

The Geography of Secession

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ABSTRACT

Rob Williams: The Geography of Secession
(Under the direction of Mark J.C. Crescenzi)

Secessionist conflicts often begin in places abundant with resources and located far from the centers of state power. These factors make it easier for rebels to form a functional state within the borders of their territory following independence. Many regions that meet the necessary conditions for sovereign governance in the world, but there are few secessionist conflicts. This relative paucity of secessionist violence is the result of government preemption of potential separatist movements. The secessionist conflicts we do observe are the result of government failure to adapt to changes in outlying territories sufficiently quickly, allowing dissident groups to gain a foothold and initiate a secessionist campaign. In extreme cases, governments may relocate large populations of the dominant social group to minority territories to deter secession by diluting the minority's power locally. I test these arguments using cross-national geospatial data, and find that governments develop higher levels of state capacity in more governable, and thus more secession prone, regions. I derive empirical implications for government informational capability and conflict onset using an agent-based model. Qualitative case studies show that governments engage in demographic engineering when they fear secessionist ambitions, but highlight the risk of backlash sparking a low-level conflict. Taken together, these dynamics suggest a pattern where the rebel groups that do emerge are not the most capable of potential rebel groups as minorities that live in territories suited to secession are carefully surveilled and managed by governments. Information plays a central role in both explanations of how governments work to preempt conflict, and when these efforts fail. By focusing on the role of information, this dissertation deepens our understanding of conflict onset, while suggesting ways to improve our knowledge of conflict evolution and outcome. Improving information flows from minority group territories may reduce the risk of violent secessionist conflict.

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LIST OF ABBREVIATIONS

EZLN	<i>Ejército Zapatista de Liberación Nacional</i>
HHI	Herfindahl–Hirschman index
ICT	information communication technology
IIA	independence of irrelevant alternatives
GAM	Free Aceh Movement
GDP	gross domestic product
KDP	Kurdistan Democratic Party
KRG	Kurdistan Regional Government
LTTE	Liberation Tigers of Tamil Eelam
MCMC	Markov chain Monte Carlo
PPV	Positive Predictive Value
PUK	Patriotic Union of Kurdistan
RMSE	root mean squared error
ROC	Receiver Operating Characteristic
RPC	relative political capacity
RPR	relative political reach
SPLM/A	Sudan People’s Liberation Movement/Sudan People’s Liberation Army
SPLM-IO	Sudan People’s Liberation Movement-in-Opposition
TEK	transborder ethnic kin
WAIC	Watanabe–Akaike information criterion
WWI	World War I
WWII	World War II

CHAPTER 1: INTRODUCTION

When self-determination movements turn to violence in the pursuit of their goals, they sometimes seek independence, but other times aim for greater autonomy under the authority of their existing government. When the *Ejército Zapatista de Liberación Nacional* declared war on the Mexican government in 1994, they did not demand independence, but rather autonomy within Chiapas. The Papuans in the Indonesian provinces of Papua and West Papua have fought for independence or reunification with neighboring Papua New Guinea. The Bengali population of East Pakistan successfully separated from the rest of Pakistan and formed the present-day state of Bangladesh. The Kurdistan Democratic Party fought for increased regional autonomy in the First Iraqi-Kurdistan War during the 1960s. While each of these movements sought to exercise increased local political power with decreased external interference, they varied considerably in the degree of independence they sought.

When self-determination movements turn to violence to advance their aims, why do some agitate for secession and independence from their host states, while others are content merely to seek increased autonomy under the authority of the state? If self-determination movements are frustrated with their state of affairs to the point of willingness to employ violence, why stop short of a demand for independence? Independence would mean freedom from having to deal with an uncooperative government and the ability to organize the new state according to their ideals.

Groups fight for secession when they believe that governing as an independent state in the wake of their victory will be feasible, and settle for increased autonomy when they believe that governing independently would be less practical. The responsibilities that a group must take on in the wake of a successful bid for independence are enormous, and if it believes that it is not equipped to carry them out, then autonomy can be a more realistic and attractive goal. While aspects of a group like its degree of internal cohesion or fragmentation clearly affect how able it will be to fulfill the duties of governing, there are also important external determinants of how easy it will be to govern.

Modern nation-states are territorial political entities, and so group structure is only one half of the equation for how well a group will be able to govern. The other half is how difficult it will be to govern the specific territory that a group will control. The governability of a territory can be influenced by numerous geographic factors such as the location and abundance of natural resources, or how easy it is to move between population centers. Similarly, the human geography of a territory can determine how governable it is for a specific group. Are people clustered in dense urban populations, making the administration of the territory easier? Are there numerous other ethnic groups in a territory that would be unlikely to submit to majority rule by the self-determination group? The environment also plays a role by affecting how productive agricultural lands are and what diseases a state's citizens must contend with.

In this dissertation I focus on the latter dimensions of governability: those tied to attributes of specific pieces of territory, rather than those that describe the groups seeking to rule them. This definition encompasses geographic factors which are continuously distributed across a territory and vary throughout its area. Groups will fight for secession when the territory that they occupy is more conducive to their governance, and for autonomy when it is less so.

This focus on geography highlights the absence of the state in the theory as discussed thus far. If geography affects how governable a group's territory is, then geography also makes that group more likely to pursue secession should it turn to violence. While governments may struggle to know and comprehend the informal institutions of a nascent rebel group due to their secretive nature, they have far less trouble knowing what type of territory that group inhabits. Geographic factors are slow to change and more easily observable. The readily observable nature of geographic factors means that governments are also able to identify the territories most suited to secession and therefore most likely to secede. They then use this knowledge to act preemptively and prevent secessionist movements from emerging in these areas.

However, states are not always able to successfully execute these preemption efforts. Preventing the formation of secessionist movements requires directing the coercive apparatus of the state to areas where they are most likely to form. When governments are slow to learn of changes in governability in far-flung regions, they can be slow to update their level of preemptive activities. If they fail to update quickly enough, this can give dissatisfied minorities the window of opportunity they need to mobilize a secessionist movement.

Finally, states are aware of this relationship and may take proactive measures to reduce the likelihood that groups which turn to violence will seek independence and sovereign statehood instead of more limited autonomy goals. States may encourage immigration by members of dominant ethnic groups to a restive minority group's territory, increasing its ethnic heterogeneity, and thus decreasing the group's ability to govern it independently. Even if this strategy ultimately fails to prevent a violent self-determination movement from emerging, it can put governments in a favorable position from which to combat it by entrenching the power of the state within the region.

I develop and test these theories with a multi method approach using large- N quantitative analysis, agent-based models, and qualitative case studies. In different chapters I draw on a broad array of data sources ranging from recent global geospatial data to narrative accounts of resettlement efforts stretching back to the end of the 19th Century.

1.1 Significance

This dissertation addresses a topic of considerable significance in political science. Nationalism is the foundation of the modern nation state, and by exploring how potential secessionist rebels decide which battles to fight, it provides insight into how states handle constrained decision-making problems. In doing so, it foregrounds the fact that rebels, and potential rebels, face the same set of obligations and opportunities as states. They must satisfy their constituents while fighting to retain political power.

Linking geography to state building offers important advances for both the study of contemporary rebellion and preemption and the study of historical nation formation. Work on state building in early modern Europe (Tilly 1975, Tilly 1992, North & Weingast 1989) or the colonial period (Acemoglu, Johnson & Robinson 2001) tends to focus on political institutions and ignore the territories those institutions occupied. Adding geography to this story can help provide more complete explanations for divergent outcomes in historical development.

Similarly, the contemporary civil war literature is very focused on conflict onset (Fearon & Laitin 2003, Collier & Hoeffler 2004, Buhaug 2010, Cederman, Buhaug & Rød 2009, Cederman, Wimmer & Min 2010, Siroky & Cuffe 2015, Hegre, Allansson, Basedau, Colaresi, Croicu, Fjelde, Hoyles, Hultman, Högladh, Jansen, Mouhleb, Muhammad, Nilsson, Nygård, Olafsdottir, Petrova,

Randahl, Rød, Schneider, von Uexkull & Vestby 2019). While much work does treat conflict duration (Fearon 2004, Cunningham 2006, Buhaug, Gates & Lujala 2009) and outcome (Cunningham, Gleditsch & Salehyan 2009, Akcinaroglu 2012, Balcells & Kalyvas 2014, Schutte 2015, Greig, Mason & Hamner 2016, Chu & Braithwaite 2018), these studies often operate in isolation. By emphasizing the importance of post-conflict possibilities in explaining conflict prevention efforts, this dissertation illustrates the necessity of considering all potential stages of a conflict when studying onset. Rebel groups and governments are strategic actors, and failing to consider these possibilities is akin to ignoring their capacity for strategic behavior.

By focusing on ways in which governments use geography to identify and thwart potential secessionist movements, I shed light on the relative absence of successful self-determination movements in recent times. While South Sudan gained independence in 2011, it is the only recent case of a successful bid for independence. The theory of geographic governance and prevention encompasses a range of strategies from beneficial to coercive to violent, explaining patterns in a broad variety of cases across a spectrum of regime types.

The ways in which governments identify likely secessionist groups and act to frustrate their ambitions are of exceptional relevance to policymakers. This logic can explain why governments persist in supporting migration from populated areas to remote minority regions even when such movements spark unrest and outrage locally. Furthermore, if more governable territories are more prone to secession, then policymakers can help identify development and aid strategies that are less likely to spur conflict down the road.

1.2 Literature Review

I begin by reviewing the literature on nationalism, self-determination movements, and independence demands. Following this, I build on insights from the state formation literature as they relate to the need for rebel groups to govern in the wake of a successful secession bid. To provide context for an understanding of rebel groups as potential state-builders, I review the literature on space and conflict. I note where existing work touches on the role of these elements in rebel strategic choice and where it focuses more narrowly on their role in conflict.

To develop a theory of how geographic factors affect the goals that rebel groups pursue, we need to draw on insights from three distinct streams of research within the literature: work on nationalism and self-determination, scholarship on state formation, and the spatial conflict research project. Understanding the gravity and consequences of independence claims means we can confidently separate groups which fight for secession and autonomy without worrying about the possibility of strategic misrepresentation. The state formation literature is important because a successful secessionist group will have to found a new state, so it is important to consider the demands and opportunities facing newly emerged states. While it is primarily focused on explaining the onset of conflict, the geographic conflict literature contains many insightful observations about the relationship between violence and space, and groups take these realities into account when deciding how to fight their battle against the state.

1.2.1 The Sincerity of Secession

The starting point for understanding territorial conflict is nationalism. Groups only engage in territorial conflict — the struggle to create new and alternative political institutions within the boundaries of a given territory — when motivated by nationalist desire. Ernest Gellner writes that

nationalism is a theory of political legitimacy, which requires that ethnic boundaries should not cut across political ones, and, in particular, that ethnic boundaries within a given state . . . should not separate the power-holders from the rest (1983, 1).

Thus, territorial conflicts represent an attempt to replace existing geographic political divisions with ones that more closely support the “nationalist principle” (Gellner 1983) that the government of a state should represent the interests of the “imagined community” of the nation (Anderson 1983) that lives within its borders. This type of conflict hopes to alter the institutions within a specific territory by either gaining more autonomy from the central government, or by withdrawing from the current, non-representative, state and forming a new one (Gleditsch, Wallensteen, Eriksson, Sollenberg & Strand 2002). These conflicts are less threatening to governments than governmental ones because the group has no desire to overthrow or replace the existing government. Instead, a group’s aims and ambitions are limited to changes within territory that is ‘theirs,’ by reducing or eliminating the

influence of the government within this area. Focusing on territorial conflicts allows me to make meaningful comparisons across different areas because groups are tied to their specific territories.

If territorial conflict encompasses both secessionist and autonomy-seeking civil wars, then it is important to understand the distinctions between the two. Both will result in policies that more closely align with the ideal point of the minority group that lives in the territory. However, autonomy entails some degree of compromise; even if all of the policy demands of the group are met, they still will not have their own state, in violation of the nationalist principle. Secession can be seen as the more ‘extreme’ of the two forms of territorial conflict. This relationship implies a question: why do some groups fight for autonomy and some for secession?

Research on self-determination groups more broadly – those both violent and nonviolent – may hold the answer. These groups frequently change the extent of their claims. Erin Jenne views secession and increased regional autonomy as two points along the spectrum of “demands” on the government that minority groups can dynamically move between as part of their bargaining process with the majority (2007, 39-41). As their bargaining leverage and capabilities increase or decrease, groups will make more or less extreme demands of the majority. Donald Horowitz (1991, 13) concurs, noting that

groups . . . are not born irredentist or secessionist. They can and do move back and forth from integrated participation in the state of which they are part to a posture of secession or irredentism.”

Empirically, the proportion of self-determination groups making secessionist demands varies significantly over time, with individual groups making both types of demands over time (Cunningham 2014, 72). It is a logical extension to argue that groups which have already escalated to violent conflict with the state also operate along this sliding scale, with shifts in demands reflecting changes in their bargaining leverage. There is nothing fundamental that makes secession inherent to some groups and autonomy inherent in others. Instead, the choice of goal is a function of the constraints that a group faces and the strategic environment that it operates in. Stated goals, whether secession or autonomy, are a reflection of what a group can reasonably hope to achieve.

