

Transnational Dimensions of Civil War

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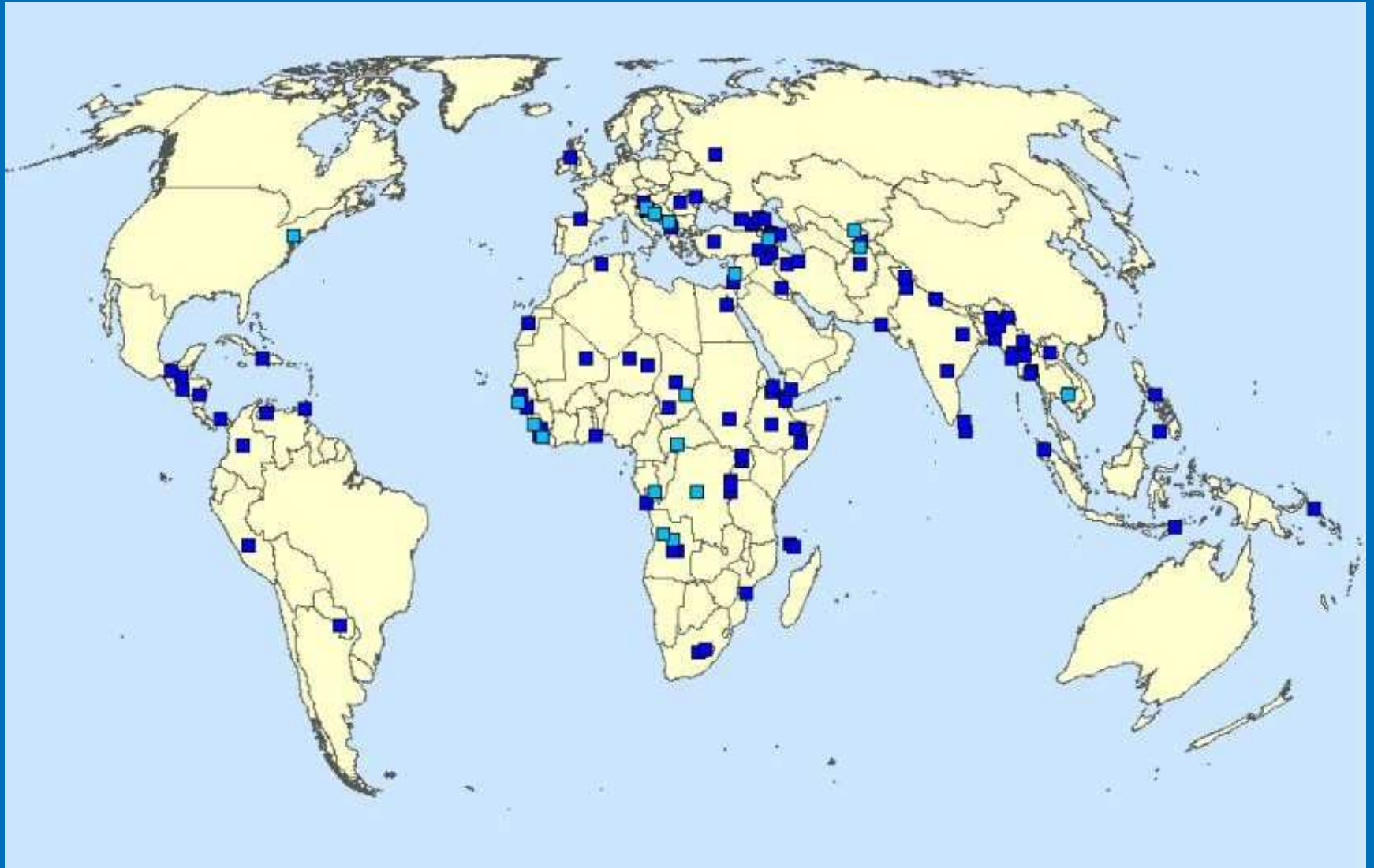
Transnational conflict

