

## EXPECTATIONS OF OUTSIDE AID AND THE DECISION TO REBEL

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**Note: This paper is really only a glimmer of an idea and intended to illustrate where we want to go with this. Two background papers are provided attached to this. One illustrates some of the external linkages that we believe to be relevant in the context of a cross country comparative study. The second looks at dyadic conflict characteristics and the duration of civil war. A companion paper to this examines how external linkages affect conflict duration. All of these will eventually contribute to the analysis of external linkages of onset that we want to get to eventually.**

To what extent do expectations of funding drive the decision to rebel? In order to prosecute a war against a government, rebel groups need reliable sources of money and supplies. These resources can come from outside patrons (diaspora groups, sympathetic governments, neighboring ethnic groups, NGOs) or from access to and trade in natural resources (diamonds, oil, drugs). Rebel access to these resources, however, is often uncertain and changeable. A group may enjoy the support of a foreign patron for a period of time but then abruptly lose this help when a more pressing issue arises. (Cuba, for example, abandoned UNITA in Angola in x when y happened. The United States heavily subsidized Chiang Kai-shek in China until Congress significantly reduced funding. The IRA enjoyed significant support from Irish Americans until z. Even Al Qaeda had the benefit of support from various Muslim organizations around the world until the United States and its allies were able to disrupt the electronic networks through which money passed.) Rebels may also have access to natural resources such as coca or poppies but these sources of revenue are vulnerable to drought and disease, and vagaries in world markets. (Examples)

The fact that funding for a rebel movement is uncertain has a potentially important influence on the outbreak of civil war. Not only will it factor into decisions by rebel organizers about whether they will have the means to pursue a challenge, but the uncertainty surrounding funding makes it more difficult for the government and rebel leaders to reach an agreement prior to the outbreak of war. This is because both parties know that nascent rebel groups have incentives to withhold or exaggerate information about the depth and reliability of their funding sources in order to protect themselves or negotiate a better deal. Thus, an unexplored cause of civil war has to do with rebel financing and (the uncertainty that exists about how deep and reliable are these pockets) and the incentives rebel groups have to withhold or exaggerate this information if doing so would allow them to get a better deal or protect lines of supply from government manipulation.

What follows is divided into four parts. In part one we present a theory of civil war onset that rests on the private information a rebel group has about war resources and the incentives it has to withhold or exaggerate this information. War can occur because a government is unwilling to strike a deal with a rebel group without first compelling that group to demonstrate the depth and dependability of its sources of support. Part two then introduces the dataset that will be used to test a number of hypotheses drawn from this theory along with a host of factors that are known to affect the outbreak of civil war. In the final part, we will present and interpret the findings that result. What we will see is that ...

## **The Theory**

The basic story is this. Assume there are two types of potential rebel groups, those with deep pockets and those with shallow pockets. Groups with deep pockets have reliable sources of aid and resources that they can tap to fight a potentially lengthy war against the government. Groups with shallow pockets have resources, but these sources are more tenuous. (Why are they tenuous?) Groups have a fairly good idea of where they are likely to obtain support and how dependable is this support, but governments do not. Ideally, governments would prefer to make a deal with rebels with deep and reliable pockets rather than fight a long and costly war. The problem is that governments have no way to know for certain whether an opponent has the ability to prosecute a long war because potential rebel groups have incentives to both withhold and exaggerate this information. If rebel groups revealed exactly where and how they were able to fund a war, the government would likely take steps to block these lines of supply. If rebel groups told the truth, governments would likely be skeptical because poorly funded rebels have incentives to misrepresent this information.

The trick for the government is to determine just how well-supplied a particular rebel group will be. If a group is likely to have the resources to pursue a long war, the government will settle and little violence should be observed. On the other hand, if a group is believed to have relatively superficial backing, the government will confront the movement and it should quickly collapse.<sup>1</sup> The cases where you see a sustained outbreak of civil war, therefore, are those cases in the middle, where a rebel movement is not so

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<sup>1</sup> Author unknown. "From Extremists to Peace Partners: Insurgency and Conflict Ripeness" JPR forthcoming. For evidence showing that most social movements are vulnerable to collapse see also Davenport 2000. For evidence that "the pressures at the beginnings of insurgency from government actions can be so great that the movement will simply collapse before it has a chance to develop see Lichback 1995; and Chong 1995.

well supplied that it would cause a government to grant pre-war concessions, nor so weak that concessions make no sense. It is those intermediate groups – those that have some sources of support but funding is unclear and potentially unreliable - that are most likely to force a war.

But how does the government attempt to obtain this information? The government needs two types of information: where the rebel group is likely to obtain funding (and its amount), and the reliability of this funding. Governments can attempt to obtain information about sources of funding by monitoring group behavior, observing financial transactions and observing any activities related to resource extraction. A government's ability to obtain this information will depend on the state's infrastructure, border controls, legal constraints on civil liberties, money and informational gathering capabilities. Some countries, therefore, will simply have the capabilities to gather more information about funding sources than others.

Determining how reliable funding is more difficult. Here, governments will have to make estimates about what is likely to happen in the future. Under what conditions, for example, might a foreign patron decide to withdraw its support? Under what conditions might access to raw materials be cut off, or markets for these products erode? The challenge for us as researchers is to determine how governments attempt to gauge this, and why they might sometimes get it wrong. In the end, we believe that the greatest degree of uncertainty lies with sources of funding that are both highly dispersed (not coming from a single wealthy source) and highly capricious in their dispensation.

The above discussion gives us at least four hypotheses for testing.

H1: The clearer/more transparent the sources of funding, the less likely you are to get civil war.

H2: The larger the potential sources of funding, the less likely you are to get civil war.

H3: The more reliable the sources of funding, the less likely you are to get civil war.

H4: The more open to government manipulation are the funding sources, the more likely you are to get civil war.

### Operationalizing the Variables

Unit of analysis will be MAR ethnic group/year. (Although we should compare different lists of ethnic groups.)

DV = civil war onset.

Main IVs:

H1: Transparent sources of funding:

Measures that get at “transparency”:

- Homeland security tracking
- Bank transfers
- Government capacity
  - Roads/total amount of physical infrastructure
  - Army
  - Internal police?
- Does group have a website?
- Border patrols
  - Point of entry
  - Customs
  - Total control/monitoring efforts
  - Length of borders
  - # of customs employees
  - Estimates of smuggling and non-taxed flows

H2: Sources of funding: should include some scale that determines which are more lucrative than others. Can we get \$\$\$?

- Ethnic ties
- Diaspora
- Sympathetic governments
- NGO's
- Natural resource base (think about issues of liquidity)

### H3: Reliability

- Rivalry data
- Politically unstable patron?
  - Anocracy
  - Instability of leadership
  - Institutional change

### H4: Government manipulation

- Foreign trade as opportunity to sanction
- Distance
- Relative capabilities

# Transnational Dimensions of Civil War<sup>1</sup>

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## **Abstract**

Existing research has tended to relate civil war to country-specific factors or processes within individual states. Many contemporary civil wars, however, display a transnational character, where key actors, resources, and events span national boundaries. In this paper, I examine how interaction and processes between states influence the risk of conflict within states. Previous research has shown that the risk of conflict is strongly influenced by conflicts in a state's regional context. However, existing research has not distinguished between different transnational linkages that may underlie geographic contagion, not properly accounted for the spatial dependence between observations, and has failed to consider the potential influences of domestic attributes. In this paper, I evaluate a series of hypotheses on how transnational factors influence the risk of conflict and the prospects for maintaining peace in a conditional autologistic model, including country specific factors often associated with civil wars. The empirical findings indicate that transnational linkages between states and regional factors strongly influence the risk of conflict. The risk of civil war differs fundamentally depending on a country's linkages to other states, and analyses of civil war must consider the fundamental regional differences in the risk of war. Some commonly inferred effects of state attributes on conflict appear to change once linkages between states are considered.

# 1 Introduction

Research on conflict has tended to draw a sharp distinction between interstate conflict between states and civil war, or intrastate conflict within states. The two types of conflict have generally been treated as mutually exclusive phenomena<sup>1</sup> and studied in very different ways. Research on international war has tended to disregard any form of conflict not between two state actors, even though many contests between states and non-state actors have transnational linkages, and disputes between states often originate in interactions between states and non-state actors. Most studies of civil war tend to treat each conflict as an independent contest between state and non-state actors, to be explained by attributes and processes in the country in which conflict takes place. The role of actors outside the boundaries of the affected state is generally not considered.

In this paper, I argue that treating civil war as fully domestic events in the country where the conflict takes place is problematic, as the risk of civil war may be influenced by participants and processes outside the boundaries of the nation state. I examine how transnational linkages and interactions across state boundaries influence the likelihood of conflict within states. Consistent with arguments about transnational contagion, I find that conflict in neighboring states increases the risk of civil war. I also consider a series of hypotheses on how transnational ethnic, political, and economic linkages between states alter the risk of conflict and prospect for peace, and find strong evidence support that such linkages between states alter the risk of conflict. Some common inferences about effects of individual state attributes appear to change once linkages between states are considered.

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<sup>1</sup>In the Correlates of War project's data on war (Sarkees 2000), for example, the conflict in Vietnam becomes an interstate war after 1965 due to the US intervention. Since the war categories are mutually exclusive, this "terminates" the prior civil war in the Republic of Vietnam. Prior to independence, the conflict in Vietnam is considered an international extra-state war involving France.

## 2 Civil war: Existing research and stylized facts

Civil war between states and non-state actors is the most prevalent form of conflict in the contemporary world (Gleditsch et al. 2002). The study of what factors make civil wars more likely in some countries than others has received considerable scholarly interest, especially after the end of the Cold War. Early theoretical approaches to internal conflict focused on how different forms of grievances motivate groups to rebel (e.g. Gurr 1970). Subsequent contributions highlighted access to resources and opportunities for collective action as critical factors for whether groups would seek to challenge states and governments (e.g., Tilly 1978). Contemporary research argues that civil wars may also be motivated by *greed*, or the private benefits and rents that combatants may derive from conflict through activities such as pillaging and looting (see Collier and Hoeffler 2002). Existing empirical research has identified a number of factors that appear to be associated with civil war onset (see the comprehensive review in Sambanis 2002). For example, civil wars appear to be far more common in poorer societies (see Fearon and Latin 2003). The most democratic states seem less likely to experience civil wars (see Hegre et al. 2001). Civil wars are more common in countries that are abundant in lootable resources (see Collier and Hoeffler 1998). There is also some evidence that ethnic composition influences the risk of civil war, though the evidence for this is more controversial (see Sambanis 2001a; Ellingsen 2000).

Although different studies of civil war onset may emphasize different explanatory factors and models of civil war, virtually all studies relate civil war to *country-specific* factors or processes *within* the individual state experiencing conflict. Existing research has largely overlooked whether transnational factors or linkages to actors outside the boundaries of the state experiencing conflict may influence the risk of conflict onset. This stands in stark contrast to the importance accorded to international factors in many popular accounts of individual civil wars such as the conflict in the former Zaire (e.g., McNulty 1999). Studies of civil war termination find that third-party intervention plays an important role in conflict settlement and escalation (e.g., Regan 2000; Walter 1997). This suggests that the activities of third party may be important in whether disputes over contentious issues escalate to

violent conflict. However, studies of war termination select only cases where conflict has already broken out. As such these studies do not permit assessing whether transnational factors and third parties influence conflict onset. Brown (1996, 3) argues that civil war should be considered an international problem, since it “almost always affects and involves neighboring states, thereby undermining regional stability.” Yet, transnational influences on conflict onset have so far not been examined in a systematic fashion or integrated in a coherent manner with statistical models of conflict.

The omission of transnational factors from studies of conflict onset is problematic, as there are strong reasons to suspect that the risk of civil war of may be influenced by participants and processes outside the boundaries of the nation state. If there are factors affecting the risk that countries will experience conflict that reside outside the individual countries, then analyses not taking transnational effects into account may yield incomplete or potentially misleading results about the importance of country specific factors. In the following section, I first review existing empirical evidence suggesting that transnational dependence and interactions influence the risk of conflict. I will return to hypotheses on transnational linkages between states that may affect the risk of civil war later.

### **3 Transnational dimensions of civil war**

States do not exist in isolation, but are influenced by their interaction and exposure to the activities of other states. Spatial proximity increases the opportunity for conflictual and cooperative interactions between states as well as the willingness of leaders to engage in particular types of behavior. Most wars are fought between neighboring states. Conversely, cooperative relations such as trade also tend to be more developed between geographically proximate states.

Recent research has found evidence that internal conflicts display evidence of spatial contagion or diffusion, in the sense that the risk of conflict increases when neighboring states are involved in conflict (see Gleditsch 2002*a*; Sambanis 2001*a*; Ward and Gleditsch 2002). This neighborhood effect has been replicated in many studies. In a sensitivity analysis, Hegre

and Sambanis (2002) find that the positive impact of neighboring conflict on the risk of civil war remains robust under many possible measures and model specifications. Neighboring conflict has been suggested as a useful factor for predicting the risk of conflict in early warning analyses (see Esty et al. 1998).

Although the basic assertion that conflict in a neighboring state increases the risk of conflict is not controversial, there are a number of ambiguities associated with the existing empirical evidence. First, it remains unclear exactly what it is about conflict in a neighboring states that increases the risk that a state will experience war. The increase in risk may stem from direct contagion, or what we can call non-actor specific spill-over effects. For example, ongoing conflicts in neighboring countries may decrease the price of arms and increase their availability, thereby making it relatively less expensive for aggrieved groups to mobilize insurgencies (see Collier and Hoeffler 1998). However, the increase in risk may also stem from actor-specific forms of intervention and support from actors outside the state in question. Whereas direct contagion would increase the risk of conflict for all countries alike, the effects of actor-specific mechanisms hinge on the specific relationship between outside actors and the conflict protagonist inside the country.

