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Dude, Where's My Conflict?

LSG, Relative Strength, and the Location of Civil War[*]

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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 power projection to the study of civil war. Using new data on the point location of conflict onset and a variety of measures of state and rebel strength, this paper tests empirically one corollary of the LSG model: that civil wars in general locate further away from the capital in more powerful regimes.

KEYWORDS: civil war; geography; GIS; rebel strength; state capacity

In the quantitative civil war scholarship's quest for knowledge, puzzles such as "What causes civil war?" and "What explains the duration of conflict?" are increasingly being analyzed and understood at a disaggregated level (e.g. Buhaug and Rød, 2006; Gates and Murshed, 2005; Meier et al., 2007; Hegre et al, 2009). Yet, we still know a whole lot more about country-level correlates of armed conflict than about the influence of local factors. Civil wars occur predominantly in large, politically unstable, poor, ethnically diverse, and oil-rich societies (Hegre and Sambanis, 2006). Despite considerable theoretical work on the micro-level origins and dynamics of rebellion (e.g. Gates, 2002; Gurr, 1970; Kalyvas, 2006; Lichbach, 1995; Weinstein,

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2007), we have little evidential knowledge on the local determinants of civil war—for example, what explains where conflicts occur *within* countries. Lack of good data certainly plays a role in explaining this deficit, but so does the tendency to consider the state, with all its aggregate features, as the sole recognizable actor, and hence the obvious analytical focal point.

If state-level explanations can be transferred to an appropriate substate 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 for such disaggregated reasoning. While organized violence in the Niger Delta, Iraq, and Southern Sudan fits most of these characteristics, other cases are less supportive. For example, the long-standing disputes over the self-determination of the Oromiya and Somali people occur in sparsely populated, ethnically 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 gas riches) and also one of the least populated ones.

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). 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 that relate to neighboring countries. Other factors may play out only at a sub-national level. Moreover, hypotheses on relative location (such as center–periphery dynamics) cannot be tested unless we disaggregate the state.

In the following, I outline a localized theory of civil war, derived from Boulding's (1962) model of international power projection. I argue that a significant factor influencing the location of civil wars relative to the capital city is the power distribution between the state and the non-state actors. In countries where the state is strong—typically in institutionally consistent and wealthy regimes—or the rebels are very weak, emerging conflicts are likely to occur in the remote periphery. Weaker states pose less of a threat to armed non-governmental groups and may not be able to exert force outside urban areas, so in such countries the battles are expected to take place closer to the state's home base. I then describe the dataset and choice of methodology before presenting and discussing the main findings from the empirical analysis. Overall, the results provide considerable support for the proposition that civil wars involving weak states or strong rebel groups in general break out closer to the capital than do other conflicts.

Relative Location, Relative Strength

What explains the subnational variation in conflict propensity? Why does India struggle with multiple insurgencies along its northern corners while large portions of the remaining territory are unaffected and not conducive to separatist 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 sense of common cause, *and be able to mobilize and exercise a force more powerful than the projected force of the government*. The motivation (e.g. relative deprivation) 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 in this article on the issue of relative strength.

From Boulding's (1962) seminal work, we have learned that the capability of a country, 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 was applied solely to the context of international conflict (e.g. Gleditsch and Singer, 1975), 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 regime's ability to implement preferred policies (which for operational purposes are separated into institutional, military, demographic, and taxing capability) while the LSG captures the cost of policy implementation across space (typically being affected by such factors as quality of infrastructure, extent of local administrative bodies, rough terrain, and cultural differences). For example, political influence is projected over distance quite easily if the government can make use of existing communication networks and call upon local governmental bodies. Exerting authority in regions with limited infrastructure, inhabited by impudent populations, 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 maximum projected power.[1] 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 declines 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 completely within the government's sphere of influence—its maximum home strength is less than the government's maximum projected strength at R. If a rebellion were to occur here, it would be a swift one with absolute government victory.[2] Indeed, in a world of rational choice, with complete information on own and opponent's capabilities and preferences, we would not expect to observe violence here (though see Mehlum and Moene, 2006).

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[1] This logic is analogous to earlier work on contest success functions (e.g. Skaperdas, 1996; Gates, 2002).

[2] Assuming, for now, that the government always applies full force to counter an insurgency.

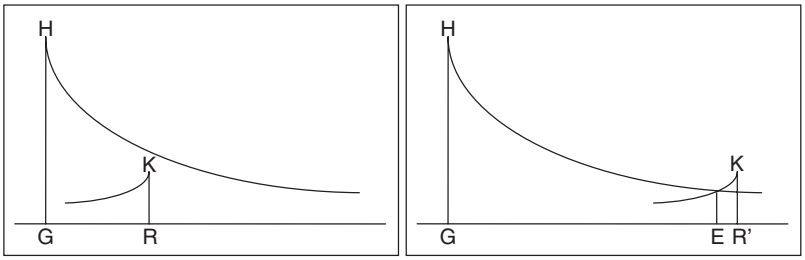

Figure 1. Relative Rebel Strength as a Function of Distance

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.[3] This corresponds well to e.g. Gurr's (1970: 235) claim that rebellion is more probable when the power ratio between the government and the opposition approaches equality.

A significant contribution of this theoretical framework, then, is that it explicitly models state capacity as a relative quality that varies across space, contrasting habitual country-level approximations and dichotomies of failed vs. functioning states. Note, however, that the horizontal line GR 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 morale. Therefore, a discontented 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. Data limitations and the intangible nature of some of these factors, however, imply that the empirical analysis that follows is limited to a simple, geographic proxy for relative location.