- Most conflicts in contemporary world *intrastate* conflicts between state and non-state actors rather than *interstate*
- But many “civil” wars not confined within nation states, display transnational dimensions
 - Actors themselves often transnational, e.g., Albanian insurgents
 - States may intervene, provide support (e.g., Congo), anticipation of support may influence mobilization (e.g., Kosovo)
 - Conflicts in one state may create externalities that increase risk of war in another state
 - Many efforts treat interstate and civil wars as mutually exclusive categories but in practice difficult to classify many conflicts (Bosnia — formally civil war, yet clear ties to neighboring states and ethnic kin; Kashmir — role of Pakistan)
 - New armed conflicts after 2000 in Uppsala data all intrastate, but clear transnational elements:
Albanian revolt in Macedonia; RFDG rebels in Guinea; September 11 attacks

Transnational conflict

- Existing studies of civil war focus on country characteristics and treat conflicts as independent, domestic phenomena
- Problematic if transnational factors influence risk of civil war and we have dependence between observations
- Broader project on regional conflict dynamics, three key assumptions
 - 1. States/dyads not self-contained or independent, but influenced by relations with other actors
 - 2. Transnational factors influence risk of conflict, and cannot be reduced to attributes of individual countries
 - 3. Regional component: Most interesting dependence is local and not system wide

Civil conflict, 1989-2001



Transnational dimensions of civil war

- Previous research demonstrates geographical clustering in civil wars (e.g., Gleditsch 2002, Ward and Gleditsch 2002)
 - Yet, know less about *how* external factors influence civil war onset and conflict dynamics
- Distinguish between possible sources of geographical patterns
 - Direct conflict spill-over and contagion
 - Hypotheses on specific transnational linkages
- Develop adequate statistical models of transnational linkages
- Consider the reverse Galton problem in many diffusion studies
 - Geographical clustering may stem from other spatially clustered domestic attributes (e.g., wealth, institutions), must also consider central country specific factors known to be associated with conflict

Transnational dimensions of civil war

- Conflict contagion/diffusion
 - Increase in risk when connected states are at war
- Hypotheses on transnational linkages that may underlie geographical clustering
 - Transborder ethnic ties
 - Institutions in connected states
 - Integration/trade between states in region
- Country specific attributes
 - Institutions
 - GDP per capita (“state strength”)
 - Ethnic heterogeneity

Specifying dependence between observations

- Assume that local actors and attributes most relevant
- Dependence takes form of a locally dependent Markov field
 - Conditional probability of x_i given x_j , $Pr(x_i|x_j, j \neq i)$, depends only on x_j if unit j is a neighbor of i
 - (Spatial) dependence can be specified by a graph of relations between actors, or connectivity matrix \mathbf{W}
 - States i and j connected ($w_{ij} = 1$) if within minimum distance threshold, row w_i specifies i 's connectivities to all other states J
- Allows introducing dependence in statistical model
- Create spatial variable that reflect regional attributes or transnational linkages based on \mathbf{W}

Statistical model of spatial process

- Spatial econometrics (e.g., Anselin 1988)
 - Introduce spatial context by r.h.s. lag or error based on W (SAR/SER maximum likelihood estimators). Presumes a continuous d.v., but conflict is a categorical d.v.
- Autologistic model of spatial processes (Besag 1974)
 - Probability of conflict in i conditional on peace/war in connected states j , given by $r_{i,t}^c = [w_{(i,\cdot)} \times y_t^c] \#$
 - Covariates: country $X_{i,t}$, transnational $Z_{i,t}$, time dependence $py_{i,t-1}$

$$Pr(y_{i,t} = 1) = \frac{e^{\eta_i}}{1 + e^{\eta_i}}, \text{ where } \eta_i = \gamma r_{i,t}^c + \mathbf{X}_{i,t}\beta + \mathbf{Z}_{i,t}\lambda + \phi_1 F(py_{i,t-1})$$

- Conceptually similar to logit model (case where $\gamma = 0$)

Model estimation

- Difficult likelihood function (since the y_i conditional on one another), but can be approximated by MCMC methods
- A map from an autologistic model can be defined by the model parameters θ and the sufficient statistics $s(y)$ for y
- 1. Find initial estimates ψ (maximum pseudolikelihood, MPL)
- 2. Based on initial values ψ , run Gibbs sampler to simulate m maps of y_i and derive sufficient statistics from these samples
- 3. Approximate MLE θ by solving score equation by Newton-Raphson

$$\frac{\sum_{j=1}^m s(y_m) e^{(\hat{\theta} - \psi)' s(y_m)}}{\sum_{j=1}^m e^{(\hat{\theta} - \psi)' s(y_m)}} = s(y)$$

