Risk Factors of Armed Conflict

Summary of national risk factors: Economic Growth, Per Capita Income, Country Size, Institutional Consistency, Governance; Neighbor Conflict, Environmental Conditions

Summary of subnational risk factors: Distance to Capital, Borders, Valuable resources; Density of Population, Minority language, Rough terrain, Road Infrastructure

*Aim***:** To assist analysts with the identification of risk factors for the production of risk terrain maps. Specifically, this brief provides an annotated review of the factors related to armed conflict and the settings and times for which some factors may be most relevant. This information should be especially useful to help choose a time period for creating risk terrain maps (i.e., Step[i] 3), to identify aggravating and mitigating risk factors to include in your risk terrain model (i.e., Steps 5 and 6), and to inform the operationalization of your risk factors to risk map layers (i.e., Step 7).

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A majority of nations have experienced armed conflict since 1960. The proportion of countries which experienced a form of armed conflict at a single point in time have increased steadily from 1960's on, making its peak of 51 active conflicts in 1990's; affecting almost 1/3 of the Sub-Saharan Africa region and over 20% of all countries. This situation prompted a simple question at that time: Why is conflict so prevalent? Only one decade later, with the steady decline in the total number of active conflicts in 2006, the researchers asked another simple question; why is now conflict less prevalent?. Now leaving the 1st anniversary of the Arab Spring behind it's almost intrinsically inevitable to get in the same loop of questions again: What conditions keep bringing the same problem over and over again to our attention or much more interestingly under what conditions the same issues we have been paying attention for so long, cease appearing in the global agenda or the issues which weren't out there before, becomes so detrimental for nations? And more importantly what is the most appropriate dataset to analyze the change in the risk for armed conflict?

Keeping these major questions in mind this research brief aims to assist analysts with the identification of risk factors for the production of risk terrain maps. Specifically, this brief provides an annotated review of the factors related to armed conflict and the settings for which some factors may be most relevant.

Operational definition: According to Uppsala Conflict Data Program (UCDP), armed conflict is defined as:

"A contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths" (UCDP/PRIO 2009, 1-2)[ii]

Aggravating/Mitigating Risk Factors Based on a Review of Empirical Literature

Like the analysis of any other risk event, advancement in the methodologies for forecasting armed conflict is imperative for successful responses to the problem. Regardless of the type of the organization developing early warning systems for conflict, Armed Conflict Prediction models have analyzed indicators that fell into at least one of

the following categories; security, governance, justice and reconciliation, economics, social well being, and cross cutting indicators that fit to more than one category. The selection and combination of these indicators in various statistical and/or spatial prediction models have been greatly affected by the variety of underlying priorities and perspectives of the involved research parties. Unsurprisingly the different agendas of different scholars and policy makers have resulted in the creation of provoking but at the very same time competing and sometimes even contradicting theories regarding which indicators will be the best to predict the onset of conflict and stability at certain geographies and more importantly how these sets of indicators should be operationalized effectively to predict both occurrence and non-occurrence of it (Barton et al. 2008, 2-4)[iii]. In the analysis of the geography of conflict zones, two main methodologies are observed to dominate the research field: 1) the use of aggregate level (national level) geographic data to proxy for individual social-economical and political characteristics and 2) the use of disaggregate level (sub-national level) data to directly reflect the local differences.

National Level Geographical Data

Economical factors: Most of the cross-national studies of armed conflict are influenced by the work of Collier and Hoffler (2004)[iv] and Fearon and Laitin (2003)[v] who mostly focus on proxy measures of economical indicators. While Collier and Hoffler conclude that Slow Economic Growth is a robust predictor of conflict, Fearon and Laitin (2003) suggest that Per Capita Income is a significant indicator of civil wars (Blattman and Miguel 2006).[vi]