On a general level, this model suggests that civil war is overall most probable in poor, fragile, and failed states, in which the national home strength is comparatively small and the regime's LSG is overwhelming. Rebellion in more capable states should largely be confined to peripheral areas. The model further explains how rebel groups are able to push further toward the capital—or manage to gain increasing levels of autonomy—as they grow stronger relative to the government.

A major advantage of most rebel groups, at least in the initial phase of the rebellion, is that they decide where the fighting occurs. 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 increases the LSG of their opponent more than their own. This could mean

[3] If no variation in the distribution of capabilities over time; obviously, a bold assumption.

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 (e.g. Assam 1990s). 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 (e.g. Chechnya 1994). Only the strongest revolutionary groups—usually involving some, if not all, branches of the regular armed forces (e.g. Chile 1973), or otherwise enjoying massive and widespread public support (e.g. Romania 1989)—are able to challenge the government on its home ground.

Before turning to the foundation 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 situations where a regime actually profits from not ending the violence (see Addison et al., 2002), it seems that states in many cases are more concerned with minimizing short-term costs. How else can we explain the durable Catholic uprising in Northern Ireland, which essentially was *allowed* to last for 30 years? Few would question the UK's ability to crush the rebellion by military means if Westminster had decided to do so, but the human and political consequences of such an operation would be unbearable. The political cost of using violence against the population is much higher in democracies (Rummel, 1994); these regimes are inclined to meet armed resistance with limited containment and repeated offers of truces and negotiations. Only when the political system and the regime itself are under considerable threat is the democratic state likely to realize its full military potential. Oppressive rulers, in contrast, are far less constrained in their use of force domestically—Pol Pot's Cambodia constituting a horrible case in point. In such societies, even insignificant peripheral uprisings should expect to face massive retaliation.

This reasoning has two implications. First, it means that governmental conflicts in general tend to be severe but swift. As both sides maximize their military strength, every single battle may prove decisive for the outcome of the war. Coups d'état, a special form of governmental conflict, are particularly short-lived (sometimes even bloodless if the outcome is given), rarely lasting longer than a week. Second, the above logic suggests that distant, self-determination conflicts in non-totalitarian countries may simmer for years, even decades, as the costs of putting the turmoil to a complete end are perceived to be higher (at least in the short run) than keeping it at a manageable level. This provides one explanation for the fact that many enduring separatist conflicts since WWII are found in democratic states, including India, Israel, Spain, and the UK.

State and Rebel Strength

The glue that prevents a state from disintegrating is the regime's ability to avoid widespread disorder on its soil. This is achieved through a combination of allegiance and coercion.[4] The exact blend of the two varies between countries. Some rely on extensive use of armed force, secret police, and public surveillance (think of George

[4] Wintrobe (1998) speaks of these instruments as loyalty and repression.

Orwell's imaginary Oceania or Kim Jong-Il's not-so-imaginary North Korea). Others put faith in an acknowledged legitimacy of a just political system. Some even have constitutional arrangements that prohibit a standing army (e.g. Costa Rica).

Definitions of state, or political, capacity abound. At the extreme, the relationship between capacity and prevention of unrest becomes tautological as domestic peace is the Weberian manifestation of a state's monopoly on the use of force. A more inclusive and useful definition taps central characteristics of the state aside from the binary feature of internal order. Below, I review the most frequent elements in earlier attempts to measure state strength and discuss how they apply to the domestic LSG model. I also present, briefly, some determinants of rebel capacity.

Militarization

Arguably, the most obvious dimension of state strength is military power. As expressively articulated by Thucydides (1959: 5.89) in the *Melian dialogue*, "the strong do what they can and the weak suffer what they must." True, military superiority does not always secure peace and it does not always result in victorious outcomes of war. One exception is found in the ancient Greco-Persian war, made famous through Zack Snyder's epic film *300*. In the battle of Thermopylae (480 BCE), a tiny Spartan-led alliance of Greek city-states inflicted so much damage on the vastly superior Persian forces (the contemporaneous Greek historian Herodotus speaks of a 500-to-1 soldier preponderance) that even though Persian king, Xerxes I, eventually won the battle, the victory was so costly that he lost the war (Cartledge, 2006). This example aside, military strength is generally regarded as an important determinant of state capacity in international affairs (Hegre, 2008).

More central to the argument of this paper, and as posited by Boulding (1962) and demonstrated empirically by Gleditsch and Singer (1975), major military powers are able to conduct war across considerably longer distances than are minor states. Intuitively, one might expect the same empirical association to be true in a domestic setting: stronger governments are able to control larger territories. It is hard to think of a more effective means of counter-insurgency than the armed forces, if their strength is applied wisely and with precision. Yet, several facts suggest that the relationship may not be that straightforward. Indeed, there are reasons why we might expect militarized states to be particularly *prone* to conflict. First, military power is often a consequence, or at the very least, a symptom, of societal instability. State leaders may choose to invest in the armed forces to counter anticipated unrest, and post-war societies are hesitant to reduce military spending. This, in turn, diverts funding away from important social programs and may thus stir discontent among the general public. Second, the military also constitutes a considerable, if latent, threat to the political leadership. In non-democratic systems, where attempts at unconstitutional changes of government are more likely, maintaining the support of the military lobby is crucial—for example, through political and economic benefits for the military leadership and massive military spending more generally. While such schemes in themselves represent an unfortunate allocation of public funds (Collier and Hoeffler, 2006), they do not secure the regime against coups d'état. Some studies (e.g. Yakovlev, 2007) further suggest that increased defense spending reduces economic growth and thus indirectly increases the risk of conflict.