Some civil wars become internationalized through direct intervention from neighboring states. Reagan (2000, 2) assumes that third parties intervene in ongoing conflict to stop the fighting. Gartzke and Gleditsch (2003) suggest a more varied set of motivations behind third parties' decisions to intervene. Third parties may intervene because they seek to shorten an ongoing conflict by increasing the likelihood of *some* settlement. However, third parties may also intervene because they wish to promote preferred outcomes, or settlements that are relatively more favorable to one of the parties.

Direct interventions from other states in civil wars, however, are relatively rare.<sup>2</sup> States

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<sup>2</sup>About 5% of the internal conflicts in the Uppsala data (Gleditsch et al. 2002) are considered internationalized civil wars, where either the government or the opposition receives support from the government of other states. The Correlates of War project's civil war data (Sarkees 2000), which relies on a higher conflict threshold, hold about 25% of the conflicts

may also intervene in more indirect ways in disputes in other states, for example by providing forms of covert support to one of the parties, not interfering in arms transactions, or permitting rebels to operate without major obstacles. Such indirect support seems at least as important as direct intervention in civil wars. If third party support influences the outcomes of conflict, then the prospects for support by outside third parties can also influence whether contention between a government and a rebel group will escalate to violent conflict in the first place. Instead of selecting only cases where other governments intervene directly, we should consider whether opportunities for support by third party actors are more or less plausible, and examine if situations with high opportunities for support see a higher incidence of conflict. In the subsequent section, I outline hypotheses on transnational factors that will make support for insurgencies and counterinsurgencies more or less likely, and thereby alter the risk of conflict onset.

Second, the presence of geographical contagion or neighborhood effects create problems for statistical analysis. If the risk of conflict in one state depends upon the presence of conflict in others, then the observations for different countries can no longer be considered independent of one another (see Gleditsch 2002*a*; Gleditsch and Ward 2000). The risk of conflict cannot increase for one state  $i$  without at the same time increasing the risk of conflict in neighboring countries  $j$ . This spatial dependence between observations makes it difficult to get consistent estimates from a conventional statistical model, which assumes that observations are independent of one another.<sup>3</sup> Several conflict studies have estimated models where regional attributes on the right hand side are treated as fixed (e.g., Gleditsch and Ward 2000; Sambanis 2001*a*). This approach is not efficient, and as we will see later, it appears to overestimate the spatial clustering and attenuate the coefficients of other covariates.

Ward and Gleditsch (2002) propose examining conflict as an conditional process in a so-called *autologistic* model, where the likelihood of conflict in one country is treated as to include foreign interventions.

<sup>3</sup>Consistent estimation methods for spatially clustered data that presume a continuous dependent variable such as Anselin's (1988) spatial autoregressive lag and spatial error model are not appropriate for categorical dependent variables such as conflict.

conditional on conflict in other states. They find strong evidence that the presence of wars in other countries influences the risk of war. Their model does a good job at classifying where conflicts occur in the sample, and performs well in an out of sample prediction test. However, the application has a number of shortcomings. It is based on data for a single year (1988). Since wars are rare events, a sample of one year only could be highly idiosyncratic. Their conflict measure is based on a rather high threshold (more than 1,000 casualties per year), and may overlook many events that do not quite reach the cut-off point.<sup>4</sup> The model relied almost entirely on spatial conditionality – the only covariates were a country’s level of democracy and the average democracy level over neighbors. Since conflict and peace cluster geographically over time, what is attributed to spatial dependence may reflect time dependence not accounted for in the model. The model moreover essentially ignored domestic factors commonly thought to influence the likelihood of civil war, and there is a risk that the empirical results may reflect the effects of spatially clustered country attributes rather than transnational processes and interaction between countries *per se*. Gleditsch (2002a) shows that many economic and political country attributes believed to be related civil war, such as GDP per capita and democracy, also display geographical clustering. Finally, Ward and Gleditsch did not try to identify what may underlie geographical contagion of conflict in any detail.

In this paper, I address various shortcomings in existing studies on the transnational effects on civil war onset. In the following section I develop hypotheses on specific transna-

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<sup>4</sup>Sambanis (2001b) argues that a high threshold may understate conflict in small countries where 1,000 deaths constitutes a sizable share of the total population. This may in part account for why population appears to have a strong positive marginal effect on the risk of war in many studies (e.g., Collier and Hoeffler 2002). The coding of start and end dates can become somewhat arbitrary with a high threshold, as conflicts may drop in and out the sample depending on whether they claim one thousand casualties in any given year. The Kashmir conflict, for example, only reaches 1,000 battle deaths in seven years from 1987 to 2001 (Gleditsch et al. 2002, 631) .

tional factors increasing the risk of civil war that may underlie the observed spatial clustering. I then test these in an autologistic model using a lower conflict threshold and considering a larger number of country-specific attributes than previous studies.

## 4 Hypotheses on transnational linkages and civil war

Although previous research demonstrates that the presence of wars in connected states seems to increase the risk of war, breaking down the overall spatial clustering into specific transnational linkages has two important advantages. Spatial contagion may reflect a host of different phenomena, and it is difficult to interpret the meaning of spatial clustering directly. We would like to know not only that conflict in Rwanda increases the risk of conflict in Zaire, but what it is about conflict in neighboring states that increases the risk of conflict in another state. Moreover, whereas the risk of contagion from conflict in a neighboring country can only be assessed after the fact, or once neighboring conflict have already broken out, transnational factors that increase the opportunities for conflict can be assessed *ex ante*. I identify three types of transnational linkages that may affect the risk that a country will experience a civil war.

### 4.1 Transnational political linkages

The first transnational factor pertains to the character of political institutions. Although leaders can have incentives to intervene directly or indirectly in ongoing conflicts in neighboring states, other institutions may constrain their opportunities to do so. Democracy is often defined in terms of institutions that have potential power to constrain executives. Research on the democratic peace suggests that leaders in political institutions with a high degree of open competition face greater difficulties in intervening if involvement is opposed by other political actors (see, for example, Gleditsch 2002*a*; Tures 2001; Schultz 1998). An autocratic ruler such as Mugabe faces few effective barriers on providing support to Kabila the conflict in the Democratic Republic of Congo, despite widespread domestic opposition

to involvement.

The political context prevailing in a region contains information about the incentives for violent conflict in adjacent states as well as the prospects for leaders to become involved. The more constrained political leaders in a region, the stronger the expected barriers against involvement in wars in neighboring states (Gleditsch 2002a). Conversely, a more autocratic region contains leaders that face few formal constraints on intervention, and should therefore have a higher risk of political conflicts escalating to violence.

*Hypothesis 1: The less democratic the political institutions of neighboring countries, the higher the risk that a country will experience a civil war*

## **4.2 Transnational ethnic linkages**

Many civil wars involve ethnic groups who try to attain autonomy or secede from existing states. External intervention in conflicts are often motivated by states seeking to support members of similar ethnic groups in adjacent states. Similar, ethnic kin and diasporas in other states have often played an important role in mobilizing and financing insurgencies. Collier and Hoeffler (1998) demonstrate a positive relationships between the size of a country's diaspora in the US census and the risk of civil conflict. Moore and Davis (1997) show that the presence of the same ethnic groups in two countries affect their propensity for violent conflict. In Macedonia, the armed Albanian uprising in 2001 appeared to be an extension of the prior KLA mobilization in Kosovo. All else equal, the risk of civil wars should be higher the more ethnic groups that are found on both sides of an international border.

*Hypothesis 2: The more ethnic groups that transcend international boundaries, the higher the potential for support for insurgencies, and the higher the risk that a country will experience a civil war*

## **4.3 Transnational economic linkages**

A third transnational factor which may influence the risk of civil war is the extent of integration between connected states. A wealth of research suggests that higher economic

interdependence between states decreases the likelihood of interstate war. Interdependence can similarly have a limiting effect on conflict within states (see Gleditsch 2002*a*; Hegre, Gissinger and Gleditsch 2003; de Soysa 2002). Actors in more integrated and complex economies face greater costs under conflict, and therefore have greater interests in maintaining peaceful relations. Economic interdependence may exert a conflict dampening role even when potential rebels are only marginally integrated in the formal economy. In a situation where levels of interdependence are high and conflict would be costly to many actors, affected interests will have an incentive to lobby governments for solutions to accommodate aggrieved groups and limit disruption.

Moreover, the incentives for states to support conflicts in neighboring states are shaped to a large extent by their affinity or antipathies to existing regimes. Trade is a good observable indicator of compatibility between states. Although it is firms rather than states that engage in exchange, governments can regulate trading opportunities. International trade takes place under expectations about political relations and the likelihood that political conflict will disrupt future opportunities for trade. The extent of trade is in this sense a good observable indicator of integration, and has the advantage that data are relatively easy to obtain.

Most existing studies of the effects of international economic relations on civil war have studied global linkages or trade with all countries in the international system (see Esty et al. 1998; de Soysa 2002). However, potential influences for conflict or peace are most likely to emanate from neighboring countries. An individual country may have a high degree of trade integration with countries elsewhere in the world, but it is its relations with neighboring states that most affects its security. Hence, the extent of economic linkages with proximate states seems a more appropriate indicator of the costs of violent conflict and incentives for settling conflicts in non-violent ways (see Gleditsch 2002*a*).

*Hypothesis 3: The greater the trade integration with states surrounding a country, the lower the risk that a country will experience a civil war*

## 4.4 Central domestic factors in civil wars

To evaluate whether transnational factors influence the likelihood of civil war requires a reasonable baseline model of conflict that takes into account domestic factors commonly thought to be associated with conflict. I thus include a number of controls found to be important in previous research. Many researchers find that a state's level of development alters the prospects for civil war (e.g., Collier et al. 2003; Collier and Hoeffler 1998). Greater levels of material wealth may reduce the intensity of conflict between groups. Wealthier societies tend to have more capable states that are better able to find political solutions to address grievances which may lead to conflict, or alternatively, have more means to effectively repress domestic dissent.

Several have hypothesized that the type of political system influences the risk of civil war. Civil wars should be relatively less likely in democracies, which provide greater opportunities for groups to pursue their objectives by peaceful means. However, although they have limited avenues for political influence, strict autocracies may not have the highest prospects for civil war, as they may be sufficiently repressive to effectively deter dissent. Many scholars have argued that the risk of civil war should be highest in regimes that combine features of both autocracy and democracy, as these have sufficient grievances and lack of political rights to make violent protest attractive, yet not repressive enough to successfully deter conflict (see Hegre et al. 2001; Muller and Weede 1990). This is sometimes referred to as the inverted U-curve hypothesis.

Many studies have argued that conflicts may be more likely in countries that are ethnically heterogeneous (see Sambanis 2002). As a higher number of transborder ethnic groups may reflect greater ethnic heterogeneity, a study of transnational linkages must control for domestic fragmentation. Countries with larger population are more likely to contain some group willing to rebel, and existing research (e.g., Collier and Hoeffler 1998) has found population size to be a significant predictor of the risk of civil war.

## 5 Identifying transnational linkages and dependence

The basic argument advanced in this paper is that the likelihood that a state  $i$  will be involved in a conflict at time  $t$  is very much dependent on processes taking place in other states  $j$  and their relations with  $i$ . So far, however, I have not specified what states should be considered potentially dependent on one another. Before proceeding to analyze if transnational factors influence the risk of war I must identify the relations that tie states together and where we may expect external factors to increase the risk of conflict.

Dependence among states stems from interaction and differences in their relations. Assuming global dependence where all states are connected to one another provides no indication of why some regions appear to be more conflict prone than others. A single state  $i$  may interact with all the remaining  $N - i$  states in the international system, but not all of these  $N \times (N - 1)$  relationships are likely to be equally relevant. Since distance is such a powerful modifier of the opportunities for interaction, states that are geographically proximate are generally more relevant. Although states other than geographic neighbors can be important, we can identify the most important relationships between states by examining dependence determined by geographical proximity.<sup>5</sup>

A simple way to model spatial dependence is to assume a local Markov random field, where each observation depends only upon its proximate geographic neighbors. More formally, for a set of  $N$  units,  $Pr(y_i | y_j, j \neq i)$  depends only on  $y_j$  if  $j$  is a neighbor of  $i$  (Ripley 1988). A Markov random field can be seen as a spatial analogy to a first-order Markov process in time.<sup>6</sup> Substantively, this implies that the likelihood of a civil war in

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<sup>5</sup>Truly global influences, such as superpower “overlay” or interventions in civil wars motivated by the Cold War rivalry, can potentially apply in all cases (e.g., Buzan 1991). As such, they cannot account for differences between regions.

<sup>6</sup>A Markov chain specifies the probability distribution of some discrete variable  $y_{i,t}$  at time  $t$  as a function of the state of observation  $i$  at previous time periods and a  $J \times J$  matrix of transition probabilities between the various  $J$  possible states that the variable  $y_i$  may acquire. A chain is said to be first-order Markov if the transition probabilities depend only

the Democratic Republic of Congo/Zaire is influenced by proximate states such as Rwanda, but does not depend on whether distant states such as Colombia experience civil war. The structure of dependence can be represented through an  $N \times N$  connectivity matrix  $\mathbf{W}$  based on the distances among the  $N$  units in the system. The entries  $w_{i,j}$  of  $\mathbf{W}$  acquire non-zero values if units  $i$  and  $j$  are connected or “neighbors” (Harary, Norman and Cartright 1965). I will use  $\mathbf{W}$  later to create measures of conflict spill-inn and regional linkages.

