Dude, Where’s My Conflict?
LSG, Relative Strength, and the Location of Civil War

A very incomplete first draft – you probably want to wait for an updated version
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Abstract
Kenneth Boulding’s (1962) notion of a loss-of-strength gradient (LSG) has been successfully applied to explain the military reach of states. The capability of a country (a.k.a. its national strength) is largest at its home base and declines as the nation moves away. Capable states are relatively less impeded by distance and can therefore influence more distant regions. Given armed conflict, battles are expected to occur in areas where the projected powers of the antagonists are comparable. When the aggressor’s projected power is greater than the national strength of the defender, the latter side should give in without violence. This paper is a first attempt to apply Boulding’s theory of international interactions to the study of civil war. Using a variety of measures of national strength and data on the location of battle zones, this paper tests empirically one corollary of the LSG hypothesis; whether civil wars in general locate further away from the capital in more powerful regimes.

Introduction

[Insert motivational example]

In the civil war scholarship’s quest for new, interesting approaches that could produce peace, glory, and more citations in the ISI index, it is perhaps surprising that few have embarked on the issue of location. We know a great deal about country-level correlates of armed conflict; civil wars occur predominantly in large, politically unstable, and poor societies that reside in politically unstable and poor neighborhoods. Ethnic diversity, lack of economic growth, and oil production, too, seem to increase the general propensity for conflict (Hegre & Sambanis 2006). We know less about the temporal aspect of civil war, i.e. triggering factors that explain the timing of conflict outbreak. This could be due to lack of fine-grained data and appropriate methodology but it may also reflect a certain degree of uniqueness in each case.¹ Moreover, despite considerable theoretical work on the microfoundations of rebellion, we have little evidential knowledge on the local determinants of civil war – what explains where conflicts occur within countries. Again, lack of good data certainly plays a role, but so does the tendency to consider the state, with all its aggregate features, as the sole recognizable actor, and hence the logical analytical focal point.

If state-level explanations can be transferred to an appropriate sub-state level without loss of power, we should still be fine. Then, we could deduce that rebellion is most likely to occur in the poorest, most populated, ethnically fragmented, and oil-rich regions of a country. A cursory glance at today’s conflicts provides mediocre support to such a disaggregated reasoning. While conflicts in the Niger delta, Iraq, and Southern Sudan fit most of these characteristics, other cases are less supportive. For example, the long-standing disputes over the self-determination of Oromiya and Somali occur in sparsely populated, ethnically quite homogenous, and relatively well-off regions of Ethiopia. Similarly, the recently ended Aceh insurgency was confined to one of the wealthiest Indonesian provinces (largely due to enormous petroleum riches) and also one of the least populated ones. The same is true for the Angolan exclave Cabinda.

Even if a rudimentary transition of knowledge from the state to the sub-state level provides some hints at local determinants of civil war, we should be careful about such stage
diving as it might lead to erroneous inference, otherwise known as the ecological fallacy (Robinson 1950). Besides, certain features that may be important in distinguishing between conflict-prone and peaceful countries carry little meaning at a local level. For example, proximity to regime change is a constant within countries, and so are various indicators of the neighborhood. Other factors may play out only at the sub-national level. The well-known rough terrain argument is essentially a theory of local mechanisms (which quite possibly explains its poor record in country-level analyses) whereas hypotheses on relative location (such as center-periphery dynamics) cannot be tested unless we disaggregate the state.

[Insert short review of relevant literature]

In the following, I outline a localized theory of civil war, stressing the importance of state capacity, power distribution, and level of technology. I then describe the dataset and choice of methodology before presenting and discussing the main findings from the empirical analysis. [Results] The paper ends with a brief summary and conclusion.

**Relative Location, Relative Strength**

So, what explains the sub-national variation in conflict propensity? Why does India struggle with multiple insurgencies in its northwestern and northeastern corners while large portions of the remaining territory are unaffected and not conceivable to host a rebellion? And how could a small band of lightly armed guerrillas, hiding in the easternmost mountains of Cuba, eventually march towards Havana and expel the island’s ruling general?