In sum, the militarization aspect of state capacity appears less important in domestic settings than on the international arena. While military coercion may be effective at extinguishing protests and limited rebellion, high defense spending has a number of adverse consequences that raise the baseline propensity for conflict in any segment of the society.

Country Size

Traditional geopolitical thinking, inspired by Friedrich Ratzel, Halford Mackinder, Nicholas J. Spykman, and others, highlights population mass as *the* key asset; larger countries have more resources to draw upon and more personnel to spare in times of war. In contemporary politics, population size remains an important indicator of international influence and ultimately determines the power potential of a country (Mearsheimer, 2001). This is why China's substantial economic growth is of major concern to the US while Singapore's equally impressive record isn't. Indeed, probably the most used power indicator in empirical studies of international conflict, the CINC score (Composite Index of National Capability, see Singer et al., 1972), has population (total and urban) as two of its core elements.[5]

It thus seems that population size is a decisive component of state capacity and a complement to military power. Yet, we also know that population size is the most robust correlate of civil war (Hegre and Sambanis, 2006). Just as for militarization, what promotes power internationally may in fact constitute a significant impediment to effective domestic rule. The main reasons for this can be traced to coordination costs, preference heterogeneity, and collective action problems.

The IR literature traditionally considers states to be unitary actors in their joint interaction. This assumption is less reasonable in a domestic setting, where inter-group and inter-provincial relations are affected by the extent of societal fragmentation. Above all, population size is positively associated with cultural diversity, including differences in language, religion, traditions, and history, causing substantial heterogeneity in preferences (Alesina and Spolare, 2003). Country area, which is closely related to size of the population, too, affects the level of congruence between identity, preferences, and boundaries of the territorial nation-state. All else being equal, an interacting center–periphery dyad is less likely to agree on, say, the importance of urban–rural income redistribution or extent of local autonomy than are groups within the center.

If we consider the second component of the LSG model, distance, the relevance of country size is even more apparent. The projection of power across distance comes at a cost. Therefore, the state apparatus of a densely populated country can monitor and control the population more efficiently than can leaders of an otherwise similar country with vast and scarcely populated territory (see Herbst, 2000; Tilly, 2003). While the *potential* for state strength may still be high in large countries—even in a strictly domestic setting—there are other factors, often more powerful, that act in the opposite direction. In particular, large hinterlands and isolated peripheries

[5] The CINC index consists of six components: total population, urban population, iron and steel production, energy consumption, military personnel, and military expenditure.

are favorable to insurgency.[6] In sum, this suggests that large countries are relatively more exposed to intrastate conflict (although most of these are likely to take the form of remote, separatist attempts).

Institutional Consistency

Recall that domestic order is achieved through a mix of allegiance and coercion. Allegiance can materialize through different channels. Well-functioning democracies offer fair and extensive public goods delivery. This produces high levels of trust in the political system and effectively ensures compliance by the large masses. When the winning coalition—the group whose support is crucial to the political survival of the leader—is smaller, the provision of private goods becomes a more important instrument (Bueno de Mesquita et al., 2003). By generously rewarding the inner circle of members supporting the regime and excluding large portions of the selectorate from joining the coalition, the leader reduces the incentives for defection. Even highly oligarchic regimes are to some extent founded on allegiance, though material benefits alone may not always be sufficient to establish mutual, credible loyalties. In Saddam Hussein's Iraq, key political and military positions were kept within the dictator's family and tribe (*Tikriti*) to maximize the probability of sustained support.

In regimes with a narrow base of political support, coercion constitutes an important supplementary means of control. This way, the autocrat ensures that the cost of challenging the regime is sufficiently high to outweigh anticipated gains of capturing state power (Gates et al., 2006). As a result, strongly authoritarian systems are remarkably stable; their leaders often remain in power considerably longer than do democratically elected leaders (Bueno de Mesquita et al., 1999, 2003), even if autocracy as a system may be less durable than democracy. In contrast to these ideal types, institutionally inconsistent regimes (sometimes referred to as mixed regimes, anocracies, semi-democracies, or semi-autocracies) are typically quite short-lived because the system is founded on a relatively narrow concentration of power while simultaneously imposing restrictions on the executive and allowing organized opposition. Put differently, institutionally inconsistent regimes lack both the broad political legitimacy of established democracies and the dictatorships' ability to crush groups that threaten to challenge the state. To the extent that political stability affects state capacity, then, ideal type regimes should be better able to avoid armed challenges within the state boundaries and particularly so in core areas.

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[6] There are of course other plausible, complementary explanations for the strong correlation between population size and frequency of civil war, but those are considered less important in this context. For example, civil wars are extremely severe events, often defined as resulting in 1,000 deaths or more (see Sambanis, 2004 for a conceptual discussion). Such high casualty figures are obviously harder to attain in small countries than in larger ones. Populous countries also constitute larger "recruitment pools" for rebel entrepreneurs, thus increasing the prospects of enlisting a critical mass of people willing to forego normal life to altering the status quo.