An alternative possibility is that groups act strategically and make demands that are more extreme than their actual desires as a bargaining technique. Anthony Smith (1982, 19) argues that it can be

difficult to be sure whether a given strategy represents a sincerely held belief or is only a tactic . . . it seems wiser to not make too sharp a distinction between autonomism and secessionism.

If groups can credibly make maximalist demands, then they will have more leverage in negotiations with the state. Secession is a more extreme demand than increased autonomy because it involves challenges to “the integrity of the state itself” (Jenne 2007, 40), and as a result should give groups a better bargaining position. If this is the case, why do all self-determination groups not clamor for secession at all times?

The very fact that groups do not always advocate for secession should lead us to question whether they make these demands strategically. According to Cunningham (2014, 72), the proportion of self-determination groups calling for secession has never passed .55 since 1960. Groups sometimes limit their demands because of the unique nature of secession and independence claims.

Self-determination groups that advocate a policy of secession may settle for autonomy if they are unable to triumph on the field of battle or force the state to accept their terms. What they will not do is turn down the possibility of secession if offered. Doing so would entail disappointing their supporters and leaving their nationalist fervor unrequited. This unfulfilled nationalist desire would generate significant audience costs for the group’s leadership. In effect, secession is an offer that can’t be refused.

In order for a group which initially pushed for secession to successfully accept a lesser achievement of increased autonomy, its leadership must be able to convince its mass supporters that it was unable to force the government to grant more concessions. If a group is strong and capable of governing in the wake of independence, its supporters are likely to know this. A group which is able to govern will not be able to turn down an offer of independence from the government because its supporters will punish it for not securing as much independence as it could.

South Sudan’s short history since its independence in 2011 illustrates the pitfalls of pushing for secession if a group is not prepared to take up the reins of government. Although 98.8% of South Sudan’s population voted for independence in a 2011 referendum (Gettleman 2011), the young state has been plagued by problems since then. After putting down an alleged coup in late 2013, president Salva Kiir Mayardit’s government has been engaged in a civil war with the Sudan People’s Liberation

Movement-in-Opposition (SPLM-IO) led by former Vice President Riek Machar (Johnson 2014). Deep-seated cleavages between factions within the ruling Sudan People's Liberation Movement resulted in a weak state that was unable to prevent a challenge from Machar (Rolandsen 2015), but also unable to defeat him. The SPLM could likely have remained unified if South Sudan did not become independent due to a common enemy in Khartoum. With hundreds of thousands of thousands dead in the conflict to date (Reuters 2018), South Sudan is an example of what happens when leaders miscalculate and pursue secession when autonomy may be a better goal.

Self-determination groups that advocate for secession may be willing to settle for autonomy. However, no group that is unwilling or unable to accept secession as an outcome would agitate for it. Why would any group not desire secession? Formal independence and the ability to forge a functioning government within the territory of a new state are two very different things (Clapham 1996, Clapham 1998, Englebert 2000). Work which explains when groups push for secession has typically focused on how capable groups are of defeating the government (Toft 2003), but this is only half of the story. The following section explores the challenges of state-building, which provides insight into why some groups may not be willing or able to accept secession.

1.2.2 Rebel Groups as (Potential) State-Builders

By focusing on territorial conflicts, I seek to explain why some groups seek increased autonomy within the confines of existing states while others desire their own states. Answers to this question have frequently concentrated on the group's assessment of its outlook within the state:

Self-determination here may mean either democratic self-rule or the exercise of cultural autonomy, depending on whether the national group in question believes it can achieve its goals within the framework of an existing state or seeks a state of its own (Ignatieff 1994, 6).

Yet this ignores an equally important question: how possible would it be for the group to create a new state?

The end goal of both independence and autonomy movements is political power, but the requirements that groups must meet to actually exercise this power are drastically different. Autonomist

movements may not have to make any serious adjustments to be able to use their amplified political voices. On the other hand, secession requires the creation of a new state from whole cloth.

As a result, each goal demands different levels of political capability for post-conflict success. A group that is capable of administering an autonomous region may not be able to govern an entire state. Rebels are cognizant of this fact:

a nationalist movement, to stand any chance of gaining sovereignty for its group, must . . . begin the process of evolving organisations, cadres and institutions able to act as a 'proto-state' the moment independence is achieved. It must, as it were, prefigure the polity it wishes to erect, by creating a counter 'state with a state' as part of the fabric of the 'movement,' and train its followers in the political and administrative tasks they must perform when power is assumed (Smith 1976, 7).

If a secessionist rebel group hopes to have any chance of success after securing military victory, it must plan for and commence the process of state-building well before triumphing on the battlefield.

The need for rebel movements to begin building the institutions that will eventually become those of a new state even in the earliest stages of a conflict means that they will be acutely aware of how difficult this task will be for them. If it seems insurmountable given the context a group exists within, then perhaps independence is not the most wise goal to pursue. Thus, the easier it would be to create a new state, the more attractive this option will be to the rebels. Conversely, the more difficult it will be to build a new state, the higher the chance that the group will seek increased autonomy instead. Given the territorial nature of states, the nature of the territory that the group controls and hopes to rule is one of the largest influences on how difficult this task will be.¹

In order to understand what makes certain territories more or less conducive to the creation of new states, I draw on the state formation literature. If specific factors helped or hindered the formation of extant states, then we can reasonably argue that these same forces affect the creation of new states, and in turn influence whether a given rebel group seeks to secede or is satisfied with increased autonomy.

¹Other factors such as the quality of political institutions (Lemke & Carter 2016) or the presence of external financial support (Stokke 2006) obviously matter as well, but they have been more extensively studied. I choose to focus on the effects of territory, while drawing on this literature to identify important controls.

A state is “a human community that (successfully) claims the *monopoly of the legitimate use of physical force* within a given territory” (Weber 1965, 2). Groups that challenge the monopoly on the legitimate use of force fight governmental conflicts. Those that focus on the second half of Weber’s definition, that the monopoly is exercised ‘within a given territory,’ fight territorial conflicts. I focus on this latter group to facilitate comparisons between different territories.

In less extreme cases, a group can try to convince the existing government to grant increased regional autonomy. While this approach involves the state ceding some level of control to local authorities, the state still maintains the ultimate monopoly on the use of force. Consequently, groups do not have to assume all of the duties of governance, and do not have to create a new state.

If the group can seize a piece of the state’s territory and drive out its agents, the group can exert control over life within that territory. The group would control the monopoly of the use of force and could govern according to its preferences. While this new entity may or may not enjoy legal recognition from other states, and thus *de jure* sovereignty, it would have *de facto* sovereignty.

Take for example, Myanmar’s muslim minority Rohingya population, located in the country’s Western region, which does not enjoy basic freedom of movement, is subject to arbitrary taxation, is barred from receiving citizenship (Amnesty International 2004), and is not even recognized as an ethnicity by the government (BBC 2014). They can attempt to force the existing Bamar dominated government to cede some degree of control within their territory, allowing them to exercise cultural and language rights. Alternatively, they can try to entirely remove government influence from their subset of Myanmar’s territory, leaving them in control of this newly established political entity.

Both of these are territorial conflicts, but a victory means very different things for both the state and the minority in each case. Victory in secession means that the state will have to give up some of its territory, and all of the rents it generates, while the group will have to create a new governing apparatus. A victory for an autonomy-seeking group means that the group will have to take on some aspects of governance, but the state will still provide some of these services.

As evidenced by the Rohingya, excluded minorities often live in areas that are neglected or ignored by the central government. Given the limited scope of services provided in these areas (Stewart 2008), what benefits do these groups enjoy that could make autonomy more attractive than secession? The main public good that governments provide, even in overlooked minority areas is national security. One of the primary purposes and goals of a state, is security (Waltz 1979). Even if

governments are not responsive to the interests of a minority, they do not want the group's territory to be lost to another state. An important question for excluded groups considering secession is thus whether the group can hope to protect itself from the predations of its new neighbors and former host if it becomes an independent state.

1.2.3 Lessons from the Spatial Conflict Literature

While previous work on space and conflict has explored the role of factors such as population or resources, it has typically done so by asking which factors make conflict more or less likely. Other work has investigated how geographically distributed factors can shape the future of an ongoing conflict at the micro level. However, very little work has asked how these factors can shape the overall trajectory of the conflict by influencing which goals a group will pursue.

Some scholars have touched on this question by studying how the promise of future resource rents may influence the direction a conflict takes, but often this work only looks at one piece of the puzzle. For example, Sorens (2011) argues that rebels in areas with large resource endowments are more likely to engage in territorial conflict because they hope to enjoy the benefits of these resources in the future. However, to actually receive and be able to exploit these resource rents, rebel groups must also be able to control and administer the territory they lie within. Precious metal deposits will be of little use if there are no people who live nearby to mine them or no roads on which to transport them. The possibility of future rents is not enough to encourage a secessionist strategy if actually realizing them will be prohibitively expensive.

My arguments build on this existing work by exploring how multiple spatially varying factors can affect the governability of a territory after conflict ends. A group which chooses a secessionist strategy must first create the institutions and elements of a state before they can realize the benefits of their new territory. Thus, it is not just the potential future revenues of a territory that determine the expected value of a goal, but how easy it is to actually generate and collect those revenues. The existing spatial conflict literature investigates the role of several geographic factors which can determine the governability of territory.

The more powerful a state is, the farther from the capital a conflict is likely to begin (Buhaug 2010). Conflicts start farther away in powerful states because as distance increases, the state's power declines. Potential rebels located near the capital are overwhelmed by the state's power, and so do

not engage in conflict. Potential rebels located far from the capital may be able to withstand the state's limited reach in such remote locations. When a government and a rebel group's ability to project power overlap, there will be conflict.

This explanation is largely deterministic and treats politics as fixed. Rebels have goals that are exogenously given, and when they are able to, they challenge the state. When their goals are not achievable given their location, they do not act. They do not have a large amount of agency because it is possible that they experience extreme exclusion, but because of their location, they will simply endure this oppression.

Buhaug & Gates (2002) find that territorial conflicts are more likely to start farther away from the capital. Although this study investigates the effect of incompatibility on conflict location relative to the capital, it is easy to see the causal arrow potentially pointing the other direction with conflicts beginning farther from the capital more likely to be territorial conflicts. Other studies have found evidence of this relationship with location as an explanatory variable and conflict type as the response variable (Cederman, Buhaug & Rød 2009, 517).

Geography helps us explain choices of goal, and we can improve these explanations when we go beyond the notion of geography as just distance (Beck, Gleditsch & Beardsley 2006). Population concentration (Weidmann 2009), the location and amount of natural resources (Lujala 2010), and the density of infrastructure (Zhukov 2012) can all influence rebel goals. Combining all of these factors in one analysis requires careful theorizing about the mechanisms by which each affects the governability of territory.

Higher population density lowers barriers to collective action, facilitating the organization and execution of armed rebellion (Weidmann 2009). Once a conflict begins, individual locations are more likely to experience rebel violence if they have high population density for the same reason (Raleigh & Hegre 2009, Daly 2012, Braithwaite & Johnson 2015). The more tightly concentrated populations are, the more feasible any political action becomes, suggesting that the post-independence process of state-building may be easier in more densely populated areas.

There is a strong relationship between a country's national level resource wealth and conflict (Ross 2004*b*, Ross 2013, Collier & Hoeffler 2004, Fearon 2005, Fjelde 2009, Bell & Wolford 2015). The location and availability of resources can also prolong a conflict once it begins (Lujala 2010, Ross 2004*a*, Englebret & Ron 2004) or affect the likelihood of recurrence after a conflict ends (Rustad &

Binningsbø 2012). When rebel groups do not have strong ties to an organized ethnic group, they are more likely to rove widely, not consolidating control in specific locations and utilizing the resources there (Beardsley, Gleditsch & Lo 2015).

Differences in resource availability can also affect rebel group decisions. When groups do not have access to extensive resources to recruit new fighters, they instead entice prospective supporters by appealing to ethnic and social ties and promising future rewards to members of their in-group (Weinstein 2005). Resources can directly influence the goal that a group chooses. Mineral resource abundance encourages ethnic rebellions with territorial aims, but not rebellions with governmental aims (Sorens 2011), because these groups hope to be able to extract rents once autonomy or independence is achieved. Oil wealth decreases the likelihood of center-seeking civil wars because governments leverage it to improve their coercive capacity (Paine 2016). Resources make territorial conflict more attractive because they can be exploited by the group in the future, and because they buttress the existing state, making direct confrontation more costly. They are a further motivation for secessionist conflict because a successful group will no longer lose a share of their revenue to the government.

Similarly, transborder ethnic kin (TEK) may influence both the likelihood of conflict and the form it will take. The demographic size of TEK groups has a curvilinear effect on probability that their co-ethnics abroad will initiate a civil war against their government because small groups have no influence, and large groups have political power and do not need to turn to violence (Cederman, Gleditsch, Salehyan & Wucherpfennig 2013). The geographic location of these TEK groups might also guide their foreign relatives towards either secession or autonomy. When ethnic groups are located near an international border, and have transborder ethnic kin who live directly across that same border, secession might be more attractive due to the large pool of potential new citizens. When potential rebel groups have access to a large supply of future citizens, secession may be more attractive as the difficulties of future state-building will be lessened by the influx of citizens.