## 6 Model, Data, and Measures

This section details the data used to measure the concepts, the model to test the hypotheses on transnational linkages, as well as the method used to estimate the model.

### 6.1 Conflict data

I rely on the new Uppsala data on armed conflict data for the measure of conflict (Gleditsch et al. 2002).<sup>7</sup> In addition to wars with at least 1,000 casualties, these data also include minor armed conflicts with more than 25 deaths in a year. The lower threshold in these data remedy some of the problems noted in other conflict data with a high threshold.<sup>8</sup> I use data for every year from 1950 to 1999.

Civil wars can become classified as interstate or internationalized wars depending on how the conflict evolves and degree of outside involvement. For the purposes of this paper, the most relevant feature is the location *where* conflicts occur, not participation by other states who do not experience conflict on its territory. The risk of spatial contagion stems on the state at the preceding time period  $y_{i,t-1}$  and are independent of the state at previous  $T$  time periods  $y_{i,t-2}, y_{i,t-2}, \dots, y_{i,t-T}$  (Harary, Norman and Cartright 1965).

<sup>7</sup>These data are available at <http://www.prio.no/cwp/armedconflict/>.

<sup>8</sup>I have also replicated the analysis using a conflict variable restricted to conflicts with more than 1,000 fatalities. Although the probabilities of conflict are much lower with a more restrictive conflict measure, the pattern of results for the right hand side variables are generally consistent.

from the location where conflict occurs. The Kosovo conflict may well have consequences for Macedonia, but we would not expect, say, Canadian participation in a peacekeeping operation to increase the likelihood of civil war in the USA. Once location is taken into account, it is less relevant whether conflicts are classified as intrastate or interstate. I use a composite conflict variable that encompasses both civil and interstate conflicts, denoted  $y_{i,t}^c$ . Since there are relatively few intrastate events without internal conflict in these data, the civil wars vastly dominate in the composite variable.<sup>9</sup>

## 6.2 Country specific covariates

I measure income by states real GDP per capita in constant 1985 dollars taken from Gleditsch (2002b).<sup>10</sup> The effect of GDP per capita of conflict is unlikely to be fully linear, as an increase in one dollar matters more when states are relatively poor. I thus use the natural logarithm of real GDP per capita, denoted  $\ln(g_{i,t})$ .

The extent of constraints in the political system is probed from the composite Polity democracy scale, ranging from -10 to 10, denoted  $d$ . Values closer to 10 indicate more democratic polities. The inverted U-curve hypothesis can be tested using dummy variables for two of the values in Jagers and Gurr's (1995) tri-partite regime typology, distinguishing between democracies (scores above 6 on the composite scale), anocracies (between -6 and 6), and autocracies (below -6).

The literature on ethnic conflict displays little consensus on what constellations of ethnic groups increase the risk of conflict. Whereas some focus on ethnic fragmentation or heterogeneity, others argue that the likelihood of conflict is greater when a dominant majority

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<sup>9</sup>I have also used a more restricted civil conflict variable  $y_{i,t}^{cw}$  that does not include conflicts defined as interstate in the Uppsala data. Whether the full composite or the more restrictive civil war variable is used does not notably alter the empirical results.

<sup>10</sup>These data are based on the Penn World Tables (PWT) with additional estimates for many developing and socialist states not in PWT, based on other available sources such as the *CIA World Factbook*.

suppresses minorities. For this paper, I assess the degree to which a society is ethnically heterogeneous by the share of the population not in the dominant ethnic group. The ethnic dispersion measure is 100 minus percentage share of the largest ethnic group, based on data provided by Vanhanen (2001), denoted  $e_{i,t}$ .<sup>11</sup> Higher values indicate less homogenous countries.

Countries with larger population are more likely to contain some group willing to rebel and are more likely to have conflict exceeding the casualty threshold. Accordingly I include a measure of total population size in millions, taken from Gleditsch (2002*b*), denoted  $p_{i,t}$ .

### 6.3 Regional covariates

I use a new data set indicating the minimum distances between states to identify regional linkages (see Gleditsch and Ward 2001). I code two states as connected if they are within 950 km of one another.<sup>12</sup> Given the linkages between states in the connectivity matrix  $\mathbf{W}$ , we can define regional covariates reflecting the factors hypothesized to increase the likelihood of conflict in a given state.

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<sup>11</sup>Vanhanen (2001) provides three possible indicators of ethnicity: race, nationality, and religion. I define the largest ethnic group by the smallest of the dominant group on any of these indicators. Albania, for example, is coded as having a population that is 100% Caucasoid, 90% Albanian speaking, and 70% Muslim. The heterogeneity score is  $100-70=30$  since 30% of the population are not Muslim.

<sup>12</sup>I have also used other cut-off points, and results are generally consistent with more restrictive distance thresholds. Direct contiguity (or a threshold of 0 km) yields largely similar aggregate results, but leads to questionable classifications for individual states, as many states separated by only minor stretches of land or water such as the Netherlands and Luxembourg or Nicaragua and El Salvador are not regarded as connected (see Gleditsch 2002*a*). Introducing a term for the number of neighbors did not notably change the result, and actually yields a negative coefficient estimate. This probably reflects small European countries having both many neighbors and few civil wars.

The first transnational factor is the presence of conflict in other proximate states, denoted  $r_{i,t}^c$ . This variable will acquire a value of 1 if one (or more) of the  $j$  states connected to  $i$  are involved in a civil or interstate war at time  $t$ .<sup>13</sup>

The second regional factor hypothesized to influence the likelihood of conflict pertains to the regime types in connected states. This is measured by a variable indicating average level of democracy among states in a region surrounding a country  $i$  at time  $t$ , denoted  $d_{i,t}^r$ .<sup>14</sup> This variable will range from a low of -10 to a high of 10, in the event that all neighbors are considered full democracies.

The third regional factor hypothesized to affect the likelihood of civil war is the level of local economic integration. This is measured as the ratio of the sum of country  $i$ 's trade with connected states over its total GDP per capita in current prices, denoted  $i_{i,t}$ .<sup>15</sup>

The fourth regional factor hypothesized to affect the risk of civil conflict is the number of ethnic groups that span national borders. I operationalize this using data from the Minorities at Risk project (Davenport 2003). More specifically, I rely on an indicator of the number of groups in a state that also exist in adjacent countries, denoted  $e^r$ .

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<sup>13</sup>More formally,  $r_{i,t}^c = (w_{(i,\cdot)}y_t^c)\#$ , where  $\#$  indicates the Boolean product of the vector. It is also possible to define separate variables for civil war and interstate war in adjacent countries. Unless the model yields separate civil war and interstate war predictions, however, it is difficult to condition on predicted conflicts. This makes it difficult to estimate the model via simulation based methods. The maximum pseudo-likelihood results conditioning on interstate and civil war separately are not dramatically different.

<sup>14</sup>More formally, this is defined as  $d_{i,t}^r = w_{i,\cdot}^s d_t$ , where the superscript  $i$  indicates a row-standardized connectivity matrix  $\mathbf{W}^s$  where all the entries in each row sum to 1.

<sup>15</sup>More formally, this is defined as  $i_{i,t} = \frac{W_{i,t}T_{i,j,t}}{g^{cp}} \forall j = \{1, \dots, N\}$  where  $T$  is trade in current prices,  $g^{cp}$  is a country's GDP in current prices, and  $W_{i,j} = 1$  if  $i$  and  $j$  are connected.

## 6.4 Dependence in time

Previous research has shown that the risk of conflict in an individual country depends upon its prior history of conflict. The risk of recurrent civil war is high immediately after previous conflict, but the stability of peace generally increases with additional years without renewed conflict (see Collier et al.:Ch 4). Beck et al. (1998) and Raknerud and Hegre (1997) suggest taking into account the influence of a country's prior conflict history by a count of the years a country has remained at peace  $py$ , either since its last conflict or since the first data point. As additional years are unlikely to contribute much to the stability of peace in countries that have remained at peace for an extended period of time, Raknerud and Hegre suggest an exponential function where a country's time at peace decays relative to a half time parameter  $\alpha$ , i.e.,  $e^{[-py/\alpha]}$ .<sup>16</sup> I include an exponential function of  $py$  as a covariate to control for time dependence. Trial and error suggested that  $\alpha = 4$  provides a reasonable fit to these data. This implies that the risk of recurrent conflict is halved about every five years.

## 6.5 Domestic and regional factors in civil war

Given the above hypotheses and measures, we can estimate the probability of conflict for a given state  $i$  at time  $t$  conditional on presence/absence of conflict in adjacent states  $r_{i,t}^c$ , various country specific attributes  $\mathbf{X}_{i,t}$ , the regional attributes  $\mathbf{Z}_{i,t}$ , and conflict history indicated by  $py_{i,t-1}$  as

$$Pr(y_i = 1 | py_{i,t-1}, \mathbf{X}_{i,t}, \mathbf{Z}_{i,t}, r_{i,t}^c) = \frac{e^{\alpha + \phi_1 e^{(-py_{i,t-1}/\alpha)} + \mathbf{X}_{i,t}\beta + \mathbf{Z}_{i,t}\lambda + \gamma r_{i,t}^c}}{1 + e^{\alpha + \phi_1 e^{(-py_{i,t-1}/\alpha)} + \mathbf{X}_{i,t}\beta + \mathbf{Z}_{i,t}\lambda + \gamma r_{i,t}^c}}$$

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<sup>16</sup>Beck et al. (1998) suggest modeling time dependence through a non-parametric approach. I use an exponential decay function, primarily because it is easier to interpret than a non-parametric approach. For conflict data, the two approaches tend to yield similar results. Transition models provide another alternative to dealing with time dependence (see Beck et al. 2001). These are attractive on theoretical grounds, as they allow estimating separate effects on conflict onset and persistence. For simplicity, I leave the issue of generalizing to an autologistic transition model to future research.

where  $\mathbf{X}_{i,t}\beta = \beta_1 d_{i,t} + \beta_2 e_{i,t} + \beta_3 \ln(g_{i,t}) + \beta_4 p_{i,t}$  and  $\mathbf{Z}_{i,t}\lambda = \lambda_1 d_{i,t}^r + \lambda_2 e_{i,t}^r + \lambda_3 i_{i,t}$ , all the variables as defined above.

This resembles a standard logit model, but differs in that conflict appears on both sides of the model since conflicts in adjacent states influence conflict in  $i$  through the  $\gamma$  parameter. If the  $\gamma$  parameter is not zero (in which case the autologistic simplifies to a standard logit), the individual conflict observations are *conditional* on one another and the risk of conflict cannot be treated as independently determined by other variables on the right hand side. The hypotheses about transnational linkages influencing the risk of civil war imply that the  $\lambda$  terms should have non-zero coefficients.

## 6.6 Estimation

The probability of conflict in an autologistic model has a complicated likelihood function since each conflict observation  $y_i$  is conditionally dependent on the value of  $y_j$  in connected states  $j$ . The model can easily be estimated by so-called maximum pseudolikelihood (MPL), which considers only a limited set of dependencies and assumes that other observations are independent and exchangeable (see Ripley 1988; Besag 1974). MPL has reasonable asymptotic properties. Its major disadvantage is that it tends to be inefficient, and more so the stronger the spatial interaction (Huffer and Wu 1998).

The autologistic model can also be estimated using Markov Chain Monte Carlo (MCMC) simulation methods to approximate the full likelihood function (Huffer and Wu 1998; Geyer and Thompson 1992; Ward and Gleditsch 2002). The essence of this approach is that a map from an autologistic model can be defined by the model parameters  $\theta$  and the sufficient statistics  $s(y)$  for  $y$ .<sup>17</sup> Based on initial parameter estimates  $\psi$ , a large number  $m$  samples of  $y_i$  are simulated, and the sufficient statistics are calculated for these samples.<sup>18</sup> The Markov

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<sup>17</sup>A statistic  $s(x)$  is sufficient for  $x$  if it contains all the information about  $x$  that is present in the sample. In this case,  $s(y) = \left( \sum_{i=1}^n y_i, \sum_{i=1}^n X_i y_i \right)$ .

<sup>18</sup>Since the model conditions on predicted conflict in other states, the data must be updated as the  $y_m$  generated by the model changes.

Chain Monte Carlo maximum likelihood estimates for  $\theta$  can then be found from the sufficient statistics  $s(y_m)$  from the simulated samples.<sup>19</sup> The Gibbs sampler was initially run with an initial burn in period of 100 samples and 1000 subsequent samples, gathering sufficient statistics at every second sample. For this specific model and data, the MPL estimates  $\psi$  turned out not to be good starting values.<sup>20</sup> The initial MPL  $\psi$  were thus replaced by the estimates  $\hat{\theta}_1$  from the first 1000 samples, and an additional 5000 samples were generated before finding the MCMC MLE.

## 7 Empirical results

Table 1 displays the results of three estimates of the likelihood of conflict for these data. The two leftmost columns contain estimates for the autologistic model with transnational factors. Columns two and three display the MPL coefficient estimates and standard errors. The fourth column displays the MCMC coefficient estimates, and the fifth column displays approximate standard errors for the MCMC estimates.<sup>21</sup> Finally, the two rightmost columns

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<sup>19</sup>The estimates are found by solving the score equation  $\frac{\sum_{j=1}^m s(y_m) e^{(\hat{\theta}-\psi)' s(y_m)}}{\sum_{j=1}^m e^{(\hat{\theta}-\psi)' s(y_m)}} = s(y)$  by Newton-Raphson iteration. The idea is to find the values of  $\theta$  that “yield” the sufficient statistics  $s(y)$  for the observed data (see Geyer and Thompson 1992; Ward and Gleditsch 2002).