Resource Extraction Capability

Kugler and colleagues (Arbetman and Kugler, 1997; Benson and Kugler, 1998; Organski and Kugler, 1980) present a slightly different approach. Rather than highlighting institutional qualities per se, they argue that capacity can be measured as the state's ability to extract resources from the society. This is echoed by Herbst (2000), who claims that there is no better measure of a state's reach than its ability to collect taxes. Low levels of public taxes often indicate inability of the government to enforce revenue collection and hence lack of political capacity. However, the structure of the economies varies greatly between countries—some are dependent on highly valuable primary commodities, others have a developed private sector—so simply comparing absolute levels of income tax is unsatisfactory. Instead, Benson and Kugler suggest operationalizing political capacity as the gap between actual and predicted levels of revenue extraction. In this setting, regimes that do not realize their full potential are considered comparatively weak.

In the empirical section, the four complementary components of state strength presented above will be evaluated in relation to the following general hypothesis:

> *H1: Intrastate conflicts tend to occur further away from the capital, the stronger the state, ceteris paribus.*

Rebel Strength

When estimating the relative location of civil war, the strength of the opposition group also needs to be considered. According to Boulding (1962) and Gurr (1970), for example, we should expect armed challenges to occur where the rebels' force is roughly equal to the projected force of the state. From this follows that powerful rebel groups and anti-governmental movements that enjoy massive popular support are able to challenge the regime much closer to the latter's home base (the capital) than are less privileged groups. A map of today's conflicts would support this reasoning. Rebellions that are confined to the remote periphery (e.g. Nagaland, India; Nagorno-Karabakh, Azerbaijan; Pattani, Thailand) are almost exclusively conducted by tiny bands of guerrillas, at best backed by a small minority population. Conflicts covering a larger geographical area are usually associated with large, organized opposition groups (e.g. Colombia, Southern Sudan) or occur in fragile or failed states (Afghanistan, Somalia).

Determinants of rebel strength are not radically different from those of the state. If we apply the logic of state capacity to the rebels, we should consider the size of the rebel army, mobilization potential, resource extraction capability, and political-ideological cohesiveness. Contenders that are able to muster scores of soldiers clearly constitute a greater threat to the government than do tiny bands of rebels. This corresponds with Buhaug et al. (2008), who find that the size of politically excluded minorities has a major influence on the likelihood that they will take up arms to change the status quo. Second, ample funding is crucial for mustering and sustaining armed opposition. The differing impact of the 2004 tsunami in the Indian Ocean on the conflicts in Aceh, Indonesia, and the Tamil areas of Sri Lanka provides a telling point. The former separatist rebellion was in large part dependent on support and donations from the local Achenese. The massive

waves of the tsunami destroyed livelihoods on the peninsula, having a devastating impact on the viability of the GAM (Free Aceh Movement), and the rebels soon laid down their weapons and brokered a deal with the Indonesian authorities. The Tamil insurrectionists, in contrast, receive large portions of their funds from wealthy diasporas and were thus able to sustain, even escalate, opposition against the Sinhalese-dominated government despite the material destruction along the northern shores of the island (Beardsley and McQuinn, 2009; Le Billon and Waizenegger, 2007).

Other forms of potential rebel funding include looting, extortion of natural riches, kidnapping and blackmailing, and contributions from foreign governments. In addition, the potency and determination of a fighting unit are influenced by a number of intangible (and immeasurable) issues, including tactical skills, courage, and morale. The second proposition to be evaluated, then, is:

H2: Intrastate conflicts tend to occur closer to the capital, the stronger the rebel group, ceteris paribus.

LSG

Just as national strength and the loss-of-strength gradient are conceptually overlapping, the proxies for the various components of state capacity may also be associated with the state's ability to exert authority in peripheral parts of the country without significant loss of power. This is particularly true for per capita income. Income captures both the state's financial, policing, and military capabilities and the quality of the state's physical and administrative infrastructure. In addition, income might also be a significant proxy for the opportunity cost of joining a rebellion (Collier and Hoeffler, 2004). Overall, however, I find income to be a better proxy for the LSG, or mobilization capability, than for absolute strength. For example, Fearon and Laitin (2003: 80) refer to high income as making the terrain "more 'disciplined' by roads," which says a lot more about the *ease* of power projection than about capacity per se. Major highways and strategically located airfields and military bases massively increase the mobility and speed of government authority deployment. To some extent, non-governmental groups, too, might benefit from developed infrastructure; yet, the gain is expected to be much higher for mechanized troops and conventional warfare more generally.

Besides infrastructure, income also captures technological sophistication. Increasingly, innovations in the arms industry are targeted at improving efficiency and reducing operating costs in adverse war theatres (e.g. night-vision goggles, unmanned aerial vehicles (UAV), and GPS and other satellite-based equipment), rather than increasing the overall destruction capability per unit. Indeed, never-ending technological developments have led some to declare the demise—and even death—of distance, and hence the LSG (e.g. Wright, 1964: 314; Herz, 1957; Cairncross, 2003). While such declarations seem premature, high levels of development should make regimes better able to penetrate peripheral areas of their territories:

H3: Intrastate conflicts tend to occur further away from the capital, the more technologically developed the state, ceteris paribus.

Other factors may have more isolated impacts on the LSG, although the localized aspect of these implies that they do not lend themselves easily to standard country-level statistical scrutiny. For example, rough terrain is widely regarded as favoring insurgency over conventional warfare. Regular forces that have to traverse high mountains and dense forests in their hunt for small rebel bands may find the LSG to be overwhelming. This was powerfully illustrated by the failure of US-led forces to capture Osama bin Laden and other senior al-Qaeda members reportedly hiding in the Tora Bora mountains in Afghanistan in the fall of 2001. The impeding effect of terrain on power projection is also stressed by Lemke (1995), who assigns weights to various topographic challenges (rain forest, mountains, plains, rivers) in order to generate an indicator of the *relevant* distance between capital cities. All else being equal, we should expect states to exert authority more easily in open terrain.