The simple answer is this: for a rebellion to occur – and succeed – the rebels must be determined and strongly motivated, share a feeling of unity, and be able to mobilize and exercise a force more powerful than the projected force of the government. The motivation (greed/opportunity vs. grievance) and identity (ethnic affinity, religion, social class, etc.) aspects of rebellion have been discussed at considerable length elsewhere so I shall take these for granted and concentrate on the issue of relative strength in this paper.

From Boulding’s (1962) seminal work, we have learned that the capability of a country (i.e. its ‘national strength’) is largest at its home base and declines as the nation
moves away. The extent of decline by distance may vary from one country to the next and is determined by the loss-of-strength gradient (LSG). Originally, this model is discussed solely within the context of international conflict, but it offers important insights to the study of civil war as well.

In a domestic setting, the ability of a state to exert authority throughout its territory is determined by the government’s capability and its LSG. While partially overlapping, state capacity refers to the military, policing, and taxing capability of a regime while the LSG is affected but such factors as quality of infrastructure, extent of local administrative bodies, rough terrain, and cultural differences. For example, power is projected over distance quite easily if the government can make use of existing communication networks (airports, telecommunications, military bases, etc.) and call upon local governmental representatives. Exerting authority in regions with limited infrastructure, inhabited by distinct minority groups, and separated from the core by rough terrain or territories of other states is much more costly.

The likelihood of rebellion is influenced by the prospective rebels’ *a priori* expectation of success. This expectation, in turn, is based on the (subjective) assessment of their home strength, compared to the government’s projected power. Imagine, as illustrated in Figure 1, that we have a government with a home base (the capital city) at G and a rebel group with its base R at some distance from G. The home strength of the government, measured by line GH, is clearly superior to that of the rebel group, RK. The strength of both parties decline as they move away from their home bases; the maximum amount of projected power for a given distance from the base is given by the slopes from H and K, respectively. Let us suppose that the rebel base is relatively proximate to the capital, as illustrated in the left panel. Evidently, the rebel group falls within the government’s sphere of influence – its maximum home strength is less than the government’s projected strength at R. If a rebellion were to occur here, it would be a swift one with absolute government victory. Now, suppose instead, as on the right, that the rebel group is based at a considerable distance from the government. Here, the projected power of the government is less than the maximum rebel strength at its base R’. In fact, the government’s authority ends at E, the point of equal strength, beyond which the rebel group is dominant. A rebellion at R’, then, is likely to end with considerable government concessions.
The horizontal line that separates the government and rebel bases represents not only geographic distance but all sorts of factors that might affect the LSG, including type of terrain, level of infrastructure and logistics capabilities, extent of local support, cultural dissimilarities, and moral. Therefore, a rebel group that resides in an otherwise favorable region is able to mount a revolt closer to the capital than a group in a less advantageous area, all else being equal. From this follows that civil war is most probable in poor, weak, and failed states, in which the national home strength is comparatively small and the regime’s LSG is overwhelming. The model further explains how rebel groups are able to push further toward the capital – or manage to gain increasing levels of self-determination – as they grow stronger.

A major advantage of most rebel groups, at least in the initial phase of the rebellion, is that they decide where the battles occur. The strategic decision will be based on such factors as aim of the rebellion, ease of rebel recruitment, financing opportunities, type of terrain, and an assessment of relative military effectiveness. If the insurgents are vastly inferior to the government side, they must take advantage of any possible factor that decreases the LSG of their opponent more than their own. This could mean establishing bases in the mountains or behind national borders, limiting the area of operation to rural districts where the rebellion enjoys local support, and generally avoid open encounters with regular forces by conducting hit-and-run assaults. A relatively stronger rebel movement might be able to establish strongholds in regional population centers and will be less dependent on rough terrain or safe havens in neighboring countries. Only the strongest revolutionary groups – usually involving some, if not all, branches of the regular armed forces or otherwise enjoying
massive and widespread public support – are able to challenge the government on its home ground.

Before turning to the determinants of capacity, one more issue of relevance to the general model should be discussed. So far, I have taken for granted that the state maximizes its projection of power to counter any rebellious activity on its soil. This may be an implausible assumption. Notwithstanding conflicts where the regime actually profits from not ending the conflict (see Addison et al. 2001), it seems fair to assume that the state in many cases is more concerned with minimizing costs. Only when the political system and the regime itself are under considerable threat is the state likely to realize its full military potential.