Data, sample, measures

- Previous studies single year, broader sample 1946-2001
- New PRIO/Uppsala conflict data with lower threshold (25+ deaths)
- Transnational variables
 - Regional Polity mean, count of transborder groups (MAR), volume of local trade (expanded IMF)
- Country specific variables
 - Polity (linear, u-curve), ethnic heterogeneity (Vanhanen)
- Control for time dependence
 - Exponential decay of time at peace at $t - 1$

Estimates for autologistic model

Covariate	MCMC estimates		Logit estimates	
	Coefficient estimate	Standard error	Coefficient estimate	Standard error
(Intercept)	-4.321	0.441	-3.360	0.437
Conflict history (ϕ)	4.710	0.144	4.750	0.149
Democracy (β_1)	0.007	0.007	-0.005	0.007
Ethnic dispersion (β_2)	0.009	0.003	0.011	0.003
Ln GDP per capita (β_3)	-0.024	0.057	-0.152	0.053
Population (β_4)	0.001	<0.001	0.002	<0.001
Regional democracy (λ_1)	-0.033	0.015	—	—
Transborder groups (λ_2)	0.039	0.012	—	—
Regional trade (λ_3)	-1.928	0.683	—	—
Adjacent conflict (γ)	0.313	0.105	—	—

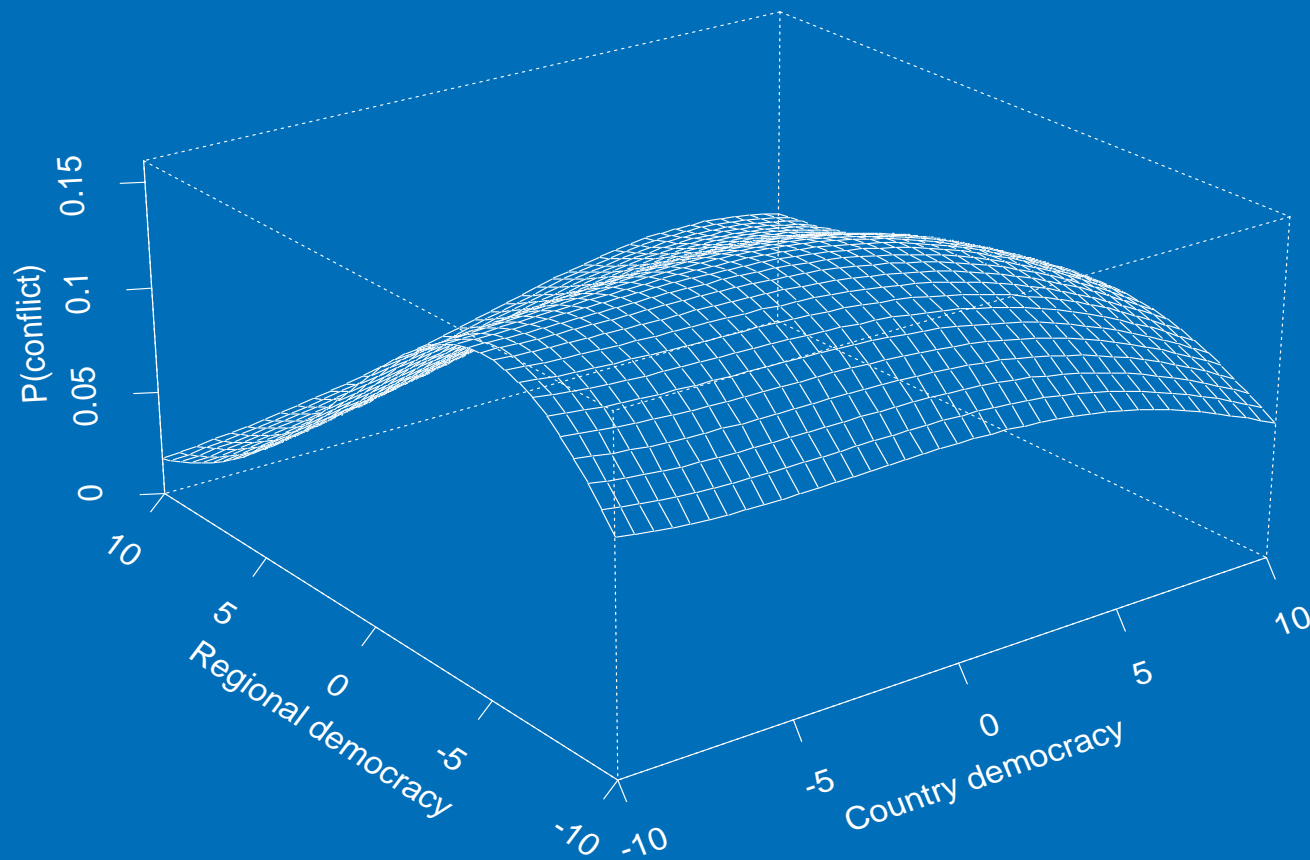
Model fit (MCMC estimates)