Culture, too, affects the cost of controlling a population. Areas populated by ethnic or religious minorities are more likely to share opinions and identities that deviate from the country's dominating views, and recruiting local governmental informants will be harder. Language differences further complicate the regime's efforts to effectively monitor the population. Accordingly, a state is expected to be better informed about activities among peer residents than about actions and events among groups not represented in the government. However, the research design used in this study prevents us pursuing this line of inquiry.

Finally, while power is expected to diminish across distance in even the most developed societies, governments may have other major strongholds besides the capital from which to initiate counterinsurgency operations. Any state can reduce its LSG by establishing loyal local governments and carefully distributing the armed forces throughout the country—not unlike the "containment" doctrine of the Cold War. Nonetheless, the fact that the central government is located in the capital city (with a very limited number of exceptions) implies that all other governmental strongholds are secondary in nature.

Data and Research Design

This paper seeks to explore empirically whether the distribution of capabilities among state and non-state actors affects where conflict breaks out relative to the capital city along a one-dimensional center–periphery continuum. To this end, I opted for the Heckman selection model, with onset of intrastate conflict as the selection criterion and the conflict–capital distance as the dependent variable in the regression stage. A selection model is needed if the units of observation are given non-randomly, meaning that factors that explain the feature of interest (distance from the capital to the conflict zone) also have an impact on the likelihood of the units being selected for analysis (outbreak of conflict; see Heckman, 1976). Earlier research (e.g. Hegre and Sambanis, 2006) has demonstrated that institutional consistency and development are inversely related to the risk of civil war. Above, I discussed how political and economic capacity might also affect the location of rebellion, whereby strong regimes are able to deter any but the most peripheral attempts at civil strife. 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 city.

Data on the outbreak of intrastate conflicts between 1950 and 2001 were derived from the UCDP/PRIO Armed Conflict Dataset, henceforth ACD (Gleditsch et al., 2002). A conventional two-year intermittency rule is applied, which means that fighting that recommences after more than two calendar years of tranquility is treated as a new onset. The conflict–capital distances were calculated using a designated script in *ArcGIS* 9.2, based on new data on the point location of the first reported violent event on the first day of each conflict (city, village, army camp, etc.). Conflicts that emerged in the capital, usually coups d'état, are by default assigned a conflict–capital distance of 10 km to allow log-transformation of the distance values. By measuring the relative location of the conflicts at their outset, the analysis avoids possible endogeneity problems between the right- and left-hand side regressors. Some countries (e.g. India) may experience multiple onsets of armed conflict in a single calendar year. In such cases, the conflict-specific variables (distance, rebel strength) represent the conflict involving the most capable rebel group or the conflict that is closest to the capital city.

A number of complementary measures of state capacity are offered to test the three hypotheses. As indicators of institutional capacity, I use dummy variables for democratic and autocratic regimes based on the Scalar Index of Polities, SIP (Gates et al., 2006). These data avoid some of the recent criticism that has been raised towards the Polity dataset, in particular the endogeneity problem between the "factionalism" category and civil war onset (see Strand, 2007; Vreeland, 2008). Military strength is proxied by army size relative to the population (log number of soldiers per 1,000 citizens), calculated from the Correlates of War project's National Material Capability dataset, v.3.02 (Singer et al., 1972). I chose not to use the more common CINC measure as this additionally captures other elements of capacity (notably geographic and economic size) that are modeled separately here. Administrative capacity, or the ability to realize the regime's tax potential, is represented by Arbetman and Kugler's (1997) relative political capacity (RPC) measure. Data on the fighting capacity of rebel groups at the onset of conflict were drawn from Cunningham et al. (2009). This variable is classified as low (1), moderate (2), or high (3) and is an absolute measurement of rebel strength, not considering the corresponding fighting capacity of the state. However, in the visual, bivariate assessment below, I use an alternative indicator (from the same source), which considers the overall strength of the rebels relative to the state. Economic development, which is expected to capture both economic strength and ease of power projection, is represented by (logged) GDP per capita data from Gleditsch (2002). All state capacity variables are all lagged one year to reduce problems with reverse causality.

The regression stage additionally includes two control variables: a dummy for oil dependent economies (from Fearon and Laitin, 2003) and country area (log km^2). Oil-rich countries are often argued to be weaker than their level of per capita income suggests (Ross, 2006), which implies that these states should be more prone to experience rebellion close to the capital. Obviously, the conflict–capital distances in many cases are dependent on the country size; the larger the country, the more distant the peripheral insurgencies may be. The selection stage, which estimates the likelihood of conflict onset, includes regime type dummies, GDP capita, oil exports, log population size (World Development Indicators), and controls for serial correlation (Beck et al., 1998).