Even guerrilla insurgent groups rely on roads for movement and transportation of supplies (Zhukov 2012). This suggests that for the immediate goal of fighting the state, the amount and quality of roads should not have a significant impact in pushing groups towards either secession or autonomy. Instead, roads may have their biggest impact on goal choice through their effect on what happens after a conflict.

If resources and population are both required to successfully found a new state, then infrastructure may be just as important. Oil, timber, ore, and rare earth metals are next to useless if they cannot be exploited and brought to market. If a newly independent state does not have the infrastructure necessary to monetize these resources, then it will not be able to use their rents to fund the creation and functioning of the new government. While each of these resources requires specific capital investments to exploit, there is an even more basic necessity they all need to function: transportation infrastructure. The better the infrastructure in a territory, the more attractive secession because the easier it will be to fund a new state.

We know how the demographic and political requirements of forming a state can determine which goal a group will choose, and now we need to develop an understanding of how the geographic contexts that groups reside within play a role in determining the goals that rebels pursue.

1.3 Outline of the Dissertation

To answer the question of how geography shapes the goals of potential rebel groups, and how governments use these dynamics against potential secessionist groups, this dissertation proceeds in four parts.

In Chapter 2, I present my theoretical argument about the geographically distributed factors that determine how governable territory is, and argue that rebels will be more likely to seek secession when their territory is more governable. I use geospatial data from 1990-2013 to test the hypothesis that groups are more likely to engage in secessionist conflict when their territories are more governable. This test yields a null finding with no discernible relationship between territorial governability and the goals that groups choose to pursue. This non-finding in the face of a carefully constructed theory motivates the remaining empirical chapters of this dissertation.

In Chapter 3, I argue that the lack of relationship between territorial governability and group goals is due to the fact that governments can also observe this governability and act preemptively to stop secessionist campaigns from forming. Using the same geospatial measures of governability from Chapter 2, I show that as the governability of a group's territory increases, the government's efforts to develop its capacity within that territory increases. The same factors that make a territory ripe for secession also attract the government's attention and make secession more difficult.

Chapter 4 answers the logical followup question of why we still occasionally observe secessionist civil wars if governments use geographic information to identify and preempt likely cases. I argue that preemption requires good information to accurately respond to the level of threat in a region. If a region's territorial governability has recently increased, as occurs when oil is discovered, a government that is slow to learn of this development will be too late in trying to prevent secessionist mobilization. I develop these dynamics into a coherent theory with an agent-based model and use insights from the case of Aceh to demonstrate its validity.

Chapter 5 explores how governments that take the long view try to alter the territorial governability of secession prone regions by reshaping their human geography. Governments that choose this strategy have two options. First, they can forcibly relocate entire populations to less governable areas, an approach employed multiple times by the Soviet Union. Second, they can encourage their supporters to move to the minority group's territory, thereby diluting their local political power, as Jakarta pursues a policy of Javanese migration to the predominantly Muslim province of Aceh on the island of Sumatra. I use qualitative case studies of these and other cases to show how concern over secessionist desires motivates these practices. Additionally, I argue that these dynamics provide an explanation for why states engage in internal colonialism despite the risk of backlash and 'sons of the soil' wars from local residents.

Finally, Chapter 6 draws together the arguments from the previous chapters and synthesizes them into a geographic theory of secession and control. I discuss how geography constrains and directs the political goals of ethnic groups, and the ways in which governments leverage these patterns to preserve their territorial integrity. In doing so, I highlight the contribution of this dissertation to the study of conflict, nationalism, and separatism.

CHAPTER 2: GEOGRAPHIC DETERMINANTS OF REBEL GOALS

Secession and increased autonomy imply very different post-conflict trajectories in the event of a rebel victory. A successful autonomy-seeking rebellion means that the former rebel group gains some level of regional control over policy, but remains subordinated to the government. A victorious secessionist movement must forge a new state. Each task brings unique challenges with it, and potential rebels are aware of this when making their decision of which goal to embrace.

Knowing this, potential rebels confront the question of whether it will be easier to build a legitimate, stable government from scratch in territory they control, or to limit their goals and accept that they will have to operate within the structure of the existing state. While many factors influence how easy a territory is to govern, my argument focuses on the role of spatial ones, specifically how the geographic distribution of resources and populations determines the governability of a territory.

Groups fighting for secession hope to be militarily successful and then exercise sovereign control after their victory on the field of battle. Sovereignty has two dimensions: internal capacity and legitimacy, and external legal recognition (Lake 2003). They want to exercise political power, and to successfully do so they will require both types of sovereignty. Unfortunately for rebel groups, they have little control over their degree of external recognition and legitimacy (Jo 2015).

Rebel movements have enjoyed varying degrees of legitimacy on the world stage ranging from groups like ISIS which receives no external recognition, to the National Patriotic Front of Liberia which had natural resource concessions from multinational firms (Reno 1993), to the South West Africa People's Organization which was recognized by UN even while its territory was still officially claimed by South Africa (United Nations n.d.), to the Eritrean People's Liberation Front which coordinated extensively with NGOs on providing humanitarian aid to people in its territory (DeMars 1994). This external standing is largely outside of groups' control; if the other states do not want to grant it, groups cannot force them to.

However, rebel groups can have a much larger influence over how much domestic legitimacy they enjoy and control they can exercise. If the conditions in a group's settlement area are not conducive

to easy governance, they may choose to accept increased autonomy instead of trying to fully govern themselves. Conversely, if a group's territory would be relatively easy to govern, then secession will be more attractive.

What this theory needs to do is generate a coherent argument for what geographic configurations of political factors make governance easier or harder. Existing theories of conflict can tell us when ethnic groups are likely to take up arms, but we need a new theory to tell us which goals they will aspire to.

Sometimes the choice between secession and autonomy is an easy one. Ethnic rebellions can offer a particularly clear example of these dynamics. By comparing different ethnically based rebel groups, we can gain greater insight into how geographic factors can push groups toward one strategy or the other. Excluded minority groups are likely to engage in rebellion due to their lack of access to the regular political process (Cederman, Wimmer & Min 2010), but the form this rebellion takes varies significantly. In the following sections I present examples of ethnic groups that are similar along certain lines but differ along others, and choose different goals as a result.

These groups are not commonly thought of as similar politically, but they can be compared along geographic dimensions that are often overlooked in existing work. Delving into their experiences can shed light onto how these factors affect the political decision-making of rebel groups. The rest of this chapter develops a conception of governability that is tied to specific territory and influenced by the characteristics of that territory. It then advances a theory that groups that inhabit more governable territory will be more likely to fight for secession due to the needs of post-independence state building. I test this argument using a global sample of ethnic groups from 1990-2013 and geospatial data to measure governability. This analysis fails to find evidence of a consistent relationship between governability and rebel group goals. The failure to find a relationship despite the plausible theory motivates the study of government preemption that forms the remainder of this dissertation.

2.1 A Geographic Theory of Governability

The starting point for understanding territorial conflict is nationalism. Groups only engage in territorial conflict — the struggle to create new and alternative political institutions within the boundaries of a given territory — when motivated by nationalist desire to ensure that “ethnic

boundaries should not cut across political ones” (Gellner 1983, 1). Thus, territorial conflicts represent an attempt to replace existing geographic political divisions with ones that more closely support the “nationalist principle” (Gellner 1983) that the government of a state should represent the interests of the “imagined community” of the nation (Anderson 1983) that lives within its geographic borders.

This type of conflict hopes to alter the institutions within a specific territory by either gaining more autonomy from the central government or by withdrawing from the current, non-representative, state and forming a new one (Gleditsch et al. 2002). These conflicts are more limited in aims than governmental ones because the group has no desire to overthrow or replace the existing government. Instead, a group’s aims and ambitions are limited to changes within territory that is ‘theirs,’ by reducing or eliminating the influence of the government within this area.

One explanation for the emergence of secessionist conflict is that groups will push for independence when they believe that they have sufficient bargaining leverage to force the state to accede to their goals (Jenne 2007, 39-41). But why not push for secession in all cases to start from a more extreme negotiating position? Empirically, this does not occur as the percentage of self-determination groups calling for secession has never passed 55% since 1960 (Cunningham 2014, 72). The fact that groups “are not born irredentist or secessionist” and can change move from conventional politics to secession and back again (Horowitz 1991, 13) suggests that bargaining with the government is only part of the story.

2.1.1 Rebel groups as (potential) state-builders

Formal independence and the ability to forge a functioning government within the territory of a new state are two very different things (Clapham 1996, Clapham 1998, Englebert 2000). Work that explains when groups push for secession has typically focused on how capable groups are of defeating the government (Toft 2003), but this is only half of the story.

If the process of state building seems insurmountable given the context a group exists within, then secession will be a difficult goal to pursue. Given the territorial nature of states, the features of the territory that the group controls and hopes to rule is one of the largest influences on how difficult this task will be. Other factors such as the quality of political institutions (Lemke & Carter 2016) or the presence of external financial support (Stokke 2006) obviously matter as well, but they have been more extensively studied. The political processes of state formation can be tumultuous in newly

independent territories (Lemke 2011) and can have long-term effects on the welfare of such states (Acemoglu, Johnson & Robinson 2001), so secessionist movements will be most likely to emerge where territory is most favorable to them.

In order to understand what makes certain territories more or less conducive to the creation of new states, I draw on the state formation literature. Specific factors such as strong extractive institutions (Tilly 1992) or external military threats (Tilly 1985) that helped or hindered the formation of extant states continue to affect the creation of new states today (Thies 2006, Thies 2007). Despite the legacy of colonialism faced by many states that have emerged since the end of World War II, these classical state-building dynamics still appear to be at play (Cohen, Brown & Organski 1981, Lemke & Carter 2016). Since these mechanisms still matter today, we can ask whether other factors that affected the difficulty of state formation in the early European context influence whether a given rebel group seeks to secede or not.

Work on state formation and secession has primarily focused on institutional explanations. Roeder (2007) argues that separatist movements are most likely to credibly challenge the state, and attain independence, when they represent “segmented-states,” or subnational administrative jurisdictions where ethnic groups enjoy some level of local political power. Empirically, political leaders only appear to initiate self-determination crises (nation-state crises in Roeder’s terminology) when they are prepared to confront the requirements of sovereign governance, given the importance of segment-states in predicting the onset of these crises. However, despite the emphasis on segmented-states as territorial units within the larger common state’s territory, Roeder focuses mainly on the “segmental institutions” of segmented states, rather than the territory of those states. If we expand our attention to the role of territory in secession and post-independence state-building, a natural topic to explore is the function of resources in this process.

The role of resources in conflict has been extensively studied and can offer many insights for how they matter for secession. The greed-grievance debate (Berdal, Academy.— & Malone 2000) highlights the opportunities for personal enrichment that may motivate rebel leaders or supporters (Collier & Hoeffler 2004). Often this work only looks at one piece of the puzzle. For example, Sorens (2011) argues that rebels in areas with large resource endowments are more likely to engage in territorial conflict because they hope to enjoy the benefits of these resources in the future, while Hunziker & Cederman (2017) similarly find that oil reserves increase the likelihood of secession.

However, to actually receive the benefits of these resources, rebel groups must also be able to control and administer the territory they lie within. Precious metal deposits will be of little use if there are no people who live nearby to mine them or no roads on which to transport them. The possibility of future rents is not enough to encourage a secessionist strategy if actually realizing them will be prohibitively expensive.

My argument builds on this existing work by conceiving of resources more broadly. A group which chooses a secessionist strategy must first create the institutions and elements of a state before they can realize the benefits of their new territory. While self-interested leaders could extract enough capital for personal enrichment from an incomplete state, self-determination movements that wish to establish independent homelands will find themselves stymied without a functioning state apparatus. Thus, it is not just the potential future revenues of a territory that determine the expected value of a goal, but how easy it will be to actually generate and collect those revenues.

The Biafrans chose to fight for secession in the Nigerian Civil War because their Southern corner of Nigeria contained extensive resources that they could use to bankroll their new state. The territory they inhabited within the country's Eastern Region was responsible for 65% of total oil production (Uche 2008, 111-123). Early in the conflict the Biafrans secured these oil reserves in the hopes of using them to finance the conflict. However, if the Biafrans had been successful in seceding, this oil would also have served them well in the creation of their newly independent state. The Biafrans could also draw on the extensive agricultural sector in the region (Stremlau 1977, 218). While this agriculture could be used to help feed troops during the conflict, it would also help to support a large population in a future independent state, broadening the tax base its government would be able to draw on. Biafran territory contained a network of high-quality asphalt roads and the only rail line in the region, making the transportation of troops and equipment much easier (de St. Jorre 1972, 155). However, just as oil could be beneficial during and after the war, this transportation infrastructure could serve multiple roles as well. A hypothetical independent would have been easier to consolidate and administer thanks to this transportation network than a state that which would have to develop this infrastructure from scratch. These factors illustrate how resources can make conflict more likely by providing resources for fighting can also make secession more attractive by offering resources for a new state.