<sup>20</sup>The MPL  $\psi$  can in some cases lead to a Monte Carlo sample  $s(y_1), s(y_2), \dots, s(y_m)$  which does not contain the observed  $s(y)$  within its convex hull. For these samples, the MCMC MLE do not exist, and Newton-Raphson iteration leads to a sequence  $\theta_1, \theta_2, \theta_3 \dots$  that drifts towards infinity. Wu and Huffer (1998) note that this can happen when the spatial component  $\gamma$  is large. They suggest using the estimates  $\theta_1$  from the first iteration to generate another Monte Carlo sample from these parameters. Although *ad hoc*, this approach normally leads to well behaved MCMC MLE.

<sup>21</sup>An asymptotically valid estimate of the covariance matrix of the parameters can be found from the inverse of the Fisher information matrix, which is estimated as a byproduct of the MCMC estimation. Huffer and Wu (1998) present simulation results indicating that

display the coefficient estimates and standard errors for a standard logit model, without any transnational factors.

Table 1 about here
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Even though the two estimation approaches are very different, the MPL and the MCMC estimates for the autologistic model are generally quite similar. However, the MPL estimate for the spatial term  $\gamma$  is substantially smaller for than the MCMC estimate, and the MCMC estimates for the other coefficients are generally somewhat larger or more consistent with expectations than the MPL estimates. I will first focus on the substantive implications of the MCMC estimates of the autologistic model for the hypotheses on transnational dimensions of civil war. I will return to the relative merits of the MCMC and the MPL estimates in the subsequent section.

Most of the expectations about transnational linkages are strongly borne out by the empirical results in Table 1. The negative coefficient estimate for regional democracy indicates that more democratic regions are less likely to experience conflict. Higher numbers of ethnic groups that cross state boundaries increase a country's risk of conflict. Finally, countries with higher interregional trade are significantly less likely to experience conflict. The MCMC coefficient estimates for all these variables is greater than two times their standard errors, suggesting that they are all significantly different from 0 and in the hypothesized direction.

The positive estimate for  $\gamma$  indicates that conflict in adjacent countries increases the risk of conflict. Although specifying transnational relations between states indicate that certain relations or characteristics of neighboring states increase the likelihood of conflict, this does not fully remove all the evidence for spatial clustering in conflict. The results here are consistent with conflict in one state having spill-over effects for other adjacent states.

The results suggest that transnational linkages and attributes of surrounding countries can exert a substantial impact on the risk of conflict. For example, a conflict in a neighboring

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the MCMC estimate is usually very close to the true variance.

country alone increases the baseline risk of conflict by almost 40%. Holding everything else equal, the risk of conflict is twice as high for a country located in highly autocratic region compared with a country located in a region where all other states are democracies. A country which is highly trade integrated with its neighboring countries has a risk of conflict which is less than 15% of the risk for a country that has no trade with its neighboring countries.

Differences in risk are relative to the baseline probabilities, which depend on the combination of all the factors in the model. In the real world, other things do not tend to be equal, rather, many of the factors associated with conflict go together. The contemporary international system is heterogeneous, and undemocratic regions tend to have low integration, and are often located in zones of protracted hostilities. The likelihood of civil war in an extremely unfavorable region would be several hundred percent higher than the risk of conflict in very favorable neighborhoods. For a country such as the Zaire under Mobutu in 1995, which was high on many of the factors promoting conflict, differences in transnational factors and events in neighboring countries can substantially increase the risk of conflict. The idea of integrated security communities as an avenue to stable peace similarly points to situations where many of these factors go together and make peace stable (for a more extended discussion, see Gleditsch 2002*a*).<sup>22</sup>

Many of the country specific covariates are consistent with expectations and previous studies. Countries that have recently been involved in conflict are substantially more likely to experience conflict. More populous countries are more like to experience civil war. As in Ellingsen (2000), the results indicate that the larger the population share not in the dominant ethnic group, the higher the likelihood of civil war. The effects of some other country specific variables, however, are somewhat less consistent with expectations and previous

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<sup>22</sup>Association between covariates may raise concerns over collinearity. However, the highest variance inflation factor is less than 1.75, which suggests that collinearity does not pose a problem. The correlation of a country's democracy with regional democracy is not notably higher than the correlation with its GDP per capita.

studies. Larger GDP per capita has a negative coefficient, suggesting that it is associated with a lower risk of civil war. However, the coefficient estimate is not statistically significant. Democracy has a small positive coefficient, but the estimate is not significantly different from 0. These results do not seem to be an artifact of democracy not having a linear effect on civil conflict.<sup>23</sup>

The estimates for the autologistic model suggests that the marginal effects of changes in transnational factors appear to be at least as large as the effects of country specific factors. In the political realm, the effects of a -10 to 10 change on the regional democracy variables yields a large decrease in the risk of conflict, while the coefficient estimate for country specific democracy is not significantly different from 0. For the economic variables, regional trade integration is associated with large differences in the predicted probabilities of conflict, but differences in GDP per capita yield only minor effects on the likelihood of conflict.

A comparison with the logit coefficients for a model without transnational dimension in column six suggest that adding transnational factors can substantially change the inferences we draw about country specific effects. The natural log of GDP per capita has a significant negative influence on the risk of conflict when transnational factors are left out of the model, but the coefficient estimate becomes notably reduced when the transnational factors are included. These results indicate that regional trade integration is a better discriminator between conflict prone and more peaceful countries than country specific attributes such as GDP per capita. Although most civil wars take place in poor countries, many developing countries have not experienced any civil wars. GDP per capita alone cannot account for why some poor countries are more prone to war than others. Transnational factors appear to discriminate between developing countries where the risk of conflict is high and those that are less likely to experience civil war.

The lack of evidence for a linear relationship between democracy and the risk of conflict should not be taken to imply that democracy is necessarily devoid of any importance for civil

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<sup>23</sup>There is no evidence that two separate dummies for coherent democracies and autocracies fit better than the linear specification.

conflict. The regional democracy variable has a substantial dampening effect on the risk of conflict. Given the strong regional clustering of democracy, most democracies will tend to be located in regional contexts where most neighboring states are democratic. If we look at the distribution of democracy and regional democracy in Figure 1, we can see that country democracy has a strong bimodal distribution with peaks centered on the lowest and highest values. Most democracies are found in regions where other states are democracies. The net effect of the two terms will then imply a substantially lower likelihood of civil war. The lack of an effect for democracy in individual states may reflect large variation in the risk of civil war over the democracy scale depending on the regional context.

Figure 1 about here

Although there is no evidence for the inverted U-curve in the transnational autologistic model, replacing the continuous democracy measure with two dummies for coherent democracies and autocracies yields estimates consistent with the inverted U-curve in the logit model with no transnational covariates. Both terms have negative coefficient estimates, suggesting that coherent democracies and autocracies have a lower risk of conflict than anocracies. The effects of democracy on conflict appear to depend notably on model specification, conflict measures, and whether regional context is considered. Gleditsch (2002*a*, 99), using non-parametric methods, found that the effect of democracy on wars with more than 1,000 dead is conditional on the regional context. These data provide some evidence of an inverted U-curve shaped relationship for certain regional contexts. Figure 2 displays the fitted surface from a local regression of the probability of war over a country country's democracy and regional democracy (see Loader 1999). This suggests that the risk of conflict is consistently low for countries in democratic regions. However, for countries in less democratic regions, the risk of conflict displays an inverted U-shape patterns with the highest probabilities found for polities combining features of democracy and autocracy. The maximum risk of conflict of conflict occurs for anocracies in less democratic regional contexts. Collapsing over differences

in regional context here yields an inverted U-curve over country specific democracy. As such, previous studies may have picked up on the strong bimodal distribution of democracy and its association with the regional context of democracy rather than the effects of institutions *per se*. We should be should be cautious in interpreting too much into results from models without transnational linkages. Democratic institutions may not provide a panacea for countries in unfortunate neighborhoods.

Figure 2 about here

The results support the hypotheses that transnational factors influence the likelihood of civil wars beyond the domestic attributes believed to be associated with civil war. However, the time component clearly emerges as the single most important predictor of conflict at time  $t$ . Hence, one might question whether adding the transnational dimensions improve notably on the model once conflict history is taken into account. Although the individual coefficient estimates are statistically significant, some argue that significance is only a noisy measure of sample size, as even minor differences are likely to be statistically significant when sample sizes are large (e.g., McCloskey and Ziliak 1996). Bayes factors, or the ratio of the posterior odds for one models against another, provides one way to evaluate whether the autologistic model with transnational factors contribute significantly to our knowledge about outbreaks of civil wars over a model with only domestic factors and time. Raftery (1995, 134) proposes approximating the Bayes factor for some model  $M_k$  through a simple Bayesian Information Criterion (BIC), given as

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

where  $\chi_{k0}^2$  is the likelihood ratio test statistic for  $M_k$  against the null model  $M_0$ ,  $p_k$  is the number of degrees of freedom, and  $n$  the number of observations. Unlike standard significance tests, the BIC “penalizes” models that consume more degrees of freedom and large samples. Negative  $BIC'_k$  values provide evidence for model  $M_k$  over the null. Letting  $M_1$  denote the model with purely domestic covariates and the model including transnational factors  $M_2$ ,

we have  $BIC'_{M_1} = -2361.34$  and  $BIC'_{M_2} = -2380.98$ . The Bayes factor approximation for  $M_2$  over  $M_1$  is simply the difference between  $BIC'_{M_1}$  and  $BIC'_{M_2}$ , which is 19.95. This is well above the threshold of 10 that Raftery (1995, 139) characterizes as ‘very strong’ evidence for the model with the more negative  $BIC'$ .

I have already noted that the MCMC estimates are generally quite similar to the MPL estimates. Since the two seem close and given the substantial added effort in generating the MCMC estimates, is there any evidence that the MCMC approach does significantly better than MPL? The first thing to note in Table 1 is that the MCMC estimate for the spatial term is considerably smaller than the MPL estimate. Second, the MCMC coefficient estimates for other covariates tend to be more consistent with the hypothesized effects than the MPL estimates, with generally larger consistent coefficient estimates and coefficient estimates with unexpected signs closer to 0. One possibility is that the direct spatial contagion part may be overestimated by the less efficient MPL method. If MPL overestimates the direct spatial component and underestimates the impact of other covariates, hypothesis testing may be problematic for MPL on data with strong spatial dependence. The predictive ability of the two estimates appear to reflect this. Table 2 compares the predictions given the coefficient estimates with the observed annual data. As can be seen, the autologistic model is quite successful in postdicting conflict and peace. Although the predictions are similar, however, the MCMC estimates yield overall better predictions than the MPL estimates. This is consistent with the conjecture that the MPL estimates overestimate the impact of direct spatial contagion and underestimate the other transnational covariates. Since the autologistic model is conditional and predictions for one observation  $i$  is conditional on the predictions for the other  $N - i$  observations, errors in the prediction for one observation can propagate and yield poorer overall predictions.<sup>24</sup>

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<sup>24</sup>Table 2 is strictly speaking a “postdiction”, since the model is used to classify the same data used to estimate the model. Also, the fitted values for  $i$  uses information about the actual occurrences of conflict in other states  $y_{-i}$ . In a forecasting situation, one cannot assume knowledge about conflicts elsewhere in the international system. An out of sample

## 8 Discussion and conclusions

Most research on civil wars has focused exclusively on attributes of states and treated civil wars in one state as independent of conflicts in other states. In this paper, I have examined some transnational linkages hypothesized to make civil wars more likely. I have found evidence that the risk of civil wars varies depending on the interactions and processes that cross national boundaries. A model with transnational factors performs notably better than models with purely domestic covariates. This suggests that civil wars in one state cannot be fully accounted for by attributes or processes within that individual state. Understanding the dynamics of civil wars and the prospects for their resolution requires that we consider potential contributing factors both within states and as well as in transnational interactions. Civil wars that display clear transnational dimensions, such as the Albanian revolt in Macedonia in 2001, may have as much to do with events outside the boundaries of the country in question as the behavior of national governments. The onset of the violent revolt seemed to follow in the wake of mobilization in Kosovo, and after the Macedonian authorities had made political concessions to the Albanian minority.

Transnational dimensions likewise also have implications for international strategies for containing internal conflicts. The international community can alter the prospects for conflict by regulating access to transnational support, mobilization, and the availability of arms. Just as transnational factors influenced the onset of a minor armed violent conflict in Macedonia, the actions of international third parties may also have helped prevent the conflict from escalating to a major war. The Organization for Cooperation and Security in Europe 

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forecast using risk scores fitted from the model and conditioning on the predicted conflicts in 1999 predicts the observed conflicts in 2000 quite well, although the predictive ability over time in part is due to the tendency for conflict to recur.

(OCSE) and NATO helped Macedonia close the border with Kosovo, and supported the governments relatively measured military response against the Albanian insurgents occupying cities in the border area. The behavior of the international community may also have helped the Macedonian government resist demands from militants for more forceful actions against Albanians. Another critical international factor is the Albanian government's refusal to endorse the NLA, despite widespread support for the organization from many ethnic Albanians. These factors appear to have helped promote and sustain the Ohrid peace agreement between the rebels and the government.