Political and geopolitical factors: In addition to their comment on economical indicators; Fearon and Laitin (2003), Collier and Hoffler (2004) and Hegre and Sambanis (2006)[vii] conclude that in country level analysis among all correlates Country Size is the most robust positive indicator of civil wars (Hegre and Raleigh, 2006). Institutional Consistency is also identified as a significant correlate of conflict. According to (Beetham 1991)[viii] the degree of political stability is higher if there is a high degree of democracy or autocracy. In a similar vein Goldstone et al. (2010)[ix] argue that states with small degree of democracy and autocracy have more armed conflict. According to Pinherio (1996)[x], Governance Indicators are believed to be

robust predictors of political stability. The author suggests that with the decrease in the perceived level of rule of law, regulatory quality, voice and accountability and the increase in the perceived level of corruption, the political stability is expected to be weakened. Conflict is also believed to have an international element. According to macro-level studies by Esty et al. (1998a[xi], 1998b[xii]) countries with Neighbor Conflict have an increased risk of experiencing internal conflict (Human Security Center 2004)[xiii], Goldstone et al (2010) favoring the same argument suggest that having four or more bordering states with major armed civil or ethnic conflict increases the risk of political instability. Environmental Conditions are also believed to be significant predictors of conflicts. A study of Hegre (2003)[xiv] supports this argument by finding mountainous countries to have a higher risk of war than other countries as they provide rebels with natural sanctuaries. In a similar vein Fearon and Laitin (2003) suggest that environmental conditions favoring insurgents are significant predictors of civil wars (Blattman and Miguel 2006).

Subnational Level Geographical Data

Military factors:

- **Where the location is located relative to the capital** (Buhaug and Gates 2002[xv]; Buhaug and Rød 2006[xvi]; Hegre and Raleigh 2006[xvii]; Rød and Buhaug 2008[xviii]) as rebel groups might be safer in distance to governmental institutions.
- **Where the location is located relative to the border** (Buhaug and Gates 2002; Buhaug and Rød 2006; Rød and Buhaug 2008) as neighbor countries might provide safer zones for rebels and this might give a tactical advantage for military superior opposition.
- **The factor of local road density (**Buhaug and Rød 2006)**:** Since remote regions are harder to reach by government forces they are thought to be ideal for organizing a rebellion.
- **The factor of local extent of rough terrain** (Buhaug and Gates 2002; Buhaug and Rød 2006; Hegre and Raleigh 2006; Hegre and Sambanis 2006[xix]; Rød and Buhaug 2008): Mountainous and forested terrain is believed to provide shelter for rebels. Additionally forests are considered to provide funds and food for rebels (Rustad et al. 2008[xx]).
- **The factor of population density** (Collier and Hoffler 2004[xxi]; Buhaug and Rød 2006): A dispersed population

is believed to inhibit government capability and thus facilitate rebellion.

Non-Military Factors:

- **The factor of local dominance of a minority language (**Buhaug and Rød 2006, 319): According to Rokkan and Urwin (1983) "language and other cultural distinctions are prone to be amplified by political and rebel leaders".

- **Where the location is located relative to valuable resource deposits** (Le Billon 2001[xxii]; Buhaug and Rød 2006, 320) as ''the spatial distribution and lootability of resources are crucial with regard to the opportunities of belligerents to seize or retain control over resource revenues".

Recommended (Publically Available) Readings

Barton, F., von Hippel, K., Sequeira, S and Irvine, M. (2008). *Early Warning? A Review of Conflict Prediction Models and Systems.* Retrieved from http://csis.org/files/publication/080201_early_warning.pdf

Eck, Kristine. *A beginner's guide to conflict data. Finding the right dataset.* UCDP Papers No 1. Retrieved from http://www.pcr.uu.se/digitalAssets/15/15928_UCDP_paper1.pdf

Hegre, H. and Raleigh, C. (2006). Population Size, Concentration, and Civil War. A Geographically Disaggregated Analysis. Retrieved from http://www.prio.no/upload/616/populationsizewarwg3meeting.pdf

Hewitt et al. (2012). Peace and Conflict 2012:Executive Summary. Retrieved from http://www.cidcm.umd.edu/pc/executive_summary/exec_sum_2012.pdf

Human Security Centre. (2004). Understanding Civil War: Quantity versus Quality. Retrieved from http://www.hsrgroup.org/docs/Publications/Additional-Publications/Human-Security_ReporProject_Understanding-Civil-War-QuantityOverQuality.pdf

PRIO publications. Retrieved from http://www.prio.no/CSCW/Research-and-Publications/Publications/

Rød, J. K.and Buhaug, H. (2008). Civil Wars: Prospects and Problems with the Use of Local Indicators, presented at International Studies Association, San Francisco, CA, 26–29 March. Retrieved from http://www.prio.no/CSCW/Research-and-Publications/Publication/?oid=181957

Endnotes

[i] For steps of risk terrain map production, download the RTM Manual at www.riskterrainmodeling.com

[ii] UCDP/PRIO.2009. Armed Conflict Dataset Codebook Version 4-2008. Retrieved from http://www.prio.no/sptrans/1664678440/Codebook.pdf.