Knowing this, potential rebels confront the question of whether it will be possible to build a legitimate, stable government from scratch in territory they control, or whether it is better to continue to endure unrepresentative or hostile rule. While many factors influence how easy a territory is to govern, my argument focuses on the role of spatial ones such as population, infrastructure, and geography.

Groups fighting for secession hope to be militarily successful and then exercise sovereign control after their victory on the field of battle. Sovereignty has two dimensions: internal capacity and legitimacy, and external legal recognition (Lake 2003). They want to exercise political power, and to successfully do so they will require both types of sovereignty. While rebel groups can try to achieve international legitimacy by signing international agreements (Jo 2015), they ultimately have little control over their degree of external recognition and legitimacy. What they do have control over is their domestic legitimacy, as the following quotation about the SPLM/A in South Sudan illustrates:

The relative success of the SPLM/A in recent years presents it with a dilemma. It is caught between the need to create a 'quasi-state within a state' in order ensure the support of the people of the south, with all the responsibilities and expenses for administration, judiciary and welfare this implies, and the need to sustain itself as a rebel force that can defeat the government. It does not want to end up with all the disadvantages of statehood and none of its advantages in terms of recognition (Bradbury, Leader & Mackintosh 2000, 23).

Given the requirements a group needs to meet to enjoy domestic legitimacy, dissidents are more likely to launch a secessionist conflict when the territory they wish to rule is easier to govern.

Unlike the simple costly lottery model used in many studies of war e.g. (Fearon 1995, Powell 2006), the game doesn't end with the group's victory. If the entire purpose of fighting a civil war is to secure political power, then groups reasonably believe that they must be able to govern and exercise that power after the end of a conflict. The success or failure of secession is not limited to defeat or victory on the field of battle. Whether the group is able to assemble and successfully manage a new state is just as important. When a group's situation is not conducive to forming a new state, it may opt instead to fight for increased autonomy.

2.1.2 Geographic Governability and Group Goals

The governability of a given territory influences the goals that a group decides to pursue in a relatively straightforward manner: the more governable a territory is, the more attractive secession is. If a group can successfully secede, it need no longer share the rewards of its territory with a distant and potentially adversarial central government.

Recent work on civil war onset has focused on ethnic groups because the shared identity of an ethnicity can channel grievances in a manner that overcomes barriers to collective action (Cederman, Buhaug & Gleditsch 2013). In addition, using ethnic groups as the unit of analysis enables us to observe both groups which do and do not turn to violence, allowing us to avoid making biased inferences by selecting on the response variable.

This approach has added benefits for the study of geography and conflict goals. Since many ethnic groups have defined settlement areas, they also have a natural homeland to create a new state in, should they decide to secede (Toft 2003). If a group wishes to secede, it needs “a potential independent nation” and so

there must be some core territory in which the group is concentrated and is sufficiently high a proportion of the total population for it to be credible for élites to claim the region as a national homeland (Orridge 1982, 46).

When trying to decide which strategy will lead to an easier post-victory political existence, ethnic groups take the geographic contexts of their homelands into account.

More importantly, we can use these varying geographies to explain patterns of goal choice across groups. If a group’s territory is well suited to governance, then it should be more likely to push for secession. If it is less accommodating, then the group should be more likely to settle for autonomy.

This is clearly a simplification of how wars are actually fought since rebel groups are rarely able to secede with just their preferred territory. They may only be able to liberate a subset of their homeland, or they may end up holding onto conquered territory they did not originally desire. Groups which are more or less successful will tear larger or smaller amounts of territory away from the preexisting state.

While these changes will result in groups holding more or less territory than they planned to, they can still use these estimates as starting points. Comparisons between groups’ initial territory, as

represented by their settlement areas, are a useful heuristic for understanding what territories must contend with after a conflict.

In short, when ethnic groups decide that conventional politics are no longer an acceptable strategy, they must also decide how to wage their campaign of violent conflict with the state. In doing so, they weigh two different factors. First, how easy will it be to achieve a stated goal, given the constraints that the group faces. Second, if the group can be successful, will it be easier to govern its territory independently or as an autonomous region within the state? The *Ejército Zapatista de Liberación Nacional* (EZLN) is a leftist revolutionary group, but is primarily composed of local indigenous Mexicans. Although it is located in the southernmost state of Mexico, Chiapas, the group has never agitated for secession. Instead, it has pushed for autonomy from the federal government and increased self-governance (Manaut, Selee & Arnson N.d., 141-142). Like the Biafrans, the group is located far from the centers of state power, on Mexico's border with Guatemala. However, unlike the Eastern region in Nigeria, Chiapas lacks significant industry and economic power. Agriculture is the main industry, and although there are sizable oil reserves (Collier 1994, Barreda 2001), the territory lacks the necessary infrastructure to successfully exploit them (Rivas N.d.). Faced with these constraints, the EZLN would have considerable difficulty funding the creation of a new state, so the group's choice to pursue autonomy within the Mexican state makes sense.

This logic is based on the assumption that ethnic groups have a connection to their traditional settlement areas and that, if they decide to fight a territorial conflict (whether for autonomy or secession), they will try to establish control over their settlement area. Ethnic homelands are special, and not exchangeable with other similar pieces of territory, due to their importance in group myths and identity; the possession and control of homelands can even be seen as essential to the group members' understanding of identity (Toft 2003, 20). Accordingly, when ethnic groups try to secede, they attempt to take their traditional settlement areas with them. Similarly, groups which fight for autonomy will try to win more political control inside of their territory within the larger state. For instance, Syrian Kurds claim to fight for an autonomous region inside of Syria, and have made no claims beyond traditionally Kurdish areas (Davies 2012, Barnard 2016). Groups seek to end up in control of their ethnic homelands, so they can make judgments about which goal to pursue based on how difficult they expect their territory to be to govern.

While different geographic configurations of population and resources can make rebellion more or less difficult, they can also make governing in the wake of successful rebellion easier or harder. If secession and autonomy are both ways to increase the political power that a group wields, then rebels must also consider how easy it will be to exercise that power after victory. The more geographically dispersed a population, the more difficult it will be for former rebels to impose their authority. If an ethnic group inhabits a sparsely populated region within the state, then it makes more sense to fight for increased autonomy for this region because the distribution of population would make governing independently more difficult.

Thus, groups face two geographic concerns when deciding whether to secede or seek increased local autonomy: which strategy of rebellion will be more effective given their location, and whether that location is suited to independent governance or requires some assistance from a central government. Many factors can affect the answers to these two questions, but geography plays a large role. Explaining group goals solely as a function of how difficult it is to challenge the state as Buhaug (2006) and others do means that we are not considering the full range of circumstances that rebels face. Whether a group can directly confront the state ignores the question of what happens *after* a conflict.

If we assume that all groups want as much self-rule as possible, then we can think about how differences in territory can lead to different utilities for increasing political control. The returns to increased control will be monotonically increasing for groups which inhabit more governable territories as the benefits of control will outweigh the costs of governance. Conversely, groups which inhabit less governable territories may experience an increase in utility as their level of control increases, followed by a decrease as the marginal cost of governance surpasses the marginal gain in benefits from increased control. Groups whose territory falls into the latter category may be willing to settle for increased regional autonomy while those in the former will push for secession and as much control as possible.

Rebels want to be able to successfully govern in the wake of a civil war, and their beliefs about how feasible this governance will be shape their decisions of which goal to pursue. Not all rebel groups are identical, and not all societies are identical, so there are wide variations in how likely groups are to be successful in governing after the conflict.

We cannot directly measure the governability of territory. We can quantify and compare the factors which we think matter for governability, but there is no way to explicitly measure this latent concept. Instead, we must rely on the observable implications of territorial governability. More governable territories should lead to more secessionist conflicts, so we need to see if groups which live in areas that have attributes we think contribute to governability are more likely to engage in secessionist conflict. If this correlation between the supposed geographic determinants of governability and secessionist conflict holds, then we can be more confident in this theorized causal relationship.

Existing efforts to measure governability as a concept have done so at the state level. Measures like relative political capacity (RPC) (Kugler & Domke 1986, Arbetman & Kugler 1997, Kugler & Tammen 2012) capture the effectiveness of a government more completely than GDP as they include elements like black markets and informal economies. RPC includes three subcomponents that measure the ability of governments to extract tax revenue, direct their citizens towards the government's ends, and efficiently allocate resources. Similarly, Hendrix (2010) combines multiple indicators to estimate three latent dimensions to state capacity. Unfortunately, these measures cannot be used to measure governability in this analysis because they do so at the state level and thus cannot be used to explain the decisions of individual ethnic groups.

Further, they use institutional factors to measure the governance of a state, and my argument is oriented around the governability of a hypothetical future state located within an ethnic group's territory. As these institutions do not exist before a successful independence campaign, it would be impossible to use them to measure the governability of a potential state. Geography, however, exists both before and after independence and is unlikely to change significantly in the interim. As researchers this means we can observe geography before a successful secession campaign. Groups themselves have more confidence in their knowledge of geography than potential future institutions, as the latter have yet to exist, so the former may play a larger role in their decision-making processes.

The demographics of a territory can determine how easy it is for a rebel group to rule following a civil war. If the group inhabits a territory where it is the clear majority, then secession would allow it to control a nation-state that is in alignment with Gellner's nationalist principle. However, a group confronted with an ethnically diverse territory may choose to pursue autonomy for a number of reasons. First, the coexistence between the groups in its territory may be easier if they are all excluded

groups dominated by a distant majority. Second, if the group were to secede, the minorities in the new state might be emboldened to demand greater concessions from the temporarily weak government in the wake of independence, potentially precipitating further secessionist crises. Autonomy requires less capacity to exercise, so the group would be better able to fend off challengers.

2.1.2.1 Internal Governability

While there is significant evidence of this positive relationship between population and conflict onset, the connection between population and goals is less clear. The historical experiences of state formation also suggest that population density plays a role in which goal a rebel group will choose. Societies where people were concentrated in specific geographic areas were able to consolidate faster and develop more robust institutions due to the lower cost of administering centralized populations. Given that secession requires militarily successful rebels to create and run a state in their newly won territory, ethnic groups with populations that live in close quarters may prefer this goal due to the benefits this compact distribution will bring in implementing their post-conflict agenda.

Importantly, this moves beyond the traditional focus on population density as merely a catalyzing factor in collective action (Daly 2012, Raleigh & Hegre 2009, Weidmann 2009, Zhukov 2012, Braithwaite & Johnson 2011), which cannot predict which type of conflict is more likely. By comparing population density across territories inhabited by potential rebel groups, we can get an idea of how it influences the choice of goals. Groups whose settlement area is more densely populated will have an easier time governing it, and groups whose territory is more sparsely populated will have a harder time governing it.

The ethnic homogeneity of a group's territory also plays a large role in how attractive secession is. Groups who choose secession and inhabit relatively homogeneous regions will find governing in the wake of victory easier, because there will be fewer excluded ethnic groups in the new state.¹ The only way an ethnic group can make its territory ethnically homogeneous is if "it either kills, expels, or assimilates all non-nationals" (Gellner 1983). The more likely it is that a victorious group would have to carry out ethnic cleansing and population transfers, or accommodate dissatisfied minorities in their new state, the less likely they are to pursue secession.

¹When there are a large number of other groups in an ethnic homeland, a secessionist victory could, ironically, recreate the conditions of political exclusion that led to the initial conflict.

The Partition of India displaced over 10 million people and killed at minimum several hundred thousand (Talbot & Singh 2009), so rebel groups may choose not to pursue secession if doing so might result in a similar outcome. While members of other groups may not feel welcome in autonomous regions, they are not as threatening to the majority. They are not viewed with as much concern as minorities in a state because they do not violate the ‘nationalist principle;’ the majority group within that territory is already deprived of their own state, so individual members of different groups represent a lesser transgression against nationalist sentiment. Having to govern territory with significant minority populations will require more accommodation than less diverse areas.

Resources are also especially attractive to groups with secessionist aims rather than simply desiring more autonomy. Seceding requires the creation of a new state, which is an expensive process. Natural resource endowments can provide the funding necessary to kickstart this new state. Such resources can also motivate secession due to a desire to profit from their exploitation. While increased autonomy will increase the share of revenue a minority group receives from local resources, secession will free them from revenue sharing altogether. When these resources are absent, autonomy is a more feasible goal because it does not require as much capital as forming a new state, and the government may still provide limited investment. Similarly, the returns from escaping revenue sharing arrangements with the state will be smaller when a group’s territory contains fewer resources.

One of the most important factors affecting the governability of a given piece of territory is the degree to which the government is able to impact the lives of its citizens. This concept has been explored before at the state level with the idea of political penetration (Kugler & Tammen 2012). However, these measures are insufficient for explaining the goals that a rebel group will pursue because territorial groups are only interested in part of a state’s territory. Instead, we need a way to measure the degree of government reach in any part of a state’s territory.