The analysis in this paper provides a first cut at assessing the transnational influences on civil war. Numerous extensions can help improve on the present analysis and clarify the transnational dimensions of civil war. Although the analysis here has restricted conflict to the country in which it occurs, it does not identify the conflict location within a country and proximity of other states and actors to this. This is an obvious problem for large countries that experience conflict only on certain parts of their territory. The conflict in Chechnya, for example, entails significant transnational dimensions and risks of contagion for other states in the Caucasus region. However, the conflict does not affect the entire territory of the Russian federation, and neighboring states far from the Caucasus such as Finland and Norway are not necessarily affected by the conflict or exposed to spill-overs. Future research will be able to take advantage of new data incorporating geographical information for the incidents in the Uppsala conflict data (see Buhaug and Gates 2002). Weighting connectivity by a measures of a country's importance or length of shared borders (see Furlong and Gleditsch 2003) may also possibly improve on the analysis.

Second, if we accept Blainey's (1988) argument that the reasons why wars start are related to why wars eventually end, looking in greater detail at how transnational factors affect the duration and prospects for civil war settlement may help better understand the transnational factors that alter the prospects for war. Existing analyses of civil war contain little direct information about the non-state actors in civil wars, and factors facilitating insurgency are usually proxied by national level measures (e.g., Fearon and Latin 2003).

Future efforts will be facilitated by gathering additional data on non-state actors, such as their transnational linkages, and examine how these affect the prospects for peace. For example, transnational linkages may be particularly relevant in cases where disadvantaged ethnic groups are mobilized in one country and already mobilized in another, when they can count on support of ruling ethnic kin in other states, or when they can mobilize among refugees in neighboring states. Further analyses of linkages at the group level will provide a basis for measuring the specific constellations of transnational ethnic groups and third party support that make particular countries more prone to conflict.

Such extensions, however, require an initial foundation to build on. This paper clearly suggest that transnational factors exert important influences on the risk of civil war onset, and provides a stepping stone for future research.

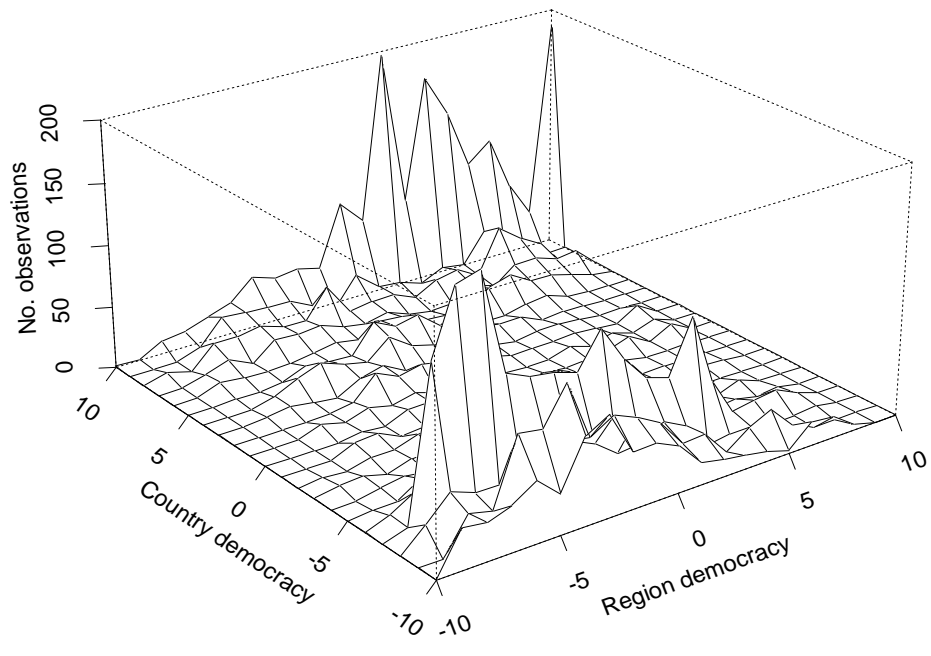


Figure 1: Distribution of democracy and regional democracy

Table 1: Estimates for autologistic model

Covariate	MPL estimates		MCMC estimates		Logit estimates	
	Coefficient estimate	Standard error	Coefficient estimate	Standard error	Coefficient estimate	Standard error
(Intercept)	<b>-4.8270</b>	0.5669	<b>-4.3212</b>	0.4411	<b>-3.3604</b>	0.4378
Conflict history ( $\phi$ )	<b>4.6750</b>	0.1611	<b>4.7101</b>	0.1443	<b>4.7502</b>	0.1494
Democracy ( $\beta_1$ )	0.0105	0.0090	0.0068	0.0074	-0.0050	0.0071
Ethnic dispersion ( $\beta_2$ )	<b>0.0083</b>	0.0037	<b>0.0088</b>	0.0031	<b>0.0113</b>	0.0031
ln GDP per capita ( $\beta_3$ )	-0.0065	0.0665	-0.0243	0.0570	<b>-0.1524</b>	0.0534
Population ( $\beta_4$ )	<b>0.0008</b>	0.0004	<b>0.0009</b>	0.0004	<b>0.0016</b>	0.0004
Regional democracy ( $\lambda_1$ )	-0.0279	0.0162	<b>-0.0333</b>	0.0147	–	–
Transborder groups ( $\lambda_2$ )	<b>0.0359</b>	0.0147	<b>0.0393</b>	0.0115	–	–
Regional trade ( $\lambda_3$ )	<b>-1.828</b>	0.7059	<b>-1.928</b>	0.683	–	–
Adjacent conflict ( $\gamma$ )	<b>0.8512</b>	0.1680	<b>0.3131</b>	0.1054	–	–
Model fit (MCMC estimates)	N = 5070		LR- $\chi^2$ = 2457.8, df=9			

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Coefficient estimates in bold are two times the size of their standard errors

Table 2: Model classification, annual observations

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

(a) Perspective from autocracy angle

(b) Perspective from democracy angle

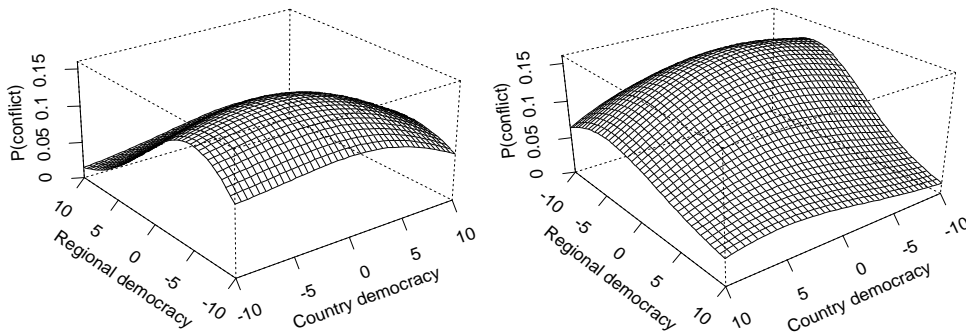


Figure 2: Local regression estimates of probability of war by democracy and regional democracy

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# Dyadic Interactions and Civil War Duration\*

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**Abstract:** Although theories of civil conflict emphasize dyadic interaction, existing studies of civil war focus almost exclusively on the attributes of states and governments and pay little attention to the non-state antagonists. In this paper, we recast civil war in a more clearly dyadic perspective, and consider how the attributes of the non-state actors and their relationship to state attributes interact to make conflict more or less likely. We argue that strong rebels that pose a real challenge to the government are likely to lead to short wars, either through defeat or by gaining concessions from governments. By contrast, conflicts where rebels seem weak relative to the government can last for a long time when rebels control territory and operate in the periphery, thereby limiting the ability of the government to deter and retaliate. Finally, conflicts should be shorter when potential insurgents can more easily rely on alternative political means to violence. We examine these hypotheses using new data on conflict attributes and characteristics of non-state actors in an analysis of civil war duration. We find that conflicts tend to be longer when rebel groups are weaker relative to the government, have fewer options for substituting political means for violent ones, and control territory and operate in the periphery. These results stand when controlling for other factors commonly identified in the literature as affecting civil war onset and duration.

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## Introduction

Despite the traditional emphasis on conflict between states, civil war and other violent conflict within countries has received considerable attention in conflict studies over the last decade. Some of the key theoretical propositions that have emerged in the literature on civil war include the idea that violent conflict can emerge because governments fail to deter dissent and armed resistance, the claim that war results when governments are unwilling to offer the concessions necessary to avoid war, as well as arguments about the role of private incentives among insurgents, highlighting how conflict break out or is sustained when rebel leaders recognize that they can profit from the pursuit of war or mobilize through opportunities for looting. The empirical literature on civil war has identified a number of country characteristics associated with these ideas, and shown that these features appear to be associated with the observed frequency of conflict. Empirical studies of civil war have, for example, found that countries are more likely to experience civil war when income is low and economic opportunities are limited for large segments of the population, under autocratic regimes with less than complete control, in the presence of “youth bulges” relative to adult population, when countries have abundant lootable natural resources, and in countries with a high share of terrain favoring insurgencies (see, e.g., Gates 2002; Sambanis 2002 for comprehensive reviews of this literature).

As useful as the existing research on civil war across countries has been, we feel that there is something of a mismatch between the underlying theories of conflict and the research design used in empirical studies. The most common theoretical perspectives on civil wars see such conflicts as consisting of interactions between a state and a rebel group. The explanation for why wars break out resides in some form of relative balance of capabilities of the two antagonists, their resolve, and

their respective information about each other (e.g., Lake 2004). This is conceptually similar to the dyadic focus in existing research on interstate wars, which typically highlights the interests and capabilities of two given countries to explain the risk of violent conflict onset, its duration, and the prospects for eventual resolution of a dyadic dispute (see, e.g., Bremer 1992; Fearon 1995).<sup>1</sup> Despite the similarity of the theoretical rationale for both interstate and civil conflict, however, empirical studies of civil wars tend to be essentially monadic and look quite different from studies of interstate conflict. Although theories of conflict emphasize dyadic interaction between two parties,<sup>2</sup> the factors presumed to make some situations more prone to civil conflict than others are usually proxied by national level attributes or characteristics of the government only. The discrepancy between theoretical concepts and operational measures in studies of civil war can make the interpretation of empirical findings quite ambiguous. For example, Fearon and Latin (2003) interpret the inverse link between GDP per capita and the risk of rebellion as evidence of the importance of state strength or a state's deterrent capacity. By contrast, Collier and Hoeffler (2004) interpret this relationship as evidence that individuals who face higher opportunity costs from engaging in rebellion are less willing to participate. Although low GDP could be seen as an implication of both of these arguments, it is clearly a rather indirect proxy of both of the theoretical concepts the authors have in mind and does not allow differentiating between them. Similar controversies revolve around many empirical findings in the civil war literature.

<sup>1</sup> Although conflict is usually studied as dyadic phenomena, measures of conflict such as interstate disputes are of course not necessarily limited to only two parties. Almost 20% of the 2034 disputes in the 2.1 Version of the Militarized Interstate Dispute (MID) data (Jones, Bremer, and Singer 1996) have more than two participants. Standards for dealing with disputes with more than two actors are not well established in the study of interstate conflict, and many have shown that decisions regarding these issues can have a substantial influence on the inferences that researchers draw (see Bennett and Stam 2000). Gleditsch and Gartzke (2004) furthermore demonstrate how many extra dyadic ties or relationships to other actors influence the risk of disputes in a given dyad.

<sup>2</sup> See, e.g., Most and Starr (1989) for an overview and discussion of definitions of conflict.

Although existing studies of civil conflict based on a cross-country comparative approach have greatly advanced our knowledge of civil war, we believe that work along these lines rapidly is approaching a state of diminishing marginal returns. Research on conflict can benefit tremendously from disaggregating war below the level of countries and consider the underlying interactions and mechanisms that make up what we characterize as a country being “at war”. Although it is possible that many state or aggregate country characteristics may be strongly related to conflict, researchers would no longer try to explain interstate conflicts from monadic country characteristics alone, without reference to how the attributes of the two parties interact to make conflict more likely. If we believe dyadic analysis to be required for understanding interstate conflicts, then this must also be the case for civil conflicts as well.

In this paper, we seek to go beyond what we see as the excessive state centrism of existing studies of civil war. We recast civil war in a more clearly dyadic perspective, and consider how the attributes of the non-state actors and their relationship to the attributes of a state interact to make conflict more or less likely in particular circumstances.<sup>3</sup> We examine these hypotheses using new data on conflict attributes and characteristics of non-state actors in an analysis of civil war duration. Our findings suggest that that civil wars will be longer when rebel groups are weaker relative to the government, have fewer options for substituting political means for violent ones, operate in the periphery and control territory. These results stand when controlling for other factors commonly identified in the literature as affecting civil war onset and duration.

## **Violent coercion, deterrence, and substitution**

<sup>3</sup> Our argument is not that lack of attention to dyadic characteristics is the only problem of state-centrism in existing cross-national studies of civil war. We return to this issue in the conclusion.

We start from a simple conceptual model of interaction between a government and a potential rebel group to analyze civil conflicts (see, among others, Lichbach 1987; Moore 2000; Sandler, Tschirhart, and Cauley 1983 for similar representations). A given potential group has certain policy goals or grievances that they wish to be addressed, which in turn translate into some type of demands on a government or state. The most common forms of demands are undoubtedly territory/autonomy or political power/government. However, the general framework could also encompass less common forms of demands, such as demands for citizenship rights from refugees or migrant labor.<sup>4</sup> We also presume that groups have some kind of organized leadership or organization that makes it meaningful to treat the group as an actor, even if this is not unified/cohesive or necessarily representative of the group at large.