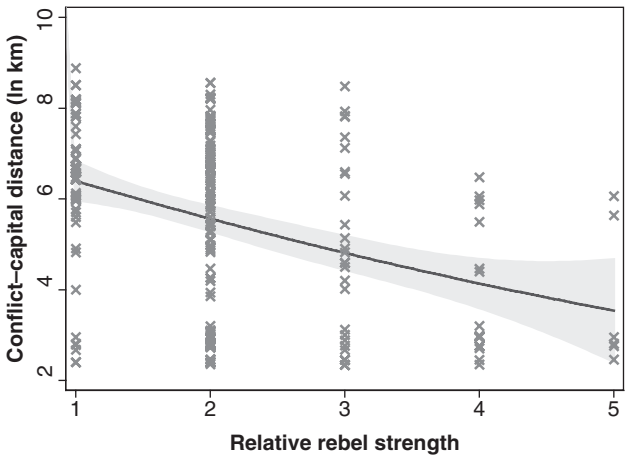

Figure 2. Conflict Location as a Function of Relative Rebel Strength

A final note on the interpretation of the results: since the dependent variable in the outcome stage, w, is log-transformed $\{y = \log(w)\}$, the regression coefficient β for a given covariate x can no longer be interpreted as the change in w given a 1-unit change in x. Instead, a 1-unit change in x corresponds to $100\{\exp(\beta) - 1\}$ percent change in w (Zhou et al., 2001). To ease interpretation, Table 1 provides transformed regression coefficients in separate columns. All models are estimated with robust standard errors, clustered on countries, using *Stata* 9.2.

Results and Discussion

At first glance, the contemporary world seems to support the proposed expectations; conflicts in developed and institutionally consistent regimes almost exclusively originate along the countries' rims. But do the hypotheses stand up to a more systematic examination? Figure 2 offers a preliminary answer. It illustrates the conflict–capital distance as a function of rebel strength and indeed suggests that the two are inversely connected. Relatively capable insurgents, on average, initiate hostilities considerably closer to the capital than do weaker groups, and the correlation is significant with a 5 percent margin of error. Yet, we should interpret this visual association with caution, as the plot does not control for crucial third factors, including country size.

Next, I present a series of multivariate regression models. The four alternative capability measures—political consistency, taxing capability, state militarization, and rebel military strength—are considered in separate models. A fifth model estimates state and rebel strength simultaneously. Per capita income, which captures elements of both state capacity and the loss-of-strength gradient, are entered in all models, as are controls for oil dependence and country size. As noted above, the selection stage contains a limited number of covariates that have been shown elsewhere to exert a robust influence on the risk of intrastate conflict onset.

Overall, the results in Table 1 are encouraging and correspond well to expectations. The selection (onset) stage appears appropriately specified, confirming the ills of poverty (Collier et al., 2003), the oil curse (Ross, 2006), and the hazard of having a large population (Hegre and Sambanis, 2006). Note, though, that the estimates for democracy are largely insignificant. The autocracy dummy is also sensitive to model specification, though it indicates a significantly lower conflict propensity than for the inconsistent regimes in most models. In all models, the rho values show near perfect negative correlation between the residuals of the selection and regression stages. The confidence intervals for the standard errors are quite narrow and the inverse / athrho statistic is always significant, adding reliability to the estimates.

Model 1 considers the influence of political capacity on the relative location of the battlefields, given conflict. As expected, the estimates for both regime types are positive, though neither effect is significantly distinguishable from the inconsistent regimes with the conventional 95 percent confidence threshold. In substantive terms, conflicts in autocratic states are estimated to occur almost twice as far away from the capital city compared to conflicts in otherwise similar anocracies. The expectation that developed states are relatively less likely to see violence in central parts of the country is strongly supported. A shift in income from the 5th percentile to the 95th percentile value corresponds to a four-fold increase in the estimated conflict capital distance.[7] Analogous to the "Dutch disease" argument (Ross 2006), we further see that oil-dependent countries are more prone to attract conflict near the state's headquarters than are less mineral-affluent countries. Finally, the model demonstrates the importance of controlling for country size.

Model 2 substitutes political consistency with Arbetman and Kugler's (1997) relative political capacity (RPC) measure, which above all represents states' ability to extract resources. These data are only available from 1960 and lack information on a number of countries, which results in a significant drop in the number of observations. Most results are slightly weaker compared to Model 1, but the overall correspondence between the models gives little reason to suspect a significant selection bias. In line with the general state capacity hypothesis (H1), the RPC variable provides compelling empirical evidence that bureaucratically more efficient regimes are significantly better able to maintain peace at the core of their territories.

The third model evaluates the conditional association between state militarization and location of civil war. In contrast to H1 and the overall theoretical framework, I find that conflicts in countries with sizable armies tend to occur *closer* to the center of the state. This result is not due to coups d'état (see Sensitivity section). Actually, the bivariate correlation between militarization and onset of coups is negative and quite strong ($r = –0.2$). Instead, it very likely reflects partly a reciprocal relationship between military investment and anticipated risk of instability, and partly contextual features, such as characteristics of the neighborhood. Moreover, military spending tends to drain funds away from competing public goods, including education and health, and may thus be associated with less public support for the political leadership.

[7] For the conflict sample, the 5th percentile GDP per capita corresponds to a value of 6.3 (about USD 560) whereas the 95th percentile corresponds to 9.0 (ca. USD 8,100 per head).