If we cannot directly measure political reach and penetration in a systematic, cross-national manner, we can turn to the next best thing: how physically easy it is for agents of their government to travel its territory. Just as physical inaccessibility hampers counterinsurgency efforts (Tollefsen & Buhaug 2015), it can hinder government efforts to police and administer territory during peacetime. If governments are unable to physically reach parts of their territory, or are only able to do so exceedingly slowly, then they will face difficulties winning the support and cooperation of their

populace. More accessible territory will be easier for the leaders of newly independent states to govern.

When the population is physically difficult for agents of the state to reach, tax revenues will be lower, and acceptance of government policies may be more difficult to obtain (Herbst 2000). In extreme cases, people may not even be aware of changes in government policies. Similarly, higher levels of transportation infrastructure reduce the cost economic activity in a number of ways (Hansen 1965), making more revenues available for state-building purposes, thus making independence more feasible.

While population magnitude and diversity, natural resources, and accessibility are all geographic features of terrain that impact governability, I choose to focus on population in this dissertation. I make this choice for several reasons. First, population is easily observable in a cross-national time-series manner due to the availability of geospatial data. Many of the other elements of governability discussed above have data that is cross-national or time-series, but not both. In subsequent chapters I harness this variation to explore how governments respond to changes in governability and try to shape governability to their own ends. Second, people are one of the most fundamental resources that a government relies on to accomplish its policy objectives. While a small number of petrostates are able to function with relatively small populations, they suffer from low levels of bureaucratic capacity. Population is thus a more direct indicator of how governable a territory is than the resources it may contain. Future work should pursue these other components of territorial governability and develop a more comprehensive measure of the concept.

Given that I limit my analysis of the population based aspect of territorial governability, my hypothesis for the relationship between governability and rebel groups goals is as follows:

Hypothesis 1a *Groups whose territories are more populous are more likely to pursue secession*

This hypothesis represents a test of my argument that when nascent rebel groups choose their goals, their paths are shaped by the geographic determinants of governability in their territory. However, there is a final geographic dimension of governability that I have not addressed yet: the preexisting government. Where factors like population and resource endowments get at the internal governability of territory, the influence of the state – embodied in the ubiquitous distance-from-

the-capital measure – is an aspect of governability separate from the characteristics of the territory itself.

2.1.2.2 Location, Location, Location

However, there is another geographic dimension of secession that I have not addressed yet: the preexisting government. Where factors like population and resource endowments get at the internal governability of territory, the ability of the state to project power into a group's territory is an aspect of governability separate from the characteristics of the territory itself.

The distance from the nexus of state power affects the governability of territory as something outside of it. Assuming they are capable of resisting, governments are unlikely to tolerate an alternative source of political authority so close to their own. Thus, it will be harder for successful rebels to create a new territorial political entity close to the center of the previous one from which they emerged. When separatist conflicts are fought far from the capital of a state, then victorious rebels will be more successful in setting up a new state because their former masters in the original state's capital will be either too far away to effectively contest the new state's authority, or will view it as less of a direct challenge to their own authority. The farther from the centers of state power a group is located, the harder it will be for the state to exert control there, and the easier it will be for the group to uncontestedly govern and administer a new state.

Secession threatens “the integrity of the state itself” (Jenne 2007, 40), and so governments will be more resolved to defeat these movements than those fighting for regional autonomy or policy change. If groups are located closer to the capital, the government will be more able to impose costs on the group due to this distance as the ability to project power declines with distance (Boulding 1962). Accordingly, ethnic groups located more remotely should be more likely to fight a war of secession, as they will be more protected from the state's retaliation (Schutte 2015). Many studies have found that secessionist conflicts are likely to start farther from the capital (Buhaug & Gates 2002, Buhaug & Rød 2006, Cederman, Buhaug & Rød 2009), but have not investigated whether this distance can have a conditioning effect on the influence of other geographic factors. If an ethnic group is located extremely close to the capital and major economic centers of a state, trying to create a new state so close to the capital would be impossible. The group would either have to conquer enough territory to

reach to an international border with a neighboring state, or it would have to govern a state entirely landlocked by the former host state.

It will be harder for successful rebels to create a new territorial political entity close to the center of the previous one from which they emerged. When separatist conflicts are fought far from the capital of a state, then victorious rebels will be more successful in setting up a new state because their former masters in the original state's capital will be either too far away to effectively contest the new state's authority, or will view it as less of a direct challenge to their own authority.

The farther from the centers of state power a group is located, the harder it will be for the state to exert control there, and the easier it will be for the group to uncontestedly govern and administer a new state. Given this reality, if creating a new state is at all feasible, groups will prefer to do so. Choosing secession over autonomy allows groups to keep all the benefits of their territory's production, which they will prefer to do as the state will be unable to effectively challenge them.

While settling for autonomy requires sacrificing a degree of political control within a group's territory compared to secession, it will not arouse as much hostility from the government. Secession is more achievable the farther from the sources of state power a group is located. However, actually ruling this territory may be less feasible. In exceptionally remote locations, the effect of the geographic determinants of governance will be larger, as the increasing remoteness of the state makes secession more feasible.

Taken together, these observations suggest a conditional relationship where the effect of any given factor on rebel goals is dependent on where the group is located in relation to the sources of state power. Secession becomes more feasible the farther from the capital a group is located, so the geographic dimensions of a territory's governability should have a larger effect on a group's choice of goal farther from the capital. As groups are located farther from the capital, secession becomes more attractive, so the marginal effect of territorial governability on the likelihood of a group choosing to fight for secession will be higher:

Hypothesis 1b *The marginal effect of territory's governability on the probability of a group fighting for secession increases as distance from the capital increases*

The internal characteristics of a territory can make it more or less governable, and these differences in governability can lead rebel groups to pursue different goals as a result. When population is

large and therefore favorable for governance, groups will be more likely to choose secession. When it is smaller and less promising, they will choose autonomy. However, this relationship is conditional on the location of the territory; when groups live far from the capital, a less governable territory will be more attractive for secession due to the difficulties the state will face in stopping secession. A distantly located group which inhabits a supremely ungovernable territory may still elect to seek autonomy, but in most cases this distance will push the group towards secession.

These same forces operate dynamically once a conflict has begun. Groups are not locked into pursuing their initial goal, and may alter them as conditions change. If their territory becomes more densely populated or new resources are discovered, then groups may decide to pursue secession because creating a new state has become more feasible. However, this analysis does not look beyond the start of a conflict to explore how these dynamics unfold over time.

2.2 Data and Methods

I test my argument about the effect of territorial governability on rebel group goals on a sample of all new ethnic territorial conflicts from 1990 to 2013. The population data begin in 1990 and the geospatial ethnic group data end in 2013. Below I discuss these data sources in more detail.

2.2.1 Geospatial Data

In order to measure the territorial governability of different ethnic group territories, I draw on several geospatial data sources. Each of the four components of territorial governability – population density, population composition, natural resources, and accessibility – can be captured using spatial data sources.

2.2.1.1 Ethnic Groups Territory

In order to measure the territorial governability of different ethnic group territories, I use the GeoEPR (Wucherpfennig, Weidmann, Girardin, Cederman & Wimmer 2011) dataset, which is a geocoded extension of the EPR data (Vogt, Bormann, Rüeegger, Cederman, Hunziker & Girardin 2015). Each ethnic group with a defined territorial settlement pattern has a polygon in the GeoEPR data.² To

²The exclusion of groups without defined geographic settlement patterns does not bias my analysis because the proposed causal mechanism could not function for geographically dispersed or nomadic groups.

facilitate studying civil wars in which ethnic groups rebel against central governments, I use the least aggregated level of observation, which splits ethnic groups along state borders. For example, the GeoEPR data have polygons for Kurds in Iraq, Syria, and Turkey, so each of these group-state dyads are a separate entry in the data. I use territory-years because population varies yearly, as do many control variables.

Although this sample necessarily involves omitting potential non-ethnic conflicts from my study, there is significant evidence that the ascriptive nature of ethnic identity channels political grievances in a more effective manner than other identities such as class or ideology (Cederman, Buhaug & Gleditsch 2013) and lowers barriers to collective action (Lichbach 1995), so focusing on ethnic conflicts is appropriate because they are likely to follow qualitatively different causal pathways than non-ethnic ones. Empirically, secession is almost purely an ethnic phenomenon, so focusing on ethnic groups allows me to uncover the effects of territorial governability on government preemption efforts. I exclude groups with a monopoly on political power, because by definition they are in power and thus will not attempt to secede without first losing political power.³

2.2.1.2 Population

To measure the population of a group's territory, I rely on the Gridded Population of the World (GPW) data. These data have been collected by NASA's Socioeconomic Data and Applications Center (Center for International Earth Science Information Network - CIESIN - Columbia University; United Nations Food and Agriculture Programme - FAO; Centro Internacional de Agricultura Tropical - CIAT 2005, Center for International Earth Science Information Network - CIESIN - Columbia University 2015). The data contain quinquennial estimates of population density for the entire world at the 30 arcsecond level, which is approximately 1km² at the equator.⁴ For each territory, I follow the 'cookie cutter' approach (Cederman, Buhaug & Rød 2009, Cederman, Weidmann & Gleditsch 2011, Cederman, Weidmann & Bormann 2015) of using the territory polygon to capture all

³I keep groups whose political power is dominant or who are senior partners in a government, because these powerful groups may still rebel if they have recently had their political power downgraded (Cederman, Wimmer & Min 2010). Monopoly groups are excluded because by definition as the top category they cannot rebel.

⁴The farther from the equator, the greater the distortion in latitude.

values of all nightlights cells that fall within the group's territory, accounting for overlapping group polygons when necessary.⁵

As these data are only available in five year intervals, I linearly interpolate the data for the intervening years. While a rather blunt method of imputation, there are two main reasons that this approach is appropriate. First, measuring population on a yearly time scale already involves significantly loss of accuracy. Second, a parametric imputation approach that uses variables observed in all years would either only be able to use country level variables, or would require the collection of significant amount of data at the subnational level, which is prohibitively time consuming. In either case, such an approach is unlikely to improve sufficiently over linear interpolation to justify the time and effort.

2.2.2 Model

There are numerous potential strategies that can be used to analyze the relationship between territorial governability and initial rebel group goal. The simplest would be to estimate a logistic regression of goal choice as a function of territorial governability and a set of control variables. However, this approach risks producing biased inferences because it represents a type of selection bias due to omitting groups which do not turn to violence (King, Keohane & Verba 1994, 129-136). A better approach is to include the lack of violent conflict as a possible outcome in the model. As there is no natural ordering of the set of outcomes {nonviolence, secession, autonomy}⁶, multinomial logistic regression is the best way to estimate these relationships (McFadden 1984).

Unfortunately, multinomial logistic regression is subject to the independence from irrelevant alternatives (IIA) assumption, which states that the odds of one alternative over another are independent of the presence or absence of any other irrelevant alternatives (Arrow 1963, 26-28). Given the potential costs and gains associated with militarily confronting the state, nonviolence cannot be treated as an irrelevant alternative to secession and autonomy.

To deal with this violation of the IIA assumption, I employ a nested logit model (McFadden 1978), which is akin to a selection model (Heckman 1979) but is used when all outcomes are discrete.

⁵See Section A.2 for a discussion of this process.

⁶I use the term nonviolence instead of status quo because there are a multitude of ways that self-determination groups can work for change without employing violence against the state (Chenoweth & Stephan 2011, Cunningham, Dahl & Frugé April 1,3 2017), and status quo implies an acceptance of the current conditions.

Nested logistic regression is appropriate when clusters of alternatives are likely to share unobserved attributes (Fischer & Aufhauser 1988), and can be thought of as analogous to multilevel models which account for dependence caused by unobserved factors at the group level (Gelman & Hill 2007). As secession and autonomy-seeking civil wars are both forms of violent conflict, they are likely to share several unobserved attributes. The structure of a nested logit can absorb much of this dependence, freeing me from the need to try and include every relevant variable they have in common, leading to a more parsimonious and interpretable model (Achen 2002).

A further advantage of the nested logit model for my analysis is the ability to include different predictors across choice sets, and for the decision between choice sets. This allows me to use variables such as horizontal inequality (Cederman, Weidmann & Gleditsch 2011, Cederman, Buhaug & Gleditsch 2013) and demographic balance (Cederman, Buhaug & Rød 2009) to explain the decision to engage in violent conflict or not, and then, conditional on a group turning to violence, the effect of territorial governability on the choice between secession and autonomy.

Equation 2.1 presents the general form of the nested logit model, where i indexes observations, j indexes alternatives, and m indexes the choice sets that alternatives are nested under. The vectors \mathbf{y} and \mathbf{c} denote the alternatives chosen by each observation, and the choice sets that they fall within. The matrices \mathbf{Z} and \mathbf{X} represent the predictors that determine which choice set an observation falls into, and the choice of alternatives within that choice set, respectively. The model can have different predictors \mathbf{Z}_m within different nests m , but as written below, it uses the same predictors within each nest. I_{im} is called the inclusive value and represents the expected utility for all alternatives within choice set m . The parameter λ_m is approximately equal to 1 - the correlation between observations within choice sets, while observations are independent across choice sets.