There are many possible avenues for a group to pursue its demands or objectives against a government, including regular political activities such as formal petitions and lobbying, irregular political activities such as demonstrations and strikes, as well as violent means such as attacks or armed resistance. To explain civil conflict in this sense requires us to understand why groups choose violent means over these non-violent alternatives. Given a set of resources, a group will presumably choose to allocate its activities among the different options in the manner that affords the greatest expected likelihood of getting its demands met. Demands can be met by accommodation or formal concessions from the government, or the status quo may change as a result of rebels extracting concessions through force, by placing the government in a position where it is unable to resist. Alternatively, the active pursuit of demands can be ended if government enacts sufficient repression to deter rebels from making claims in the first place or making it too costly to maintain claims.

<sup>4</sup> See Salehyan and Gleditsch (2004) for a discussion of the Palestinian revolt in Jordan, an event often not included in many civil war data bases as the insurgents sought neither to take over the government nor autonomy.

The simple framework sketched does not by itself formally explain why violent conflict occurs. Under full information about resolve, resources, and strength and problems inhibiting bargaining, contests should be settled short of the use of force, either by governments accommodating to demands from strong rebels or by deterring weak rebels from making demands. However, the framework is nonetheless helpful in suggesting factors that can make government accommodation more likely, enhancing the ability of governments to repress, and discouraging rebels from substituting violent activities for other types of activities. In this paper, we focus on the role of power and ability to substitute non-violent for violent means.

### ***Power, balance, and asymmetries***

Dyadic theories of conflict applied to interstate conflict have paid a great deal of attention to power in the sense of the relative balance of the actors. There is a great deal of evidence that overwhelming preponderance can help deter initial aggression from other parties by decreasing uncertainty over the likely outcomes of conflict (e.g., Organski 1958; Weede 1976). There is also some evidence that interstate wars are longer the more balanced the capabilities of the actors in a dyad (see Bennett and Stam 1996). A direct application of these ideas to civil wars would suggest that civil wars should be facilitated by balance or parity between governments and non-state actors, and become less likely the clearer the relative advantage of one side over another, irrespective of whether the stronger side is the government or the non-state actor.

However, there are many reasons to question whether the effects of power asymmetries and relative advantage apply equally to state and non-state actors. In particular, many have pointed out that most civil wars tend to involve dramatically weaker rebel groups, and that escalation of conflicts to violence appear to be particularly common when governments underestimate the willing-

ness of groups to fight for their aims (see, e.g., Öberg 2003). Moreover, Pillar (1983) demonstrates a strong relationship between the status of combatants and war outcomes. Whereas wars between sovereign states are more likely to end in negotiated outcomes or treaties, civil wars are more likely to last until one of the parties is clearly defeated or capitulates. Stronger states, in fact, do not generally tend to fight shorter civil wars. Balch-Lindsay and Enterline (2000) and Mason and Fett (1996) find that measures of a state's armed forces prior to the war are associated with longer civil wars. DeRouen and Sobek (2004) find that although measures of state strength decrease the prospects for a rebel victory, they do not make a government win more likely. This suggests that civil conflicts where one of the parties is not a sovereign state in practice make it more difficult to find negotiated solutions or stable settlements.

### ***Power to target vs. power to resist***

One possible explanation for the asymmetry between governments and rebels may lie in the sensitivity or vulnerability to attacks from the other parties. Strong rebels relative to the government can potentially undermine the government and threaten the power of the current leadership (see Chiozza, Gleditsch, and Goemans 2004). The rebels might either win directly, or the government can be unseated by challengers questioning its competence. Hence, governments will have incentives to accommodate or settle with relatively stronger rebels. Several researchers have emphasized a “mutually hurting stalemate” as an important facilitating condition for formal settlements and peace agreements (see Zartman 1985). Weaker rebels, on the other hand, do not pose much of a challenge to a government's power, and the government has relatively few incentives to provide any form of concessions to them. Indeed, if the governments face costs for making concessions to the rebels, these costs could easily outweigh the benefits of any reduction in less severe rebel activities, even if a nui-

sance, and the government will prefer to respond with repression. Walter (2004), for example, argues that governments may be particularly unwilling to offer concessions when they face concerns over reputation and subsequent demands from other groups. Under such circumstances, however, government repression alone may not be sufficiently effective to completely defeat the rebels or deter future activities. Whereas a government is clearly defeated once out of power, rebels might merely be driven into hiding and eventually regroup. Although engaging in violent conflict involves risk, a return to an uncertain civilian life with risk of retribution may not be particularly attractive either. In the absence of any concessions or likely benefits from stepping down unilaterally, rebels may simply prefer to continue fighting.

Finally, the extent to which government sanctions actually are effective in deterring violence from potential rebels depends not only on the coercive capacity that a government can mobilize to protect itself, but on the actual ability of the government to enact sanctions that have an impact on the rebels and their constituents. In particular, many governments can be quite effective in their capital cities, while unable to punish rebels in the periphery of a state. In this sense, the ability to inflict costs on rebels is a second component of strength, conceptually quite distinct from a government's ability to defend itself from attacks or challenges. Many governments may be quite strong in certain parts of their territory, without controlling effectively parts of their territory in the periphery. Weaker central control over the periphery can provide many advantages for rebel groups. Even groups that would seem "weak" if measured in terms of their ability to target the government (or strike against the capital city) may still be relatively secure and difficult to defeat, if the group exercises control over some territory where it is less exposed to attacks from the governments. Unlike high absolute strength or features that provide rebels with the capacity to inflict costs and challenge the central government, strength in the sense of "ability to resist" is much less likely to translate into success at the negotiating table or ability to extract concessions from a government. In terms of du-

ration, we expect that conflicts where non-state actors exercise control over territory would be systematically more persistent than other conflicts. Conflicts where rebels are “too weak” to extract concessions or obtain favorable negotiated outcomes yet “too secure” to easily be eradicated are likely to lead to long protracted conflicts where any settlement remains elusive, even if the conflicts often may have relatively low intensity.

### ***Violence and the price of its alternatives***

The effectiveness of deterrence is not only a matter of the ability to wield force alone, but will also depend on the relative price of violent means to alternatives. Rebels will substitute violent means for political means if these are available and bear sufficient promise of being effective. Whether violence or alternative means are used is not just a question of the absolute costs of resort to violence, but the relative costs of the different alternatives. As such, whereas efforts to deter violence that make the costs of political means more attractive should be effective, repressive means that leave little room for groups to pursue their political means by alternative avenues may actually increase the relative attractiveness of violence, even if they succeed in increasing the absolute costs of resort to violence. Similar arguments have at many times been set forward to argue that the risk of violence should have an inverted u-shaped relationship with the degree of democracy (see, e.g., Hegre et al. 2001; Hibbs 1973; Muller and Weede 1990). The idea is that autocracies are sufficient repressive to deter political dissent and that political democracies provide alternative avenues for political influence than violence. Anocracies, however, presumed to be insufficiently repressive to deter, yet not sufficiently open to allow for alternative non-violent means, tend to more conflict prone.

Although many studies have found evidence for such a relationship, this research tradition is somewhat problematic as several quite different things are lumped together and proxied by democ-

racy. The u-curve is intended to capture both the deterrent capacity of states and opportunities for substitution, which probably are better considered separately than proxied by democracy. Perhaps most importantly, many states with democratic institutions have dramatically limited the rights of groups seen as subversive or “terrorist”. Turkey, for example, even after the restoration of democratic institutions has harshly repressed Kurdish politicians believed to be associated with or sympathetic to the separatism Kurdish Worker’s Party (PKK). In the late 1980s, an established democracy like Great Britain amended the Broadcasting Act to prohibit the broadcast of direct statements by individuals seen as representatives or supporters of the Irish Republican Army (IRA). Similar cases where democratic societies have banned organizations believed to be associated with or support violent movements or “unconstitutional activities” abound.<sup>5</sup> Such acts may decrease the ability of insurgents to operate within an open political system. However, since the legislation primarily targets their ability to conduct regular or non-violent political activities without persecution, it can have the perverse consequence of lowering the costs of violence relative to non-violent political means. Although autocratic systems may be generally more repressive, many autocratic societies have provided opposition groups with some room for promoting their aims by non-violent political means. In South Africa, for example, the ban on the African National Congress (ANC) was lifted several years before the introduction of competitive elections, open to the non-white constituents of the ANC. The fact that many un-free regimes can be ineffective in enacting repression, despite not giving any institutional reform that would assign them a value in the middle of some measure of degree of democracy suggest that the U-curve is not a good measure of the repressive capacity either.

<sup>5</sup> The Federal Republic of Germany, for example, has legislation making it a criminal offense to support movements considered opposed to the constitution, and barring individuals associated with such organization from employment in the public sector. This “Berufsverbot” has been enforced against individuals tied to organizations that have not engaged in violent activities, such as the Communist Party KPD.

## **Dyadic conflict characteristics and the duration of civil war**

Before we turn to our specific expectations derived from these general propositions we first address the issue of why characteristics of the non-state conflict actors have not received more attention in existing studies of conflict, despite the clear dyadic emphasis in theories of conflict. There are a number of problems making dyadic analysis of conflicts between states and non-state actors more complicated than is the case for interstate conflicts. Since the population of states is known in advance, one can easily create data on the population of possible dyads where interstate war may occur (or some subset of this, such as politically relevant dyads). This is much more complicated in the case of civil wars, where states may wage conflict with a large number of different non-state actors, including ethnic groups, military factions, or ideologically based organizations. Most groups will never engage in civil war, and attempts to identify some population of such potential rebel organization seems a near impossible task without additional information.

The idea of monitoring ethnic minority groups “at risk” can be considered one response to the problem of a identifying a population of potential groups that may be in conflict (e.g., Gurr 1993; Gurr 2000). The so-called Minorities at Risk (MAR) data identify a series of attributes of each individual ethnic group that potentially could become engaged in violent conflict, and a number of studies have looked at how such indicators as economic or political discrimination versus political mobilization predict to the onset of violent conflict (Gurr and Moore 1997). Although we think the intuition in these studies is correct, there are a number of limitations in the MAR data. First, although many civil wars involve an ethnic element, it is certainly not the case that all civil wars are ethnic (e.g., Sambanis 2001). Second, some researchers have argued that the MAR data suffer from a selection bias, where groups that are politically active are more likely to be considered “at risk” while latent groups that could have been mobilized are unlikely to be included in the sample (see,

e.g., Fearon and Laitin ND; Öberg 2003). Analyses of conflict using the MAR data could in this sense suffer from selection problems, if the dyads or groups included in the data are selected on the basis of characteristics related to the outcome of interest (see, e.g., Christin and Hug 2004).

In this paper we use another avenue to overcome the problem of classifying the population of potential civil war cases *ex ante*. Many theories of conflict suggest a logical symmetry between the causes of war onset and war termination, where conditions where conflicts eventually end must be related to the reasons why conflicts start in the first place (see, among others, Blainey 1988; Filson and Werner 2002; Gartzke 1999; Wagner 2000). We do not wish to push this postulated symmetry between the causes of war onset and war termination postulated by many theories too far: Whether this ultimately holds is to some extent an empirical question. Indeed, most empirical research on conflict and peace suggests that effects of covariates on war onsets and duration can vary considerably (see, e.g., Beck et al. 2001; Gleditsch and Ward 2000). However, even if the correspondence is not one-to-one, we should still be able to evaluate hypotheses about the conflict proneness of particular combinations of state and non-state actors from looking at conflict duration. Based on our arguments above, for example, we can derive numerous expectations about the duration of civil conflicts based on the repressive capacity of governments, the ability of rebels to resist, and the constraints or opportunities for substituting violent for non-violent activities. In turn, looking at duration may help us understand what the characteristics and conditions under which potential groups are more likely to be mobilized and engage in violence.

Changing focus from onset to duration also has clear advantages from the point of view of data collection. In an analysis of duration, we do not need to identify the set of possible “potential groups” that could rebel but for some reason did not, or the counterfactual of what the ability of a group to mobilize resources would be in the event of war. Rather, we can limit ourselves to the non-state actors in cases of conflicts that turn violent. We have created two new supplementary data sets

on attributes of Non-State Actors (hereafter, the NSA data) and indicators of External Linkages (hereafter the EL data). Our new Non-State Actor (NSA) supplementary data contains a number of features that allow us to consider hypotheses on deterrent capacity and ability of substitution. Here, we will provide a relatively brief overview of the attributes and how they relate to our expectations. We refer to the extended documentation for a more complete description of the data (see Cunningham 2004).

Our point of departure is the Uppsala/PRIO Armed Conflict Data (ACD), which identify all conflicts involving at least one state that generate more than 25 casualties in a given calendar year (Eriksson and Wallensteen 2004; Gleditsch et al. 2002). Although the Uppsala data consider both conflicts between and within states, in this paper we only consider conflicts between states and non-state actors. These are not necessarily limited to intrastate conflicts in a traditional sense, since many civil wars involve different forms of participation from actors outside the state. The Uppsala data distinguish conflict based on the incompatibility or objective over which conflict is waged, classified as either over a state's central government (or efforts seeking to replace the central government) and incompatibility concerning territory, where a group seeks to secede or assume control of a particular piece of territory. The Uppsala data set does not distinguish between different actors within something considered the same conflict. For each conflict, we identify one or more dyads where a government confronts a non-state actor group, based on whether different groups are fighting against the government.