[iii] Barton, F., von Hippel, K., Sequeira, S and Irvine, M. (2008). *Early Warning? A Review of Conflict Prediction Models and Systems*. Retrieved from http://csis.org/files/publication/080201_early_warning.pdf

[iv] Collier, P., and Hoeffler, A. (2004). Greed and Grievance in Civil Wars. *Oxford Economic Papers*, *56*, 663-695.

[v] Fearon, J., and Laitin, D. (2003). Ethnicity, Insurgency, and Civil War. *American Political Science Review*, *97*(1), 75-90

[vi] Blattman, C. and Miguel, E. (2006). Civil War. *Journal of Economic Literature*, *48* (1), 3-57.

[vii] Hegre, H., and Sambanis, N. (2006). Sensitivity Analysis of Empirical Results on Civil War Onset. *Journal of Conflict Resolution*, *50*(4), 508-535

[viii] Beetham, David (1991). *The Legitimation of Power*. US: Humanities Press International.

[ix] Goldstone, J. A., Bates, R. H., Epstein, D. L., Gurr, T. R., Lustik, M. B., Marshall, M. G., Ulfelder, J., and Woodward, M. (2010). *A Global Model for Forecasting Political Instability*. American Journal of Political Science. 54*(1), 190-208*

[x] Pinherio, P.S. (1996). *Democracies without Citizenships: Democratization and Human Rights*. NACLA Report on the Americas, *30, 17-23*

[xi] Esty, D.C., Goldstone, J., Gurr, T.R., Surko, P.T., Unger, A.N., and Chen, R.S. (1998a). The state failure project: Early warning research for U.S. foreign policy planning. In J.L. Davies & T.R. Gurr (Eds.), *Preventive measures: Building risk assessment and crisis early warning systems*. Lanham, MD: Rowman and Littlefield

[xii] Esty, D.C., Goldstone, J., Gurr, T.R., Surko, P.T., Unger, A.N., and Chen, R.S. (1998b). The State Failure Report: Phase II findings. Environmental change and security project report 5

[xiii] Human Security Centre. (2004). Understanding Civil War: Quantity versus Quality. Retrieved from http://www.hsrgroup.org/docs/Publications/Additional-Publications/Human Security_ReporProject_Understanding-Civil-War-QuantityOverQuality.pdf

[xiv] Hegre, H. (2003). Disentangling democracy and development as determinants of armed conflict. Paper presented at the 44th Annual Convention of the International Studies Association, February 26–March 1, Portland, OR

[xv] Buhaug, H., & Gates, S. (2002). The Geography of Civil War. *Journal of Peace Research*, *39*, 417-433

[xvi] Buhaug, H. & Rød, J.K. (2006). Local Determinants of African Civil Wars, 1970 - 2001. *Political Geography 25*(3), 315-335

[xvii] Hegre, H. and Raleigh, C. (2006). Population Size, Concentration, and Civil War. A Geographically Disaggregated Analysis. Retrieved from http://www.prio.no/upload/616/populationsizewarwg3meeting.pdf

[xviii] Rød, J. K.and Buhaug, H. (2008). Civil Wars: Prospects and Problems with the Use of Local Indicators, presented at International Studies Association, San Francisco, CA, 26–29 March. Retrieved from http://www.prio.no/CSCW/Research-and-Publications/Publication/?oid=181957

[xix] Hegre, H., and Sambanis, N. (2006). Sensitivity Analysis of Empirical Results on Civil War Onset. *Journal of Conflict Resolution*, *50*(4), 508-535

[xx] Rustad, S.A., Rød, J.K. Larsen,W. and Gleditsch, N.P. (2008). Foliage and fighting: Forest resources and the onset, duration, and location of civil war. *Political Geography*, 27, 761–782

[xxi] Collier, P., and Hoeffler, A. (2004). Greed and Grievance in Civil Wars. *Oxford Economic Papers*, *56*, 663-695

[xxii] Le Billon, P. (2001). The Political Ecology of War: Natural resources and armed conflicts. *Political Geography*, *20*, 561-584