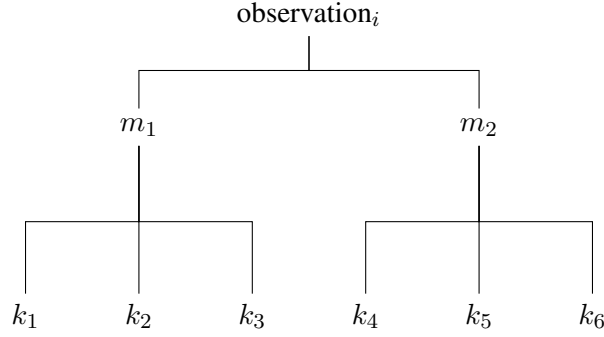


Figure 2.1: Generalized Nested Logit Model

$$y_i \sim \text{categorical}(\pi_{ij|m}) \quad (2.1)$$

$$c_i \sim \text{categorical}(\pi_{im}) \quad (2.2)$$

$$\pi_{ij|m} = \frac{\exp(\delta_{ijm}/\lambda_m)}{\sum_{k=1}^{K_m} \exp(\delta_{ikm}/\lambda_m)} \quad (2.3)$$

$$\pi_{im} = \frac{\exp(\eta_{im} + \lambda_m + I_{im})}{\sum_{h=1}^M \exp(\eta_{ih} + \lambda_h + I_{ih})} \quad (2.4)$$

$$I_{im} = \log \left[\sum_{k=1}^{K_m} \exp(\delta_{ikm}/\lambda_m) \right] \quad (2.5)$$

$$\delta_{ijm} = \gamma \mathbf{z}_i \quad (2.6)$$

$$\eta_{im} = \beta \mathbf{x}_i \quad (2.7)$$

$$\lambda_m \in [0, 1] \quad (2.8)$$

Figure 2.1 presents a graphical representation of the nested logit model. Although this structure appears sequential, the nested logit model is not a sequential model. Instead, a nested logit relaxes the IIA assumption embedded in multinomial logistic regression. IIA holds *within* choice sets, but not between, as discussed above.

As there are only three outcomes that I am interested in, I reduce the generalized nested logit in equations 2.1-2.8 to a simplified version with one choice set containing the alternatives {secession, autonomy} and a *degenerate* choice set containing only the alternative {nonviolence}. This modeling choice means that because violence is the omitted category in the upper logit, the coefficients on the predictors \mathbf{X} are interpretable as the effect of those predictors on a group not turning to violence.

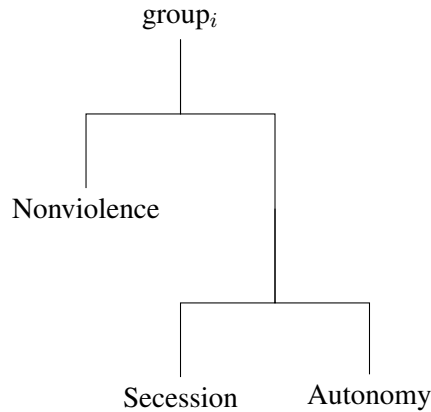


Figure 2.2: Rebel Group Goal Nested Logit

Figure 2.2 presents the graphical representation of this simplified nested logit that I use to model the choice of rebel group goal.⁷

2.3 Results

Due to missingness in the explanatory and control variables, I multiply impute the missing data.⁸ I generate five imputed datasets, run four chains on each and perform inference on all 20 chains pooled together, averaging over the uncertainty in different imputed values (Little & Rubin 2002, 217-218).⁹ I run each chain for 2,500 warmup iterations followed by 2,500 sampling iterations. All inference is based on the sampling iterations. Standard diagnostics indicate good convergence of the chains.¹⁰

Table 2.1 presents the results from Model 1. Estimates in the goal columns represent the effect of a predictor on the log-odds of choosing secession over autonomy, conditional on selecting violence. Estimates in the onset columns indicate the effect of predictors on the log-odds of a group remaining nonviolent instead of pursuing a conflictual strategy.

Very few parameters are likely to be different from 0. The credible interval for almost all parameters contains zero, which means that there is less than .95 probability that the parameter value is not zero. Inspection of the marginal effect of territorial governability components on group goal in Figure 2.3 reveals a similar lack of meaningful results.

⁷A full mathematical presentation of this simplified nested logit model is available in Section A.4.

⁸See Section A.1 for a full discussion of missing data and imputation procedures.

⁹For a full discussion of the estimation procedure, see Section A.5.

¹⁰Full MCMC diagnostics for these models are available in the Section A.7.

	<u>Model 1</u>	
	Goal	Onset
Population	0.04	-0.02
	[-0.70; 0.71]	[-0.42; 0.31]
Capital Distance	0.81*	0.07
	[0.01; 1.79]	[-0.36; 0.54]
Population × Capital Distance	-0.22	
	[-0.58; 0.07]	
Area	-0.73	-0.27
	[-1.92; 0.08]	[-0.85; 0.21]
Excluded		-0.02
		[-0.32; 0.26]
Downgraded		0.09
		[-0.53; 0.70]
Inequality ²		0.28*
		[0.11; 0.49]
Balance		0.02
		[-0.24; 0.28]
Polyarchy		-0.22*
		[-0.44; -0.02]
GDP _{pc}		0.22
		[-0.03; 0.48]
(Constant)	-16.01	3.56
	[-38.56; 0.39]	[-0.36; 15.19]
Polynomial Time	✓	✓
Observations	11529	

* 0 outside 95% credible interval

Table 2.1: Nested logit results for the onset and choice of goal in territorial civil conflict. Onset coefficients represent the effect of a variable on a group remaining peaceful. Goal coefficients represent the effect of a variable on a group fighting for secession over autonomy, conditional on choosing violence.

However, it is possible that this lack of evidence for a relationship is due to measurement or specification error. The following sections present results from models using alternative measures of both governability and rebel group goals, as well as models from different specifications

2.3.1 Alternative Governability Measure

One possible explanation for these null results could be that the dispersion of a population matters more than the magnitude for territorial governability. While I include the area of ethnic group territory to try to control for this potential relationship, I also test it more directly by reestimating Model 1 using a measure of population concentration instead of total population by calculating a

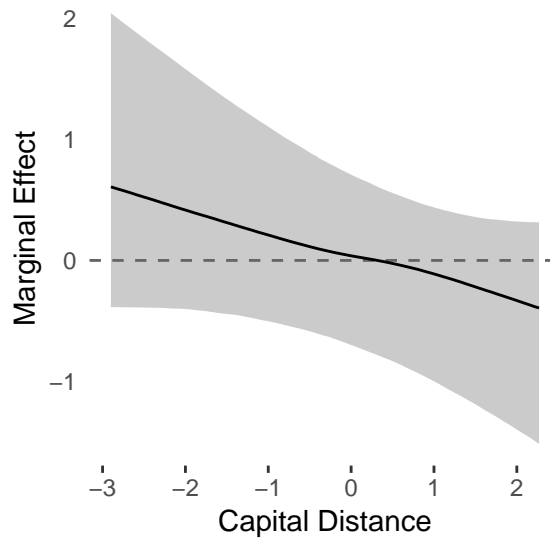


Figure 2.3: Marginal effects of population on rebel group goal.

Gini index of population for each group’s territory.¹¹ This index captures how unequally population is distributed on average, meaning that group’s with a higher population Gini have more of their population concentrated in smaller geographic areas like cities. In contrast, a group with a low population Gini would feature people relatively evenly dispersed across its territory with no major population centers.

Table 2.2 presents the results from Model 2, which uses population concentration instead of magnitude as a measure of territorial governability. Estimates in the goal columns represent the effect of a predictor on the log-odds of choosing secession over autonomy, conditional on selecting violence. Estimates in the onset columns indicate the effect of predictors on the log-odds of a group remaining nonviolent instead of pursuing a conflictual strategy.

Very few parameters are likely to be different from 0. The credible interval for almost all parameters contains zero, which means that there is less than .95 probability that the parameter value is not zero. Inspection of the marginal effect of territorial governability components on group goal in Figure 2.4 reveals a similar lack of meaningful results.

¹¹See Section A.2.1 for how this measure is calculated and why it is the best way to measure population concentration for my purposes.

	Model 2	
	Goal	Onset
Population Gini	-0.01 [-0.71; 0.56]	-0.04 [-0.41; 0.24]
Capital Distance	0.59 [-0.01; 1.61]	-0.01 [-0.40; 0.50]
Population Gini × Capital Distance	-0.10 [-0.40; 0.14]	
Area	-0.53 [-1.73; 0.11]	-0.16 [-0.75; 0.24]
Excluded		-0.05 [-0.36; 0.25]
Downgraded		0.09 [-0.57; 0.74]
Inequality ²		0.29* [0.12; 0.50]
Balance		0.03 [-0.23; 0.28]
Polyarchy		-0.24* [-0.48; -0.02]
GDP _{pc}		0.26* [0.00; 0.51]
(Constant)	-11.82 [-36.60; 0.40]	5.52 [-0.29; 16.28]
Polynomial Time	✓	✓
Observations	11529	

* 0 outside 95% credible interval

Table 2.2: Nested logit results for the onset and choice of goal in territorial civil conflict. Onset coefficients represent the effect of a variable on a group remaining peaceful. Goal coefficients represent the effect of a variable on a group fighting for secession over autonomy, conditional on choosing violence.

2.3.2 Alternative Response Variable Coding

It is possible that the lack of evidence of a relationship between territorial governability and group goals is due to measurement error in the data collection process for the response variable. To allay these concerns, I reestimate the models above using data from the FORGE (Braithwaite & Cunningham 2019) dataset instead of my coding of rebel group goals. The data contain many potential goals that groups can fight for, including territorial autonomy and independence, which I use as a replacement for my coding of these goals.

Results in Table 2.3 and Figure 2.5 are similarly null to those in Table 2.1, with slightly less uncertainty at extreme large distances from the capital (the 95% credible interval ranges from -0.5 to 1 compared to -1 to 2 in Figure 2.3). This similarity suggests that the lack of evidence of a relationship

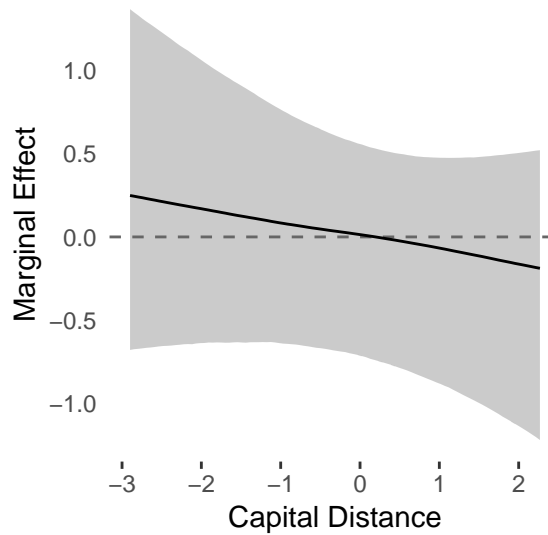


Figure 2.4: Marginal effect of population concentration on rebel group goal.

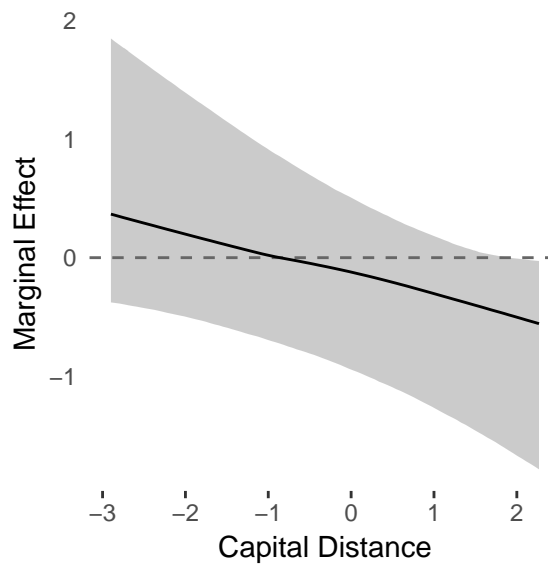


Figure 2.5: Marginal effect of population on rebel group goal using FORCE coding of rebel group goals.

between territorial governability and rebel group goals in territorial conflict is less likely to be due to measurement error in my data collection process.

I also estimate a multinomial logistic regression model using my coding of rebel group goals which fails to find a significant relationship between territorial governability and rebel group goal as well.¹² This consistent lack of evidence for a relationship between territorial governability and rebel

¹²See Section A.6.1 for a full presentation of results from this model.