The NSA data contain a series of indicators that help measure different aspects of the strength of a rebel group. We first identify ordinal categories (high, moderate, low) on a series of dimensions of absolute strength. Following our discussion above, we expect that conflicts where the rebels are strong will be shorter, as they rebels are more likely to win battles, pose credible challenges to a government, and thereby in a better position to extract concession from the government.

First, we consider whether a rebel organization has a clear central leadership, and to what extent it actually exercises control over rebel forces. Second, we consider the extent to which a rebel group is able to mobilize or draft personnel. Third, we consider the ability of rebels to procure arms, relative to the government. Fourth, we identify the fighting capacity of the rebels, also relative to the government.<sup>6</sup>

Although we believe that all these indicators alike will tend to prolong conflict duration, we expect that different forms of rebel strengths can influence commitment or information problems in different ways and create varying constraints for the prospects for negotiated settlements. However, lacking data on peace agreements and negotiations at the present we leave this issue for future research. In addition to the disaggregated indicators of strength, we also consider an overall combined assessment of the strength of the non-state actors relative to the government.

We also identify a second component of strength, tapping the “ability to resist” of a non-state actor. We have argued that conflicts where rebels are “too weak” to extract concessions or obtain favorable negotiated outcomes yet “too secure” to easily be eradicated are likely to lead to long protracted conflicts, often with relatively low intensity. In the NSA data, we identify whether the non-state actors exercise control over a territory, either by denying the government any access or in the sense that governments are unable to effectively strike against the rebels on a sustained basis. We expect that conflicts where non-state actors exercise control over territory should have systematically longer duration than other conflicts where governments can more easily target and repress rebels.

Third, we consider the ability to substitute nonviolent actions for violent activities. We have coded whether the rebels have an explicit or commonly acknowledged political wing, and whether

<sup>6</sup> Although we do not use these data in the analysis for this paper, the NSA data also include point estimates for the total number fighting under the command of the insurgents, as well as alternate “low” and “high” estimates.

the political wing is legal or banned. Although many researchers have suggested that a democratic political system should pose greater opportunities for substituting violent and non-violent political means, there is not a one-to-one relationship between political competition and opportunities for substitution. We would expect dyadic contests where the insurgent non-state actors have legal political wings to have systematically shorter duration, even when we consider the degree of competitiveness of the political institutions in which a government is selected.

To recap, although greater rebel strength might make challenges more likely, we would expect conflicts to be shorter when the rebels command greater levels of resources that can be used to inflict costs on a government and more easily extract a favorable deal from a government. By contrast, higher degrees of strength or resources at the government level does not necessarily translate into shorter wars, as even government repression may not suffice in depriving weak rebels from some capacity in continuing to resist and since weak rebels offer few incentives for a settlement. Conflicts should be more persistent when rebels have effective territorial control and are more difficult to target for a government. Finally, we expect the prospects for settlements to be better in cases where potential insurgents have relatively more avenues to further their goals by political means. In particular, we expect conflict to be more likely when potential rebel groups are denied political rights and lack a legal political wing.

We will test our expectations empirically in the following sections. However, finding evidence consistent with our expectations for these indicators would not by itself provide compelling evidence, since other factors also are likely to affect the duration of conflict. To ensure that our inferences about the features of interest do not merely stem from failing to take into account alternative plausible accounts for differences in duration we include several variables controlling for factors commonly identified in the literature as affecting the length of wars and that could be associated

with our indicators. In the following section, we briefly review some of the key alternative perspectives on civil war and what these would imply for the duration of civil war.

Most of the existing empirical research on civil war has focused on onset and termination rather than the duration of civil war. This has been rectified somewhat by several recent works addressing civil war duration (see, in particular, the special issue on civil war duration edited by Hegre 2004). Still, there is still a relatively limited literature on the topic, with few well-established findings.<sup>7</sup> Our list of control includes the “usual suspects”, but the expected signs and relationships are often ambiguous.

Grievance based explanations of civil war onset would, at least if interpreted strictly, suggest that civil wars should continue until the grievance that gave rise to conflict is redressed, either through concessions or a victory for the aggrieved group. A number of scholars have challenged the basic tenets of grievance-based approaches over the last couple of years. Collier and Hoeffler (2004), for example, argue that grievance cannot provide a good explanation for civil war onset since grievances are ubiquitous while civil war is relatively rare. Instead, they posit that civil war are motivated primarily by concerns over private benefits, in particular access to lootable resources and the opportunity costs borne by individuals abandoning their regular existence to take up arms against the government. Collier, Hoeffler, and Söderbom (2004) examine the implications of the general model for the duration of civil wars, and argue that conflicts should be longer when the opportunity costs for engaging in conflict are higher and when there are shifts in commodity prices that make conflict more or less attractive to insurgents. The first aspect is proxied by a society’s GDP per capita. We consequently include the natural log of GDP per capita, using data from Gleditsch

<sup>7</sup> Moreover, most of the existing work on duration has considered wars, or events that generate at least 1000 casualties, either in a given year or over the course of a conflict. Since the threshold here is considerably lower, some patterns established for large wars may not hold and vice versa.

(2002). Collier et al. proxy valuable lootable resources by prices of export commodities and the ratio of natural resource export over GDP. Although the argument relating resources to civil war seems plausible, neither of the measures proposed by Collier et al. seems persuasive. Fearon (2005) outlines a number of problem with the Collier et al. measures. Efforts are underway to create more systematic data on lootable resources (see, e.g., Buhaug and Lujala 2004), but these are not yet publicly available and we leave this issue for future research.

We also believe that the aims of a conflict are likely to influence its duration, a point also made in Fearon (2004). In particular, coups or efforts to take over the government from individuals within the military or state apparatus should be expected to be short, as coup attempts either fail or succeed relatively quickly.<sup>8</sup> By contrast, challenges over secession or territory are often fought in the periphery where a government is relatively weaker (a point also emphasized by Buhaug and Gates 2002). We include a dichotomous indicator of whether the conflict qualifies as a coup attempt. Fearon (2004) also suggests that anti-colonial conflicts, fought in overseas territory, have tended to be shorter than other conflicts. In our data, conflicts waged in colonies are included as conflicts in the metropole, but we include a binary indicator of whether conflict is fought on a country's territory.

We also include a number of usual suspects from the civil war literature, where the exact expectations with regards to duration are less clear. Many researchers argue that ethnic conflicts display different mechanisms than other conflicts (see, e.g., Sambanis 2001). Kaufman (1996), for example, argues that civil wars are likely to display an all or nothing character, and that conflicts between ethnic group faces no permanent solution short of territorial partition (for alternative views,

<sup>8</sup> Moreover, since many successful coups will not generate sufficient casualties to reach the threshold for civil wars, the coups classified as civil wars may have an overrepresentation of challenges that ultimately fail and are relatively easier for a government to repress.

see Sambanis 2000; Tir 2003). The NSA data contains a tentative classification of conflict type, and we include a dummy variable separating conflicts involving ethnically based groups seeking secession or autonomy. To determine whether a given war should be classified as ethnic is wrought with some difficulties. For example, should the EZLN in the Chiapas province in Mexico be considered an ethnic indigenous movement or an ideologically based group? A somewhat less subjective approach would be to look at some measure of fragmentation and see if societies that have a greater number of ethnic groups are likely to have more persistent civil wars. To account for possible differences in duration between wars that take place in more ethnically factionalized societies, we include an fractionalization index based on the proportional size of ethnic groups, as identified by Fearon (2003). The value on this index can be interpreted as an estimate of the probability that two randomly selected individuals will belong to the same ethnic group.

Since we split conflicts involving several parties into different dyads, the individual dyads may not be fully independent of one another, and duration may be influenced by the number of parties participating in a conflict.<sup>9</sup> Cunningham (2004b) shows that civil wars that involve a greater number of veto players that can block the implementation of an agreement tend to have longer duration. Although veto players are not exactly the same as dyads in a conflict, it is possible that similar features may apply to conflicts with more than one non-state actor. To control for whether duration increases in the number of separate actors, we include a measure of whether other dyads are active in the same conflict.

<sup>9</sup> Following Gleditsch (2004) and Gartzke and Gleditsch (2004) we would also expect that duration could be influenced by third parties and actors even when these do not participate as combatants, but we leave this issue aside for now.

## Empirical Analyses

Our dependent variable is the duration of each conflict dyad, or in the language of survival analysis, the time until failure or a conflict dyad is coded as becoming inactive. Since we include many conflicts that do not generate sufficient number of deaths to qualify under the war threshold employed in other studies of duration such as Fearon (2004) and Collier et al. (2004), many of the conflicts in our sample are relatively short. Figure 1 displays a non-parametric estimate of the survival function, or time until the recorded end of each conflict dyad.<sup>10</sup> As can be seen from the figure, about 50% of the conflicts are only active for around year. About 25% or so last longer than 6 years, while only about 10% last beyond 10 years. However, as we have mentioned, the term civil wars includes a very heterogeneous set of conflicts in terms of their duration. As we speculated previously, coup d'états tend to be shorter than other conflicts in the sample, and often terminate in as little as a single day. Removing these from the sample leads to a more slowly decaying survivor function.

<sup>10</sup> The Kaplan-Meier estimate of the survival function is given by  $\hat{S}(t) = \prod_{j|t_j \leq t} \left( \frac{n_j - d_j}{n_j} \right)$ , where  $n_j$  is the number of individuals at risk at time  $t_j$  and  $d_j$  is the number of failures at time  $t_j$ .

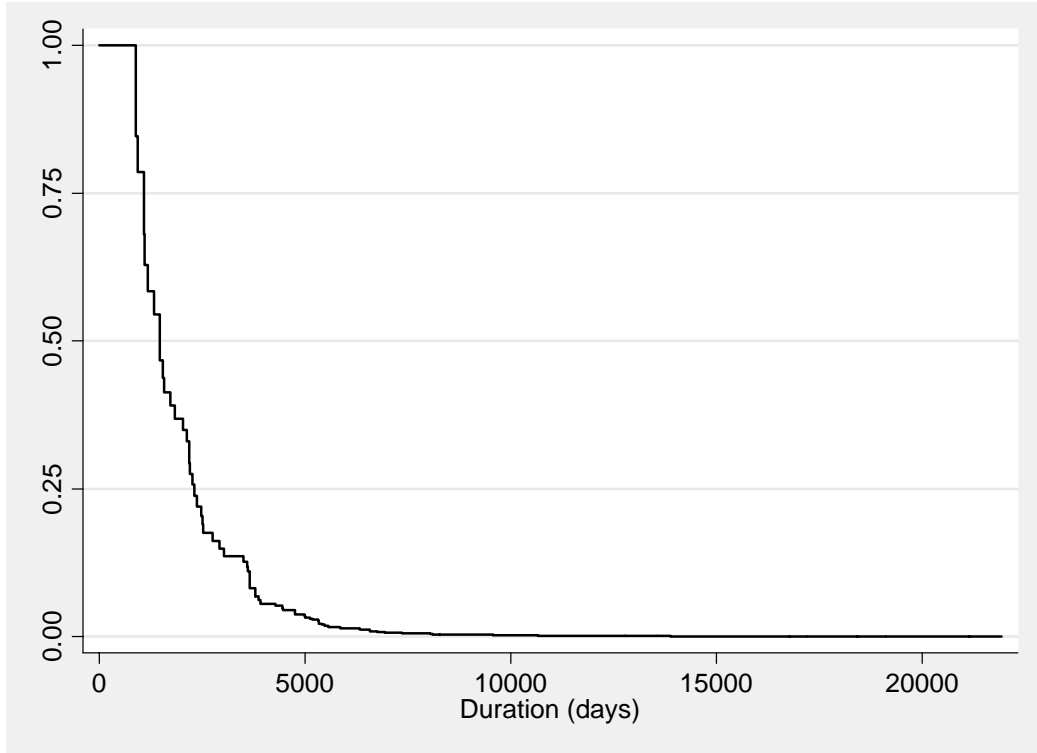


Figure 1: Kaplan-Meier estimate of conflict survival

Our hypotheses pertain to conditional duration of conflict, given a set of covariates. There are many varieties of survival or event history analyses that allow testing hypotheses about duration, conditional on a set of covariates. We start by reviewing the main concepts and terminology in survival analysis, where researchers examine the probability of events in terms of the likelihood that the event will occur within some specified time interval. For a random variable  $T$  denoting the time until an event, the cumulative distribution function  $F(t) = \Pr(T \leq t)$  indicates the likelihood that an event will occur by some point time  $t$ . Alternatively, we can examine the survival function  $S(t) = 1 - F(t) = \Pr(T > t)$ , which tells us the likelihood that  $T$  will survive beyond  $t$ . The hazard function  $h(t)$  is the limiting probability that an event will occur in an interval  $t + \Delta t$ , given that the unit has survived or not experienced the event until  $t$ . The hazard rate  $h(t)$  is given by the ratio

of the density function to the survival function  $h(t) = \lim_{\Delta t \rightarrow 0} \frac{\Pr(t + \Delta t > T > t | T > t)}{S(t)} = \frac{f(t)}{S(t)}$ , where the

density function can be derived from either the cumulative distribution function  $F(t)$  or the survival

$$S(t), \text{ since } f(t) = \frac{dF(t)}{dt} = \frac{d\{1 - S(t)\}}{dt} = -S'(t).$$

Parametric survival analysis models specify a particular form of the hazard function  $h_i(t) = g(t, \mathbf{x}'_i \beta)$ , based for example on the exponential or Weibull distribution. Parametric models have the advantage of allowing researchers to compare if a postulated form of time dependence seems appropriate for the observed data. However, parametric survival time models also require that the hazard function is correctly specified, and the estimated results can be severely misleading if this is not the case. If theory does not strongly suggest a particular functional form for the hazard, there is often little in the data themselves to suggest one parametric form over another. By contrast, the semi-parametric Cox (1972) proportional hazard model does not require the analyst to specify a form for the baseline hazard. In the Cox model, the hazard rate for an observation  $i$  at time  $t$  is given by  $h_i(t) = h_o(t) \exp(\mathbf{x}'_i \beta)$ . However, the baseline hazard  $h_o(t)$  is not estimated directly in the model, as the hazard rate drops out of the model when we take the ratio of hazard rates in the event of a failure. The coefficient estimates  $\beta$  in a Cox model indicate the impact that a set of covariates  $\mathbf{X}$  exert on the baseline hazard. In the Cox model, a positive coefficient estimate indicates that a covariate increases time until a failure event, or increases the duration of a phenomenon. By contrast, negative coefficients indicate that the hazard rate increases, or that the probability of a failure in the next interval increases and that expected survival is shorter. We refer to Box-Steffensmeier and Jones (2003) and Kalbfleisch and Prentice (2002) for further details on the Cox proportional hazard model and its relationship to other event history analysis models.