This reasoning has two implications. First, it means that governmental (‘revolutionary’) conflicts are likely to be severe but swift. As both sides maximize their military strength, every single battle may prove decisive for the outcome of the war. This corresponds well to the real world. Since WWII, the most atrocious civil wars (in terms of annual casualties) were generally quite short-lived and a large majority concerned state control. Second, the above logic suggests that separatist conflicts may be allowed to simmer as the costs of putting the turmoil to a complete end are higher (at least in the short run) than keeping it at a manageable level. Few would question the UK’s ability to crush the Irish uprising if Westminster had decided to do so. The political (and human) costs of such an operation would be unbearable, though.

State Capacity and the LSG

The glue that prevents a state from disintegrating is the regime’s ability to avoid widespread disorder on its territory. This is achieved through a combination of trust and coercion. The exact blend of the two instruments varies between countries; some rely on extensive use of armed forces, secret police, and public surveillance (think of George Orwell’s imaginary Oceania or Kim Jong-Il’s not-so-imaginary North Korea), others put faith in the acknowledged legitimacy of a righteous political system – some even have constitutional arrangements that forbid a standing military (e.g. Costa Rica).
Returning to the questions posed at the outset of the previous section, a significant reason why New Delhi is repeatedly challenged by minorities at the peripheral rim but not by groups closer to the country’s core can be traced down to sheer distance. Similarly, and inspired by the teachings of fellow rebel Che, Fidel Castro and his small gang of revolutionaries initially employed guerrilla tactics from the inaccessible Sierra Maestra mountains, thus massively reducing the projected power of the ill-trained Cuban military. As the Movimiento 26 de Julio gathered strength, they shifted tactics and gradually managed to push the governmental forces backwards toward Havana and eventually expel General Batista (SOURCE).

Data and Research Design

How do we measure state capacity? Herbst (2000: 113) offers one answer: ‘There is no better measure of a state’s reach than its ability to collect taxes.’ Unfortunately, such data are not available, at least not for a global, time-series sample. Instead, I use political consistency as a proxy for state capacity. Both consolidated democracies and totalitarian systems have disciplined citizens, though the means for obtaining domestic order differ. The former type is characterized by a separation of powers (to prevent unconstitutional regime changes) and enjoys high levels of credibility among the populace whereas the latter more often resort to arms. Inconsistent and transitory regimes, in contrast, often exert limited authority outside cabinet; their base of support is narrow compared to democracies while their ability to pursue and repress dissidents is limited compared to dictatorships.

How do we measure the loss-of-strength gradient? Rough terrain is one obvious candidate, though only when a disaggregated research design is applied. Rugged mountains constitute a significant challenge to conventional armed forces whereas they are ideal for guerrilla warfare. Another potential factor would be quality of the infrastructure. Major highways and strategically located airfields increase the mobility and speed of government authority. A third possible indicator is technological sophistication. Advanced weapons may help overcome both distance and rough terrain (though think of the failure of the US-led
forces in Tora Bora). As a proxy for both infrastructure and level of technology, I propose GDP per capita. Admittedly, per capita income captures elements of absolute state capacity too (see Fearon & Laitin 2003), though I believe wealth is more important in determining the ease at which a state can reach distant areas without significant loss of power.

[Is it at all realistic to distinguish between capacity and the LSG?]

**Sources**
Conflict data: UCDP/PRIO Armed Conflicts dataset (Gleditsch et al. 2001).
Economic development: (log) GDP per capita (Gleditsch 2002).
Regime type: Polity IV project.
Country size: (log) population and (log) country area, from World Development Indicators.
Ethnic groups: Geo-coded version of *Atlas Narodov Mira*.
Group size estimates: GIS-based calculations, from CIESIN’s GPW v.3.
Mountainous terrain: GIS-based calculations, from UNEP-WCMC.

**Methodology**

**MODEL 1: INTRASTATE CONFLICTS**

Two-stage selection process; conflict-capital distance, selected from states in conflict
1. What explains the risk of intrastate conflict? (selection stage)
2. Given intrastate conflict, what explains the location of the conflict, relative to the capital?