<u>Model 3</u>		
	Goal	Onset
Population	-0.15 [-0.94; 0.51]	-0.16 [-0.59; 0.16]
Capital Distance	0.05 [-0.41; 1.00]	-0.29 [-0.63; 0.15]
Population × Capital Distance	-0.22* [-0.58; -0.01]	
Area	-0.67 [-2.38; 0.03]	-0.18 [-1.01; 0.28]
Excluded		-0.02 [-0.34; 0.28]
Downgraded		0.86 [-0.14; 2.74]
Inequality ²		0.26* [0.09; 0.46]
Balance		0.03 [-0.24; 0.29]
Polyarchy		-0.22 [-0.45; 0.01]
GDP _{pc}		0.26* [0.02; 0.51]
(Constant)	-8.85 [-33.10; 0.09]	5.83 [-0.35; 15.03]
Polynomial Time	✓	✓
Observations	11529	

* 0 outside 95% credible interval

Table 2.3: Nested logit results for the onset and choice of goal in territorial civil conflict. Onset coefficients represent the effect of a variable on a group remaining peaceful. Goal coefficients represent the effect of a variable on a group fighting for secession over autonomy, conditional on choosing violence.

goals is puzzling considering the consistent relationship between population, capital distance, and conflict onset in the literature.

2.3.3 Predictive Accuracy

Notions of statistical significance (whether frequentist or Bayesian), are not the sole metric by which to evaluate models. Predictive accuracy can be used to assess how well a predictor captures a given phenomenon when it does not reach conventional threshold of statistical significance. Before assessing the predictive power of individual features, it is standard practice to evaluate the predictive accuracy of the model as a whole. Diagnostic tools such as Receiver Operating Characteristic (ROC) curve plots (Bradley 1997) and separation plots (Greenhill, Ward & Sacks 2011) can be useful in this process, they are best-suited to binary rather than categorical outcomes. In multiclass

classification problems, a confusion matrix is often the most useful tool for assessing model fit (Townsend 1971, Ting 2017). Table 2.4 presents a confusion matrix constructed from predictions generated by Model 1.

		Actual		
		Nonviolence	Autonomy	Secession
Predicted	Nonviolence	11,384	25	87
	Autonomy	7	5	2
	Secession	11	5	3

Table 2.4: Confusion matrix of actual and predicted outcomes.

The positive predictive value (PPV) for nonviolence is 0.99 while the PPV for autonomy and secession are 0.36 and 0.16, respectively. In other words, 99% of the predicted instances of nonviolence are actual nonviolence, while only 36% of the predicted instances of autonomy are actually autonomy and 16% of the predicted instances of secession are actual secession. The high PPV for nonviolence is unsurprising given that it is the modal outcome, but this is also unimpressive as it is barely distinguishable from a model that simply picks the modal category for every observation. The predictive accuracy of Model 1 is especially low for the outcomes of interest. Within the subset of violent outcomes, Model 1 performs worse than flipping a coin, but focusing on the bottom right cells of Table 2.4 obscures the extent of the problem. Of the 127 instances of actual violence in the data only 15 are correctly predicted to be *some* form of violence (autonomy or secession), while 112 are incorrectly predicted to be nonviolence. Model 1 thus predicts only 12% of violence correctly.

While predicting conflict onset is a notably difficult task (Kennedy 2015, Colaresi & Mahmood 2017, Cederman & Weidmann 2017, Hegre et al. 2019), these results are particularly bad. The lack of robust relationships for the key explanatory variables combined with the abysmal predictive performance suggests that the model simply does not fit the data well.

While absence of evidence is not evidence of the absence of a relationship between territorial governability and rebel goals, there are multiple potential possible explanations for this lack of evidence. Measurement and specification error are unlikely due to the multiple measures of population, rebel goals, and alternative models employed. Another possibility is case selection bias, but by

including all territorially based ethnic groups, I have attempted to capture all groups relevant to the causal mechanism of territorial governability and nationalist self-determination demands. I am limited to the post-Cold War period by data availability and this may influence the findings, but cross-national high resolution data on population are only available beginning in 1990. To try and bypass this limitation, Chapter 4 explores how changes in territorial governability affect rebel goals while Chapter 5 uses multiple qualitative case studies, all of which begin before 1990, to examine how territorial governability, rebel ambitions, and government preemption are related.

2.4 Conclusion

Given that measurement and specification errors are likely not at fault, these null findings could be evidence of a flawed theory. However, given the body of knowledge assembled by conflict researchers, this seems unlikely. How can factors such as group population, remoteness from the state, and lost political autonomy that have robust and well known effects on the onset of conflict, but have no bearing on the goals these conflicts are fought for? Furthermore, anecdotal evidence provided by quotations from rebel leaders suggests that there is *some* relationship between the governability of a territory and the goals that a group will fight for.

One potential explanation for this lack of evidence is that the stochastic component of the relationship overwhelms the deterministic component in explanatory importance. If “war is in the error term” (Gartzke 1999) and difficult to predict even *a posteriori*, then it logically follows that the goals groups fight for in these conflicts could be equally difficult to predict. This framing shifts the area of inquiry from how rebels choose the goals to fight for in territorial civil wars, to why these conflicts are so difficult to predict.

Thus far I have referred to the state as merely something that inconveniences potential rebels by reacting to their secessionist aspirations. By introducing agency to the state in this causal story, we can begin to answer the question of why we cannot observe a relationship between territorial governability and group goals. More importantly, by investigating how states work to prevent secessionist conflict, we can gain further insights into the relationship between territorial governability and goals in civil war.

CHAPTER 3: THE CURSE OF GEOGRAPHY

The Nigerian military maintains a significant presence in the petroleum rich Niger Delta region. While the threat of secession is significantly lower than it was during the height of the Ogoni self-determination movement in the 1990s or the Nigerian Civil war in the 1960s, the government is apparently still worried given the frequency of military operations against rebels in the region (Walker 2009, BBC 2016, Owolabi 2017). This concern is not misplaced; loss of the oil revenues generated by the Niger Delta would severely hinder the government's ability to meet its obligations, and militant attacks on oil facilities (Uguru & Faul 2016) have led to up to 30% reductions in production (The Economist 2016). Regular military exercises anger local residents who say that the government should "change its military approach" and "address the developmental challenges facing the region," instead (Akwayiram 2017).

At first glance, this belligerence may seem puzzling. Gone are the demands for secession and independence of the Biafrans; in their place, Ijaw groups call for "federalism and self-determination" (Opejobi 2017). Why the heavy hand of separatism is less of a concern today? One possibility is that the government is unwilling to tolerate the income loss a revenue sharing agreement would entail. Another is that the region's petroleum reserves are so valuable that the government is not willing to risk any chance of losing them to a successful secessionist movement.

In fact, acquiescing to the region's demands for development could make secession more likely. Modern nation-states are territorial political entities, defined by their borders with other sovereign states, and encompassing the territory within those borders. As such, the administrative competence and institutional capacity of a group is only part of the equation for how difficult governing will be after achieving independence. The other is how burdensome it will be to govern and control the specific territory that a group will control.

The governability of a territory can be influenced by numerous geographic factors such as the location and abundance of natural resources, ease of accessibility, and quality of infrastructure. Similarly, the human geography of a territory can determine how governable it is for a specific group.

Are people clustered in dense urban populations, making the administration of the territory easier?
Are there numerous other ethnic groups in a territory that may be unwilling to submit to majority rule by the self-determination group?

Improving infrastructure, paving roads, and expanding electrification would all decrease the difficulty of governing the Niger Delta if it were an independent state. While developing the Niger Delta might satisfy activists in the short-term, the improvements to the region could decrease the difficulty of governing it sufficiently that they may decide independence is a feasible goal. Investing without addressing local grievances, the flow of oil revenues from the Delta to Abuja, could raise the risk of secession by reducing the amount of post-independence state-building required while not removing the desire to escape the state's control.

If geography influences a region's suitability for independent governance, and thus likelihood of secession, then this gives states a powerful source of information they can use to head off potential secessionist movements. If an excluded ethnic group inhabits territory that is particularly well suited to sovereign governance, and therefore secession, then the state may take pains to discourage the group from considering secession by increasing their coercive capacity within the group's territory. This attention will manifest as increased levels of state capacity relative to less governable areas.

Yet secession is a strategic process and Chapter 2 has largely ignored the role the state plays in this dyadic phenomenon. Unsurprisingly, states are not content to sit idly by and let groups try to secede with swathes of their territory. The decisions states make in the face of this dilemma can explain why we do not observe more secessionist conflict given the plethora of aggrieved minority groups, and why governments often appear to prefer dealing with low level violence to meeting groups' demands for regional development.

Understanding when governments will choose appeasement instead of preemption is beyond the scope of this project, but one plausible explanation is that more politically excluded groups are less likely to be appeased because they are less important for governments to maintain winning coalitions. Regime type could also constrain the government's choice of strategy with coercive preemption less palatable to a larger electorate.

It is important to conceptually disaggregate state capacity for this argument. State capacity entails both ensuring a monopoly on the legitimate use of force (Weber 1965, Tilly 1985, Olson 1993) and maintaining political institutions (Acemoglu, Johnson & Robinson 2001). Improving a region's

infrastructure could increase the attractiveness of secession by providing more tools for a hypothetical future state. Conversely, increasing the policing and surveillance capabilities in a region deters secession by increasing the costs of militarily challenging the state. Grievances are related but orthogonal, as public goods provision may decrease grievances if they are driven by disparate outcomes but may do little alleviate them when they arise from political exclusion.

The puzzling consistent lack of evidence for a relationship between governability and goals in Chapter 2 becomes less puzzling when we take a step up the causal chain. Secessionist conflicts often begin in places abundant with resources located far from the centers of state power. These factors affect the likelihood of secessionist conflict because dissidents will only rebel when they expect to be able to form a functional state within the borders of their territory following independence. Given the large geographic component of governability, governments use this information to target the groups most likely to secede for preemption efforts. In effect, attempting to find a relationship between governability and goals will end in failure because doing so ignores the effect of government on this relationship.

To test this argument, this chapter proceeds as follows. I argue that states are aware of the role of territorial governability in secession and use their knowledge of different territories within their borders to identify the most likely candidates for secession and proactively work prevent such movements from emerging. I conduct a cross-national test of this argument using geospatial data to measure both governability and local state capacity. Results indicate that governable areas geographically far from the center have elevated levels of state capacity compared to similar areas located closer to the capital. This pattern suggests that governments are deliberately cultivating a presence in these areas despite the cost of doing so. I close by discussing how this strategy can explain many of the patterns we observe in civil conflict throughout the world.

3.1 Keeping a lid on it

Secessionist conflicts are mostly likely when marginalized ethnic minorities who suffer from discrimination at the hands of the state (Cederman, Wimmer & Min 2010) are located far from the capital (Cederman, Buhaug & Rød 2009). Secessionist conflicts are almost purely an ethnic phenomenon as ethnicity can more easily whip up the nationalist fervor such efforts require than other identities such

as class or religion (Cederman, Buhaug & Gleditsch 2013). The empirical distribution of the location of excluded minority groups suggests that we should observe more secessionist conflicts than we do. Figure 3.1 presents the distribution of the distance from ethnic group to the capital, divided by political status. Excluded groups are much more represented in the right side of the distribution. Despite the frequency of excluded groups located far from the capital, the prevalence of secessionist conflict is relatively low.

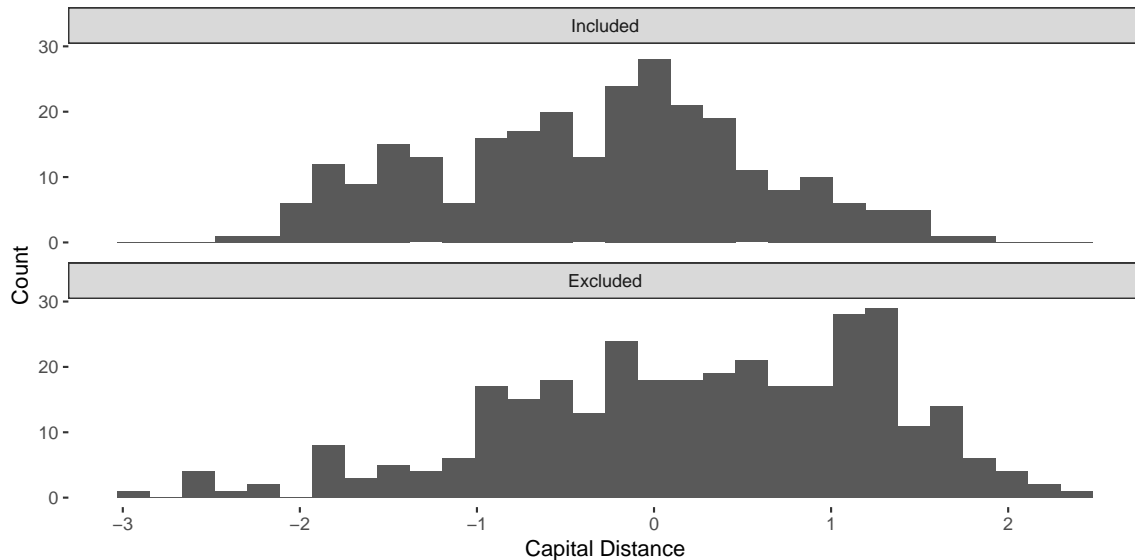


Figure 3.1: Distribution of the distance from ethnic group territories to the national capital (log-transformed and standardized) by group political status in 2013.