Our data contains 402 separate conflict dyads. However, in the NSA data, the individual entries are not necessarily limited to single dyads. We have changes in the characteristics of the non-state actors during the course of the conflict, and these are reflected in different entries in the dataset. Since the covariates believed to influence the hazard of conflict termination can change over time, our data matrix reflects the time varying covariates and we have an N of 2113 observations. As most of the data that we have available are measured over calendar years, the individual observations in our data for conflicts that continue for more than a year will generally correspond to calendar years. The Cox model is particularly well suited for handling time varying covariates, since the hazard rates are only calculated at failures. However, since the individual row observations in the data matrix now cannot be considered independent of one another, we report robust standard error estimates taking into account the nesting of observations in conflicts, based on the generalization of the Sandwich estimator developed by Lin and Wei (1989).

Tables 1 and 2 display the estimated Cox results for two variants of our general model. Model 1 in Table 1 uses the disaggregated indicators of the “strength” of non-state actors, while Model 2 in Table 2 displays the comparable results for a model replacing the disaggregated indicators with a categorical strength variable, with two dummy variables indicating if the non-state actor is stronger or at parity with the government.

Table 1: Cox proportional hazard estimates for Model 1

Variable	Coef	SE
Territorial control	<b>-0.376</b>	<b>0.152</b>
Strong central command	0.135	0.163
High mobilization capacity	<b>0.444</b>	<b>0.203</b>
High arms procurement capacity	<b>1.111</b>	<b>0.444</b>
High fighting capacity	0.543	0.386
Legal political wing	<b>0.587</b>	<b>0.224</b>
War on core territory	0.403	0.259
Coup d'etat	<b>3.285</b>	<b>0.318</b>
ELF index	-0.014	0.372
Ethnic conflict	0.137	0.186
Ln GDP per capita	<b>0.186</b>	<b>0.077</b>
Democracy	<b>-1.202</b>	<b>0.189</b>
Two or more dyads	<b>-0.295</b>	<b>0.137</b>
Ln population	<b>-0.17</b>	<b>0.051</b>

N = 2113

Wald chi2(14) = 297.14

Log pseudolikelihood = -1379.0698

Note: Estimates in bold have coefficients more than two times their standard error

As can be seen from Tables 1 and 2, we find strong evidence for our main expectations. We note that all the indicators of stronger non-state actors in Model 1 increases the hazard rate, or make it more likely that a conflict will end. The coefficient estimate for strong central control, however, is of relatively modest size and not significantly different from 0. Although the coefficient estimate for high fighting capacity is relatively large, the large estimated standard indicates considerable uncertainty over the estimated effect. Nonetheless, we see these results as providing strong evidence consistent with our claim that stronger insurgents are associated with shorter conflicts, and that different features might serve as potential substitutes in making a non-state actor “strong” relative to a rival government. In Model 2, we find a similar relationship for the combined measure of relative

strength, suggesting that conflicts in dyads where the rebels are at parity with the government will tend to be shorter and that that conflicts where the rebels are stronger even more so.

Table 2: Cox proportional hazard estimates for Model 1

Variable	Coef	SE
Territorial control	<b>-0.483</b>	<b>0.164</b>
Rebels stronger	<b>1.123</b>	<b>0.275</b>
Rebels at parity	<b>0.412</b>	<b>0.202</b>
Legal political wing	<b>0.579</b>	<b>0.233</b>
War on core territory	0.159	0.257
Coup d'etat	<b>3.267</b>	<b>0.319</b>
ELF index	0.156	0.38
Ethnic conflict	0.156	0.189
Ln GDP per capita	<b>0.183</b>	<b>0.077</b>
Democracy	<b>-1.197</b>	<b>0.19</b>
Two or more dyads	<b>-0.278</b>	<b>0.134</b>
Ln population	<b>-0.153</b>	<b>0.053</b>

N = 2113

Wald chi2(12) = 241.33

Log pseudolikelihood = -1385.3676

Note: Estimates in bold have coefficients more than two times their standard error

Absolute rebel strength in terms of capacity to challenge is not the only feature that can make it harder for a government to exterminate an insurgent group. We have argued that it will be particularly hard for a government to win a decisive victory in conflicts where insurgents exercise control over territory, even if rebels may appear to be militarily much weaker than the government. We find strong evidence of this in our results. As can be seen, both Models 1 and 2 suggest a posi-

tive estimated coefficient for territorial control, indicating that conflicts where the government cannot target rebels effectively in some area tend to last longer.

We have argued that conflicts where the insurgents can substitute non-violent political activities for violent activities will tend to be shorter. Tables 1 and 2 suggest that our key measure of ability to substitute violent for non-violent means – whether the rebels have a legal political wing – indeed is associated with much shorter duration. Interestingly, these results do not simply reflect a difference between autocratic and democratic political systems, but hold even when we control for political system in which the government is recruited. Indeed, we find that regardless of how we measure democracy – whether as a binary dummy variable, a linear covariate with a country’s Polity score, or including both the raw values of the Polity score as well as its square – we find that democracy has a negative coefficient, indicating that conflicts in democratic states on average tend to be longer, not shorter. We are not sure if too much should be made of this result for democracy, as a large number of the long lasting wars in democracies pertain to India, Israel, Colombia, and Myanmar (which is considered a democracy in Polity data from 1948 to 1962), as well as the conflict in Northern Ireland.<sup>11</sup> To some extent, the lack of any evidence that democratic institutions by themselves are associated with shorter wars strengthens our argument that conflict settlements can be enhanced when rebels can pursue their aims through a political wing, even in a non-democratic political system. We also examined whether there was any evidence of interaction between the effects of legal political wings and political democracy, but found no evidence for this in our data.

The results with regards to differences in duration across conflict types are somewhat mixed. Not surprisingly, we find strong evidence that coup attempts are much shorter than other civil conflicts. However, there is no evidence in these results that “ethnic” conflicts are more persistent than

<sup>11</sup> Another possibility is that democratic states that find themselves in civil war may find it more difficult to enact effective military measures to defeat or contain insurgents than other states less constrained by public opinion.

other forms of conflict. Indeed, the estimated coefficient is positive, although not significantly different from 0, suggesting that if anything, ethnic conflicts appear to be on average shorter than other conflicts. Consistent with Cunningham (2004b), we find that conflicts that have more than one dyad or non-state actor tend to last longer than other conflicts. Finally, there is some evidence that conflicts that are not waged overseas or on non-contiguous territory have been somewhat shorter than colonial conflicts, but the difference is not statistically significant.

For the other control variables, the results are generally consistent with expectations. Civil wars appear to last longer in larger countries, as the coefficient estimate for the log of population size is negative. Likewise, we find that the natural log of GDP per capita has a positive coefficient estimate, suggesting that civil wars tend to be more persistent in societies with lower income. Since GDP per capita conceivably might fall as a result of longer conflict duration we have also experimented with replacing the GDP per capita values with initial figures prior to the war outset, and these results are generally similar. Finally, we find no evidence that civil wars last systematically longer in more ethnically factionalized societies. Some authors, notably Collier et al. (2004), argue that ethnic diversity has a curvilinear effect on conflict duration. However, we find no support for this specification.

\*\*\*\* Robustness checks and substantive interpretation to be added here \*\*\*\*

## **Discussion and Conclusion**

In this paper, we have argued that much of the existing literature on civil war has suffered from taking an overly state-centric view of conflict, which ultimately consists of a series of dyadic interactions between a government and a non-state insurgent actor. We have examined a simple model of

dyadic interaction and its implications for conflict duration. We argued that strong insurgent groups should be more likely to mount effective challenges or obtain concessions from governments. We also expected that features that make it more difficult for states to launch decisive blows against insurgents should make conflict more likely to last longer. Moreover, we have argued that factors that make it easier to substitute non-violent political means violence for should increase the chances of a faster settlement. We believe that our empirical results provide strong support for our conjectures, and more generally, illustrate the possibility of making progress in the literature on civil war by identifying how attributes of non-state actors and states interact to make conflict more or less likely. We make no claim, however, that the factors that we have concentrated on here, namely ability to mount effective challenges and ability to resist, are the only relevant dyadic conflict attributes in the study of civil war. In the next paragraph, we outline a number of additional aspects that we believe deserve attention and that we plan to address in our future research.

First, the lack of attention to attributes of the non-state actors is certainly not the only problematic state-centrism bias in existing cross-national studies of civil war. In particular, we believe that much of the empirical on civil war also suffers from a geographic aggregation bias, since most characteristics considered as explanatory factors are either country-level attributes or national averages that can mask considerable variation within countries. The characteristics that may motivate groups to take up arms or feel threatened are often inherently local, and may not bear any resemblance to national level aggregates. This can easily be seen in the context of many measures of ethnic heterogeneity and fractionalization. Minority groups seeking independence such as the Achinese in Indonesia are often a trivial fraction of the national population (minorities are after all by definition smaller). As a result, they will not exert much impact on ethnic fractionalization measures at the national level such as the ELF index. The more relevant question, however, is what group relations look like at the local level, and how they relate to opportunities for collective. Groups such as the

Achinese that appear small at the national level can be a majority in the area where they seek to secede. Weiner (1978) argue that such “sons of the soil” movement can capitalize on resistance to migrants from the dominant group, and have an advantage in organizing locally. We find evidence in this paper that measures of strength for nations at large can be very different from measures of the ability to wield power in a specific locale, and we hope to be able to consider additional local characteristics of dyadic interaction in future research.

Second, we think that existing research has gone too far in considering the states where civil wars take place as isolated entities, ignoring their relationship to actors outside the country and processes transgressing international boundaries. We have shown elsewhere that such transnational factors as conflicts in neighboring countries, rivalry, ethnic ties, and migration influence the risk of civil war, even when we control for the main country characteristics believed to be associated with civil conflict (Gleditsch 2004; Salehyan 2005; Salehyan and Gleditsch 2004). Such external features are also likely to influence dyadic interactions. For example, we would expect that insurgents groups that can mobilize resources among diasporas and maintain bases outside the boundaries of the state will be more impermeous to repression. Even when states possess the technical capacity to repress, crossing international boundaries in efforts to retaliate against insurgents creates additional risks. We have collected data on the external linkages of conflicts and dyadic actors, and plan to explore the impact of such linkages on outcomes at the dyadic level in future research.

Finally, although we think that a dyadic perspective treating governments and insurgents as actors is a useful approach to disaggregating the study of civil war, there are many other forms of disaggregated perspectives that could provide additional insights and compliment dyadic studies in civil war. In particular, we believe that the study of civil war can benefit from greater use of survey data at the micro level to understand the relationship between micro-level processes and war as a macro level outcomes. Some incipient research along these lines has considered attitudes on demo-

bilization and the relationship between grievances/opportunity costs and support for violent means (see Humphries and Weinstein 2004; see MacCulloch 2004).

Academic interest aside, we believe that our results have considerable policy relevance when it comes to efforts to contain civil wars or limit the consequences of such conflict. In the recent political climate and the so-called war on terrorism, many states have become increasingly concerned about the international ramifications of civil wars and the activities of groups involved in conflict within states. Although we share the view that civil wars have many international linkages, we believe that many existing policy initiatives build on flawed assumptions and are likely to have perverse unintended consequences. Civil wars have often been linked to the problem of weak and failing states, and many have argued for initiatives providing military and logistical support to state governments in their efforts to win a decisive victory against insurgents. Leaving aside questions normative questions about whether rebellions (at least in some occasions) may originate from legitimate grievances that one would wish governments to address, our results here suggests that such efforts are far less affective than often assumed. Weak rebels in the periphery have defied vastly more powerful governments, and increasing government capabilities alone may not lead to shorter conflicts. One example that comes to mind is the so-called Plan Colombia initiative, where massive US aid to the government since 2000 has had little success so far in defeating the FARC rebels. Moreover, military means are often combined with increased political repressiveness against non-violent opposition. Even if violence becomes more costly, the relative price of violence may remain lower if the costs of alternative political means increases even more. This can apply even in the context of a democratic system, which in principle provides a way for groups to pursue their objectives by political means. Limiting participation to particular extremist groups, no matter how repugnant one might find their views, may also limit the effectiveness of democracy. In banning Herri Batasuna, commonly seen as the political wing of ETA, the Spanish government may have drastically

limited the available non-violent means for Basque extremist, and increased their incentives to rely on violence.

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