Table 1. Determinants of Relative Conflict Location, 1950–2001

	1			*2*[a]			*3*			*4*			*5*[a]		
Regression stage [location]	*β*	*p val.*	*Δ %*												
Democracy	0.226	0.718	*25.4*										–0.356	0.503	*–30.0*
Autocracy	0.618	0.107	*85.5*										0.397	0.267	*48.7*
RPC				0.624	0.002	*86.6*							0.561	0.003	*75.2*
Militarization (ln)							–0.153	0.273	*–14.2*				–0.305	0.053	*–26.3*
Rebel mil. capacity										–0.755	0.003	*–53.0*	–0.770	0.011	*–53.7*
GDP capita (ln)	0.947	<0.001	*157.8*	0.580	0.003	*78.6*	0.925	<0.001	*152.2*	0.566	0.018	*76.1*	0.523	0.045	*68.7*
Oil	–1.477	0.009	*–77.2*	–0.901	0.077	*–59.4*	–1.241	0.029	*–71.1*	–0.883	0.133	*–58.6*	–0.894	0.069	*–59.1*
Country area (ln)	0.392	<0.001	*48.0*	0.547	<0.001	*72.8*	0.396	<0.001	*48.6*	0.304	<0.001	*35.5*	0.498	<0.001	*64.5*
Selection stage [onset]	*β*	*p val.*													
Democracy	–0.129	0.294		0.026	0.755		–0.089	0.176		–0.174	0.036		0.088	0.490	
Autocracy	–0.221	0.010		–0.142	0.077		–0.091	0.056		–0.189	0.004		–0.219	0.036	
GDP capita (ln)	–0.246	<0.001		–0.279	<0.001		–0.230	<0.001		–0.228	<0.001		–0.311	<0.001	
Oil	0.436	<0.001		0.335	0.006		0.406	<0.001		0.391	0.001		0.350	0.011	
Population (ln)	0.085	0.004		0.142	<0.001		0.081	0.010		0.123	0.001		0.157	<0.001	
Peace years	–0.003	0.085		–0.002	0.501		–0.004	0.058		–0.005	0.030		–0.002	0.485	
N (select)	6,428			5,594			6,426			6,426			5,593		
N (regress)	212			145			210			210			144		
Rho	–0.987			–0.972			–0.988			–0.951			–0.953		
Rho 95% CI	–0.99		–0.95	–0.99		–0.83	–0.99		–0.94	–0.99		–0.70	–0.99		–0.56

Heckman selection model estimates with *p* values based on clustered standard errors. Italic figures give estimated % change in the conflict–capital distance (log km) given a 1-unit change in the corresponding covariate. Intercepts estimated but not shown. [a] 1960–2001.

In Model 4, the focus shifts from the capacity of the state to that of the rebels. Using new data on rebel military strength from Cunningham et al. (2006), the second proposed hypothesis is evaluated. Again, the result supports expectations and the estimated effect is substantial. Even a coarse three-step indicator of fighting capacity is able to distinguish between insurgents that operate in central parts of a country and groups that are confined to the remote periphery. Note that this effect is present while controlling for economic development, a factor that conceivably diminishes the ease of assembling a potent rebel force by raising the opportunity cost of joining a rebellion (Collier and Hoeffler, 2004).

Finally, the influence of regime type, administrative capacity, extent of militarization, and rebel strength are evaluated simultaneously (Model 5). The various capacity measures are obviously related (e.g. rebels are generally weaker in democratic states); yet, the model shows that the individual effects of these factors hold up well when they are evaluated together. If conflict breaks out, it is more likely to occur in the periphery if the state (a) is economically developed; (b) has a small standing army; (c) has an effective bureaucracy; and (d) is facing militarily weak insurgents. Regime consistency, which is significantly associated with a lowered risk of conflict onset, has only a negligible influence on the relative location of the conflict, at least in its initial phase.

Sensitivity

The relatively limited selection of control variables reported above might indicate model underspecification and omitted variable bias. While this may be true, additional tests with stepwise inclusion of a number of other potentially relevant third factors failed to reveal noteworthy changes in the various capacity–distance relationships. For example, one corollary of the so-called rough terrain proposition is that access to safe havens can compensate for a short distance to superior government forces, thus increasing the opportunity for insurgency. However, neither country-level nor GIS-generated conflict-specific measures of mountains and forests were found to have any effect on the location of civil war onset. Other relevant factors discussed but not tested above include extent of local support and rebel mobilization capability. As an admittedly poor proxy for base of rebel support, I tested Reynal-Querol and Montalvo's (2005) ethnic polarization index, assuming higher public sympathies for non-governmental movements in more polarized societies.[8] To capture the rebels' recruitment potential, I used a three-category ordinal mobilization measure from Cunningham et al. (2006). Neither variable added significantly to the model. Moreover, there is no evident time trend in the data, except for the surge of consolidation conflicts in the wake of the Soviet and Yugoslavian disintegration in the early 1990s. Robustness tests also failed to uncover important geographic patterns beyond those accounted for by the included control variables.

[8] Cederman and Girardin (2007) present a slightly more attractive measure, the ethnic exclusion index (N^*). However, as the name indicates, this measure only taps political marginalization along ethnic lines. Moreover, it is only available for countries in Eurasia and North Africa.

Most civil conflicts contain elements of a transnational character (Gleditsch, 2007). It could be ethnic ties between a warring party and a neighboring group, it could be that the conflict originated from or was fueled by events across the border, or it could be that a foreign power intervenes in the conflict in support of one side. The latter situation, in particular, has the potential to substantially affect the balance of power in the conflict (Gurr, 1970: 271; Salehyan, 2007) and make the rebels able to conduct operations closer to the regime's home base than would otherwise be possible. A simple dummy to mark off rebel groups supported by foreign troops at the outset of the conflict had little influence on the estimated relative location of the conflict, however.