A selection model is needed if the units of observation are given non-randomly, meaning that factors that explain the feature of interest (distance to the conflict zone) also have an impact on the likelihood of the units being selected for analysis (outbreak of conflict). Earlier research (e.g. Fearon & Laitin 2003) has demonstrated that state capacity is inversely related to the risk of civil war. Above, I discussed how capacity might also affect the location of rebellion, whereby resilient regimes either crush credible threats instantly or conduct policies aimed at pleasing large masses of the population. Accordingly, capable states essentially deselect conflicts at the core, leaving room for isolated and peripheral insurgencies only that are not considered a threat to the regime as a whole. Weak states, in contrast, are in no
position to negotiate and decide on which unrest should be allowed to linger, and are thus susceptive to conflict at any point along the center-periphery spectrum. This leads to a two-stage expectation: Capable states are overall less likely to experience civil war and civil wars in capable states are less likely to occur near the capital.

While in principle designed to handle such two-step processes, the Heckman selection model should be applied with some caution. Most importantly, it is more dependent on the model being correctly specified than are ordinary regression models. In particular, the estimates often become unstable under nonnormal distributions of errors or when significant heteroscedasticity is present. The analysis presented below confirms that the selection and regression stages are not independent, suggesting that the Heckman model is appropriate. However, both the normality and homoscedasticity assumptions are violated, so further testing is needed before firm conclusions can be reached.

MODEL 2: DYADIC ETHNIC CONFLICTS

Two-stage selection process; group-capital distance, selected from ethnic groups in conflict
1. What explains the risk of ethnic conflict? (selection stage)
2. Given ethnic conflict, what explains the variation in the relative location of the groups?

How do group and state characteristics vary with the location of the rebelling peripheral group relative to the center? It might seem meaningless to regress distance from a group’s homeland to the capital city as a function of population size, terrain, and various country-level factors. Yet, regression analysis is in reality about correlational associations, not causal effects. In other words, the model only evaluates whether there is statistical co-variation between \( x \) and \( y \), controlling for third factors (in order to claim causal relationships, the results must be backed by a plausible theory). Hence, although the group-capital distance is the dependent variable here, I certainly do not claim that the relative location of a peripheral group is a function of group size and extent of rough terrain (rather, one might expect size to be partly a function of both location and terrain). The sole purpose with this regression is to investigate whether and how ethnic unrest involving groups close to the state center differ systematically from rebelling ethnic groups in the periphery.
Results

TBA

Model 1. Determinants of Civil War Location

Heckman selection model
(regression model with sample selection)

Number of obs = 6589
Censored obs = 6414
Uncensored obs = 175

Wald chi2(5) = 68.27
Prob > chi2 = 0.0000

Log pseudolikelihood = -1026.906

(Std. Err. adjusted for 164 clusters in ccode)

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Wald test of indep. eqns. (rho = 0): chi2(1) = 31.32 Prob > chi2 = 0.0000

Test of normality assumption

![Graph showing test of normality assumption]
Test of heteroscedasticity

Model 2. Relative Location of Rebelling Ethnic Groups
TBA

Conclusion
TBA

References
Addison et al., 2001.
Gleditsch, NP et al., 2001.
Hegre & Sambanis, 2006. JCR.
Kocher, 2004. PhD.
Lacina & Gleditsch, 2005.


**Notes**

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i Population size, poverty, and political repression may form a necessary baseline for conflict, but what usually brings about the turmoil is a context-specific incident, such as the death or inadvertent resignation of the political leader or an exogenous shock from natural hazards or rapid changes in the regional political environment.

ii See Kocher (2004) for a similar theoretical development.

iii The main exception here is the Afghan civil war, which has lasted for nearly 30 years and is still ongoing, though Soviet invasion forces were responsible for most of the casualties during the conflict’s deadliest period (the 1980s).

iv Tilly (2001: 41) defines government capacity as ‘the extent to which governmental agents control resources, activities, and populations within the government’s territory.

v For the original presentation of this model, see Heckman (1976).