N = 5070, LR- χ^2 = 2457.8, df=9

Substantive implications of results

- Political factors
 - More democratic regions are less prone to conflict, but country specific democracy not clear effect by itself
 - (Alternative specifications no evidence for inverted u-curve, only if transition codes recoded as midpoint)
- Ethnic factors
 - Conflict more likely the greater the population not in the dominant group
 - Conflict also more likely the higher the number of transborder ethnic groups
- Economic factors
 - Ln GDP per capita small impact, not consistent
 - But large effect of trade with other countries in region
 - Conflict unlikely in more integrated regions, may also proxy for developed/state capacity

Conflict by democracy and regional democracy



Fearon & Laitin Model

Adding transnational factors to model in Fearon, JD & D Laitin. 2003. "Ethnicity, Insurgency, and Civil War." *American Political Science Review* 97:75-90.

Time dep.	3.449	(0.170)	Local trade	-0.029	(0.013)
GDP per capita	-0.071	(0.029)	Contig. groups.	0.020	(0.017)
Ln population	0.250	(0.057)	Regional dem.	-0.041	(0.017)
Ln % mount. terr.	0.115	(0.052)	Adjacent conf.	0.539	(0.152)
Island	0.111	(0.189)			
Oil	0.369	(0.185)			
New state	-1.261	(0.310)			
Instability	0.160	(0.152)			
Polity	0.018	(0.011)			
Ethnic frac.	0.679	(0.304)			
Religious frac.	0.114	(0.331)			
Intercept	-7.331	(0.530)			

Model classification

	MPL		MCMC	
	Predicted No	Predicted Yes	Predicted No	Predicted Yes
Observed No	3685	272	3680	277
Observed Yes	227	886	201	912

- MCMC estimates better than MPL
- Out of sample prediction to 2000 conflict data based on 1946-99 parameters and 1999 data (condition on *predicted* conflicts in 1999) identifies 89% obs. correctly
- Regional factors appear to reflect persistent features, not simply fit to idiosyncracies of sample

Contribution of transnational factors

- Conflict history clearly matters a great deal
- Does model do well only because of time or do transnational factors make substantial contribution?
- Evaluate contribution of transnational covariates plus contagion term by Bayes factors, or ratio of posterior probabilities given data
 - M_1 : Logit without transnational factors, M_2 : Autologistic model estimated by MCMC
 - Raftery (1995) proposes approximating the Bayes factor for some model M_k through Bayesian Information Criterion (BIC):

$$BIC'_k = -\chi_{k0}^2 + p_k \ln(n)$$

- $BIC'_{M_1} = -4691.73$; $BIC'_{M_2} = -4852.032$
- Bayes factor approximation is $BIC'_{M_1} - BIC'_{M_2} = 160.302$
- Well above > 10 , Raftery's threshold for "strong evidence" for M_2 over M_1

Implications and conclusions

- Transnational linkages exert important influences on civil wars
- Regional covariates at least as important as country attributes emphasized in other work
- Good and bad neighborhoods, differences in risk of conflict cannot be reduced to country specific attributes
- Extensions
 - New more specific data on external linkages and non-state actors, expanding Uppsala data
 - Analyses of interaction processes in regional conflicts
 - Geo-coded conflict and ethnicity data
 - How civil conflicts influence relations between states
 - Network characteristics
 - Agent based modeling/simulation