All results reported so far are based on models analyzing all intrastate conflict onsets recorded in the UCDP/PRIO dataset. Yet, it could be argued that not all conflicts are alike, and that coups, in particular, are a special case—by definition originating from within the state apparatus. Coup leaders often control unusually capable military forces and most such conflicts occur at the heart of the regime, the capital city. Accordingly, the significant associations between various government and rebel capacity measures and relative location of the conflict zone could be an artifact of the small sub-sample of conflicts. An alternative Model 5, without the coups, offers some support for this reasoning, as the estimated impact of rebel strength weakens and is no longer significant. Some of the remaining capacity proxies, notably economic development, are also weakened, but not to the same extent.[9]

As with any statistical study, the results are sensitive to the operationalization of the dependent variable. In this case, the relative location measure could be criticized on at least two grounds. First, it does not capture other major government strongholds throughout the country. This is an obvious simplification; yet, since it is applied consistently throughout the sample, a resulting bias need not be particularly troublesome. However, the strictly geographic measurement is a crude approximation also in another regard, as it completely ignores crucial demographic and cultural features of the society. As alluded to above, local ethnic composition, population density and distribution, and topography conceivably contribute to influencing the balance of (projected) power between the state and emerging insurgents (e.g. Herbst, 2000). While not disregarding other material and intangible determinants of state control, geographic distance constitutes a natural first cut.

A second shortcoming of the applied dependent variable is its absolute operationalization; i.e. it does not account for the maximum possible distance in each case. Instead, country size is added as a control variable. While a normalized distance measure intuitively might appear more reasonable, it would make little sense without simultaneously accounting for the distribution of the population. For the sake of clarity, I decided to keep the measurements as simple as possible.

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[9] Beyond coups, conflicts could also be categorized to reflect the political aim of the rebellion, e.g. whether to seek autonomy/secession or increased governmental influence (Buhaug, 2006). Such a distinction would be problematic in this setting, however, due to the complex and reciprocal relationship between objective and location whereby the rebels' aim is influenced by the range of possible operation areas as much as the other way around.

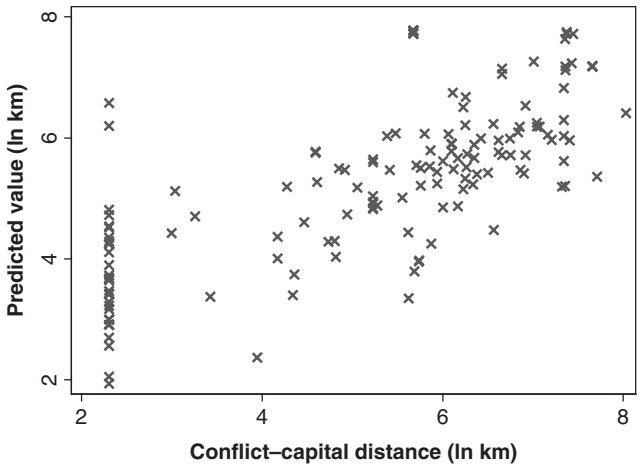

Figure 3. Predicted versus Observed Relative Conflict Location

A final sensitivity issue remains: the choice of method. 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; the estimates often become unstable under non-normal distributions of errors or when significant heteroscedasticity is present (Manski, 1989). The analysis presented above strongly confirms that the selection and regression stages are not independent, thus suggesting that a simultaneous equations selection model is appropriate. The reported results also appear reasonably robust to changes to the model specification. In order to reduce the problem of differing variance, all models employ a log-transformed dependent variable with robust (clustered) observations. Closer inspection reveals that the residuals still suffer somewhat from non-normality and heteroscedasticity. While this could lead to underestimated variance and overly significant parameter estimates in some cases, the violation of the assumptions are not considered sufficiently severe to affect the substantive interpretation of the primary findings. More generally, a visual inspection of the predicted estimates from Model 5 suggests that the model fits quite well to the empirical data, with a notable exception for some coups , as seen in the upper left quadrant of Figure 3.

Conclusion

Returning to the questions posed at the outset of the paper, a significant reason why New Delhi is repeatedly challenged by minorities at the peripheral rim but rarely by equally inferior groups closer to the country's core can be traced down to geographic particulars; i.e. rough terrain and cultural dissimilarity (increasing the LSG of the Indian Armed Forces), and sheer distance (diminishing the projected counter-insurgency power of the Indian government). Similarly, upon landing in Cuba in 1959, Fidel Castro and his small gang of revolutionaries initially employed guerrilla tactics from the inaccessible Sierra Maestra mountains, thus massively reducing the military potency of the ill-trained Cuban military. As the Movimiento 26 de Julio gathered strength, they

shifted tactics to more open encounters and gradually managed to push the governmental forces backwards toward Havana and eventually expel General Batista. The latter example perfectly illustrates one of the results of this analysis: capable rebels tend to operate closer to the capital than groups that pose less of a military threat.

Overall, this paper has shown that the significance of geography-power dynamics, as outlined by Kenneth Boulding (1962) nearly half a century ago, is not limited to interstate warfare. The analysis demonstrated that the one-dimensional location of intrastate conflict can be estimated through a selection process whereby several conflict-inducing factors also affect the relative location of the turmoil if violence were to erupt. More specifically, bureaucratically efficient and economically developed countries appear essentially immune to conflict near the regime's home ground, the capital city. These findings may also have ramifications for our understanding of the general, country-level risk of civil war. Evidently, liberal states are not necessarily vastly superior to weaker counterparts when it comes to conflict prevention in the periphery (think of Spain's Basque region or the UK's Northern Ireland). Rather, what primarily separates capable states from less capable ones is that the former are essentially able to *deselect* unrest at the core. From this follows a final conclusion: Powerful regimes are relatively more likely to face separatist attempts than coups or revolutions compared to less capable states.

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