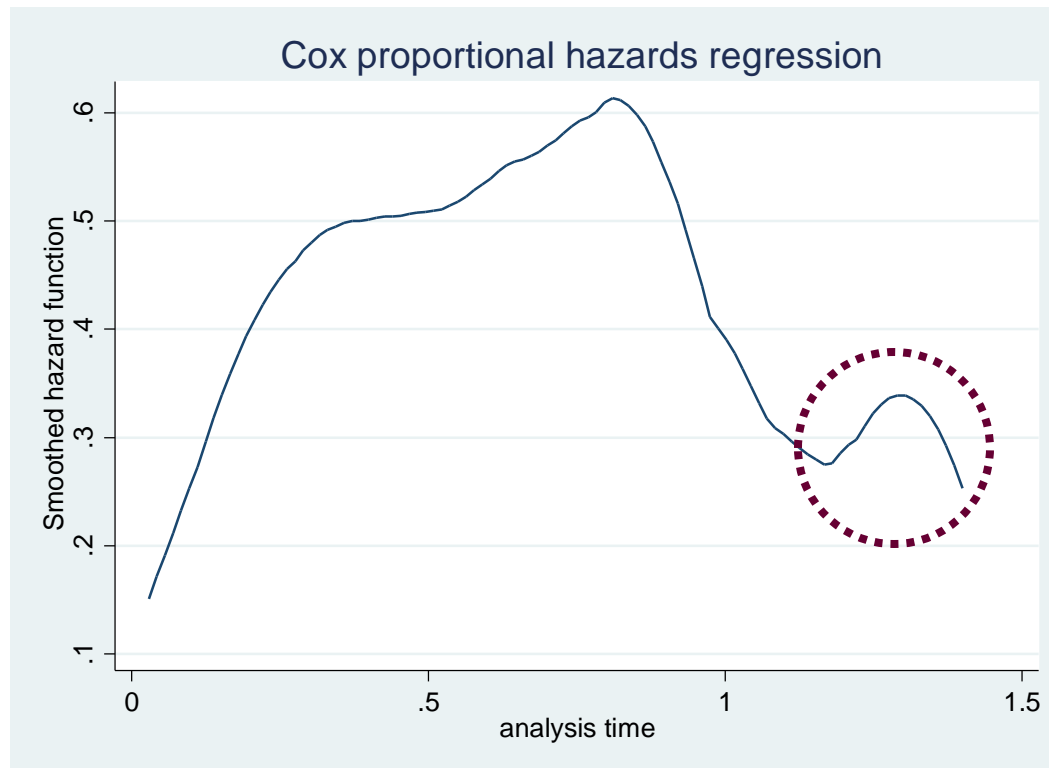


Analysis 2: Absolute time WITHOUT post-conflict years



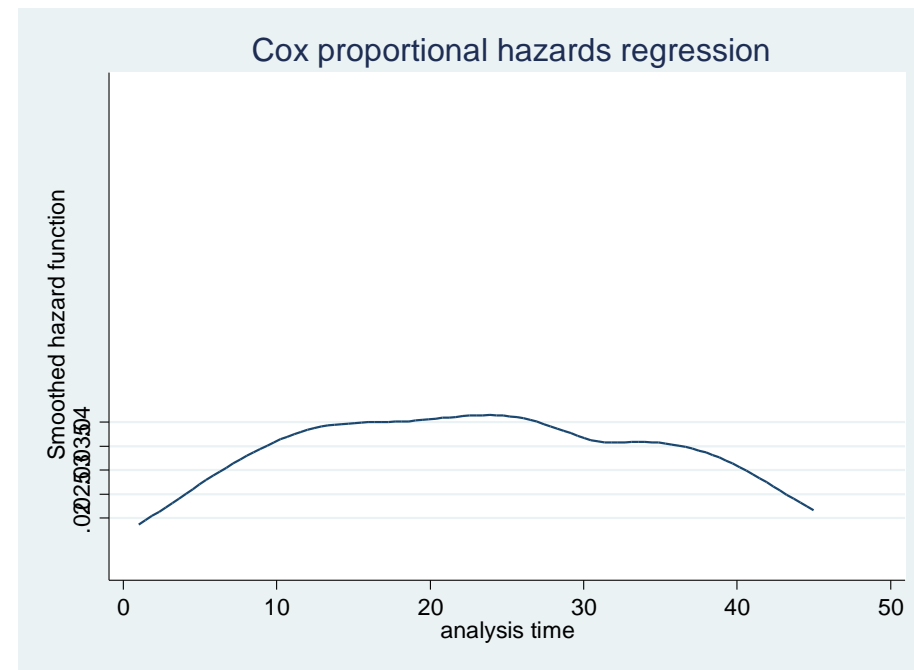
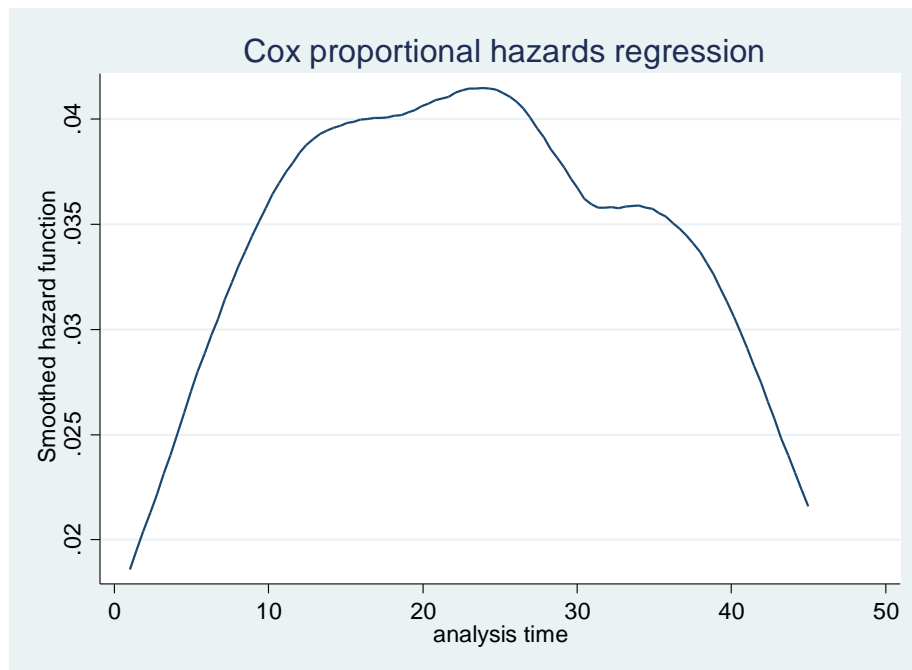
Results of the Cox regression

**Shape of the hazard of onset in receiving countries in terms of time since SC onset
(Analysis 1 in scaled time including post-conflict years)**



Results of the Cox regression

**Shape of the hazard of onset in receiving countries in terms of time since SC onset
(Analysis 2 in absolute time only ongoing years)**



Results of the Cox regression

Main findings with regard to covariate effects (hazard ratios):

Peacekeeping significant, decreases hazard of onset in a receiving country by 22%, but only if post-conflict years taken into account, else not significant

Rebel victories not significant when receiving country susceptibility is controlled for

Susceptibility «controls» do most of the work → domestic risk matters most

Exposure: only contiguity matters, but strongly. Countries bordering a conflict country have a 50% higher risk of onset than countries further away. For countries that directly border the territory over which the conflict is fought, risk is more than 70% higher (but much weaker if we exclude post-conflict years)

Refugees only significant if we exclude post-conflict years. Note direction! If a country receives a substantial number of refugees (>10'000) from the sending country, risk of onset DECREASES by 22%.

Outlook

Problem 1: proportional hazards assumption likely violated

→ test and adapt model specification

Problem 2: hazard shape closely fit to data; no information on significance/likely out-of-sample validity of this curve

→ Retest the entire hypothesis with a flexible parametric model by Royston/Parmar (2002)*

→ Distribution of time retrieved by Cox regression is parameterized using natural cubic splines

→ Further extensions allow for non-proportional effects of some or all of the covariates

** Royston, P. & M.K.B. Parmar (2002) Flexible parametric proportional-hazards and proportional-odds models for censored survival data, with application to prognostic modelling and estimation of treatment effects. Statistics in Medicine 21(15): 2175-2197.*

THANK YOU

bara[at]sipo.gess.ethz.ch