This pattern is only puzzling if we think that the process of secession stops as soon as the government concedes and allows the group to leave with some of its territory. While victory on the battlefield may signal the end of a secessionist movement, it is just the beginning of a new state, and the two entities share a leadership. The following section explores the challenges of state-building, and provides insight into why some groups may be unwilling to engage in secessionist civil war.

The shortage of secessionist conflicts may mean that governments preemptively stop conflicts from occurring in the areas most prone to secession. If this is the case, we should observe governments paying extra attention to these regions and developing their coercive capacity to prevent unrest from escalating into armed conflict. This strategy can be carried out by either providing elevated levels of public goods such as medical clinics or government jobs, or by increasing the repressive capacity of the state, as China has done in Xinjiang recently.

Armed with the information that ethnic groups that attempt to secede will try to take their homelands with them (Toft 2003), governments can act decisively to prevent large-scale secessionist violence. The actions of China in Xinjiang in the second decade of the 21st Century provide an illustration of how this process can play out. After riots between Muslim Uyghurs and Han Chinese in the city of Urumqi killed almost 200 people in 2009 (Wong 2009), the Chinese government executed nine people it claimed were responsible for the violence (Demick 2009). However, this was just the beginning of the government's response. As a first step, Xinjiang's "security forces doubled between 2009 and 2011 to more than 11,000 people" (Coca 2018). The government advertised over 84,000 security positions in the space of one year between 2016 and 2017, indicating a continuing increase in security force presence (Gan 2017). The government has built "convenience police stations" at major intersections in cities throughout Xinjiang, which allow police officers to more easily monitor people (Wen 2017).

In addition to the increased presence of security forces, China has initiated a massive surveillance operation in the region. Cameras on streetlights utilize facial recognition technology to track the movement of people throughout the region (Millward 2018), and in Urumqi, people must use their government IDs and submit to a facial recognition scan to buy gasoline (Chin, Bürge & Marchi 2017). Government databases are so comprehensive that the system can alert authorities if someone wanders more than 300 meters from their home or workplace (Phillips 2018). The government has deployed this immense security apparatus to identify potential dissidents, and UN human right experts believe that potentially up to a million Uyghurs have been detained in reeducation camps (Cumming-Bruce 2018).

Why has China dedicated so much money and human capital to a remote and underdeveloped region? While Xinjiang has never experienced a widespread armed secessionist movement, there are long-simmering desires for self-determination in the region (Bovingdon 2010). The East Turkestan Islamic Movement has demanded independence for Xinjiang's Uyghur population since the 1990s (Gunaratna, Acharya & Wang 2010, 47-88). Given these tensions, the Chinese government has decided that the risks of full scale secessionist conflict justify the expense of the surveillance effort and "indoctrination campaign, which aims to eradicate . . . any yearning for an independent Uighur homeland" (Buckley 2018). This effort is part of a shift in policy towards ethnic minorities from a

soviet style model that accommodates minority rights to one based on “assimilation” of groups into a single Chinese identity (Elliott 2015).

Xinjiang has all the makings of a potential secessionist conflict. It has a relatively large population for its location and is situated far from the centers of state power in Beijing. The story of Xinjiang may be replicated elsewhere and be responsible for why we do not observe more secessionist conflicts.

When the population is physically difficult for agents of the state to reach, tax revenues will be lower, and acceptance of government policies may be more difficult to obtain (Herbst 2000). In extreme cases, people may not even be aware of changes in government policies. Developing state capacity in physically remote areas is a costly process, and so when governments do so, it is likely the result of a strategic decision where the costs of administering and monitoring this remote territory are worth paying to deter potential secessionists.

The more governable a territory is, and the farther from the reaches of the state it is located, the more suited to secession it will be. The effect of governability is conditional on distance from the existing state’s centers of power because newly independent states located near the previous host state will face significant harassment. We should see an increase in government attention devoted to a group’s territory as it becomes more governable and farther from the state.

Lacina (2015) argues that secession is less likely in areas where the government is willing to pay high costs to defend its territory. She operationalizes this theory by assuming that governments will fight hard to defend territory occupied by the dominant ethnic group, so groups whose territory overlaps the dominant group’s will be deterred from launching a secessionist campaign, and finds support for this prediction among excluded groups (Lacina 2015, 701-703). I extend her logic to argue that governments are also more willing to fight for valuable territory, and work to actively deter separatist claims within that territory. I also provide a more direct test of the mechanism of this deterrence by focusing on how governments develop their capacity in these secession prone regions.

While this theoretical argument depends on myriad factors that contribute to territorial governability and encompasses many different aspects of state power that the government can use to preempt secessionist movements, empirically testing it necessarily entails a degree of simplification. Testing it in a cross-national manner over multiple years requires a larger degree to simplification. For the purposes of this manuscript, I limit my analysis to the broadest possible implications to facilitate the inclusion of as many cases as possible. This distillation leads to my hypothesis:

Hypothesis 2 *The effect of territorial governability on state investment should be positive and increasing in distance from the capital*

In the following section I discuss my operationalization of governability and present the statistical test of my argument using cross national geospatial data.

3.2 Data and Methods

I test my argument that governments work to deter secession in the most high risk areas on a sample of all ethnic group territories from 1990 to 2013 due to the role of ethnic identity in this type of conflict. My unit of analysis is the ethnic group, so my universe of cases is all ethnic groups that have defined territories between these dates. Recent work on civil war onset has focused on ethnic groups because the shared identity of an ethnicity can channel grievances in a manner that overcomes barriers to collective action (Cederman, Buhaug & Gleditsch 2013). Since many ethnic groups have defined settlement areas, they also have a natural homeland to create a new state in, should they decide to secede (Toft 2003). If a group wishes to secede, it needs “a potential independent nation” with a territory that could serve as a “national homeland” (Orridge 1982, 46), which allows me to make comparisons across ethnic group settlement areas.

Governments cannot rely on geographic information as strongly when trying to prevent center-seeking governmental conflict because the qualities of the territory that a group inhabits are less relevant when their goal is to overthrow the government and capture the entire state. Focusing on territorial conflicts allows me to make meaningful comparisons across different areas because groups are fighting for their specific territories. While the territory that a group controls at the start of a governmental conflict might shape the dynamics of the conflict, that territory is not the end goal of the conflict.

I use geospatial data on population to measure the governability of each ethnic group’s specific territory, which reflects the human resources that a group can draw on. Ethnic separatist desires are much more likely to escalate to a secessionist crisis when the group’s population is larger relative to the rest of the state’s population (Roeder 2007, 259-289), so population is a major component of a territory’s governability. More populous territories are more governable because the people who

inhabit them represent a source of capital via taxation, and labor for achieving the new government's ends.

The effect of population is moderated by the territory's distance from the capital because secession is infeasible if the new state is located right next to the previous state's centers of power. States do not take secession lightly, and any new state would have to contend with constant interference from its previous host. As such, the effect of population on risk of secession should be stronger as distance from the capital increases.

By maintaining a large military presence in an excluded group's territory, the state may be able to deter a secessionist uprising. Similarly, the government can forcibly relocate populations to less governable areas, as the Soviet Union frequently did in the mid 20th Century. Governments can also encourage members of dominant ethnic groups to migrate to secession-prone remote territories inhabited by minorities, like the Javanese migration to Aceh. I use the fact that nighttime light emissions correlate strongly with government activity to conduct a cross national test of this hypothesis. If governments are indeed trying to make secession too costly, then more governable territory should also have higher levels of nightlights.

3.2.1 Universe of cases

In order to measure the territorial governability of different ethnic group territories, I draw on geospatial data. I use the GeoEPR (Wucherpfennig et al. 2011) dataset, which is a geocoded extension of the EPR data (Vogt et al. 2015). Each ethnic group with a defined territorial settlement pattern has a polygon in the GeoEPR data. As I am interested in preemption of secessionist conflict, I use the least aggregated level of observation, which splits ethnic groups along state borders. For example, the GeoEPR data have polygons for Kurds in Iraq, Syria, and Turkey, so each of these group-state dyads are a separate entry in the data. I use territory-years because population and nightlights vary yearly, as do many control variables.

Although this sample necessarily involves omitting potential non-ethnic conflicts from my study, there is significant evidence that the ascriptive nature of ethnic identity channels political grievances in a more effective manner than other identities such as class or ideology (Cederman, Buhaug & Gleditsch 2013) and lowers barriers to collective action (Lichbach 1995), so focusing on ethnic conflicts is appropriate because they are likely to follow qualitatively different causal pathways than

non-ethnic ones. Empirically, secession is almost purely an ethnic phenomenon, so focusing on ethnic groups allows me to uncover the effects of territorial governability on government preemption efforts. I exclude groups with a monopoly on political power, because by definition they are in power and are not worried about themselves seceding.¹ While governments may not deploy extensive surveillance infrastructure against politically powerful groups, they may still provide them with elevated levels of public goods if they are located in areas prone to secession.

The more governable a territory is, and the farther from the reaches of the state it is located, the more suited to secession it will be. More populous territories are more governable because the people who inhabit them represent a source of capital via taxation, and labor for achieving the new government's ends. The effect of population is conditional on distance from the existing state's centers of power because newly independent states located near the previous host state will face significant harassment. We should see an increase in the level of nightlights in a group's territory as it becomes more populous and farther from the state.

3.2.2 Government attention

One of the most important factors affecting the governability of a given piece of territory is the degree to which the government is able to impact the lives of its citizens. This concept has been explored before at the state level with the idea of political penetration (Kugler & Tammen 2012). However, these measures are insufficient for explaining the goals that a rebel group will pursue because territorial groups are only interested in part of a state's territory. Instead, we require subnational data to measure the degree of government reach into specific ethnic group territories.

To accomplish this, I data on use nighttime light emissions. While nightlights are a reliable proxy for economic activity in a given area (Cederman, Weidmann & Bormann 2015, Kuhn & Weidmann 2015, Weidmann & Schutte 2016), they are also an indicator for state capacity in an area. Electrification is often a tool used by the government in developing states to extend their reach into rural areas (Kale 2014). Similarly, nighttime lights correlate with tax revenue and state capacity at the municipal level (Harbers 2014), as well as the number of government employees or medical clinics

¹I keep groups whose political power is dominant or who are senior partners in a government, because these powerful groups may still rebel if they have recently had their political power downgraded (Cederman, Wimmer & Min 2010). Monopoly groups are excluded because as the top category, they cannot have been recently downgraded.

in a district (Koren & Sarbahi Forthcoming). Nightlights are a globally available method to measure government activity, which means they can be used even for countries with poor or nonexistent data (Chen & Nordhaus 2011), which are also the countries most at risk for civil conflict. Further, they are largely immune to government incentives to misrepresent economic statistics. The higher the capacity of a state in a given territory, the more nighttime light will be observable.

If nightlights are a proxy for state capacity, then they can also indicate the degree of attention that a government invests in a specific region. Figure 3.2 shows how China's investment in Xinjiang is visible as relatively bright nighttime light emissions despite its comparatively low levels of population.

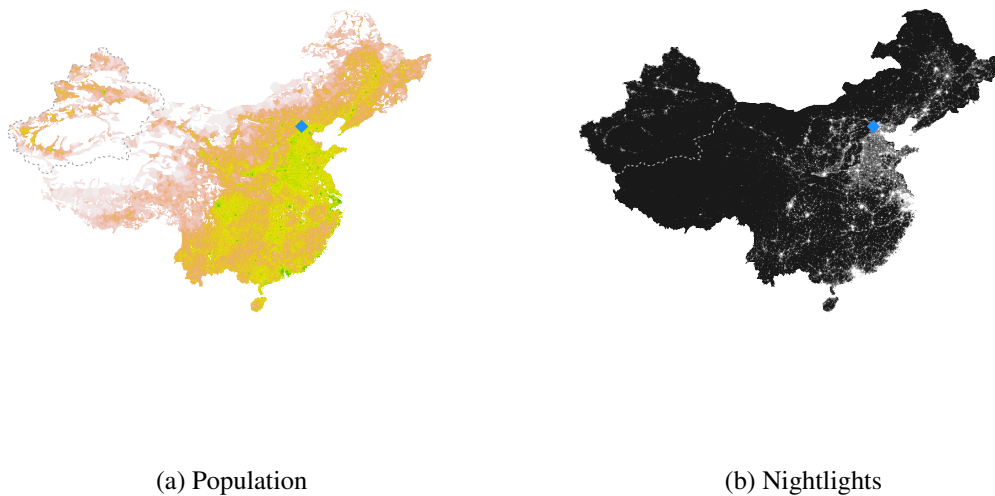


Figure 3.2: China in 2013. Panel (a) displays (log) population and Panel (b) displays nightlights. The gray dashed line denotes the Xinjiang Uyghur Autonomous Region, while Beijing is represented by the blue diamond.

The specific dataset that I use to measure nighttime light emissions is the Defense Meteorological Satellite Program (DMSP) Operational Linescan System (OLS) (Elvidge, Erwin, Baugh, Ziskin, Tuttle, Ghosh & Sutton 2009), which measures average light emissions over the course of a year at 30 arc-second grid cells (approximately $1\text{km} \times 1\text{km}$ at the equator). For each territory, I follow the ‘cookie cutter’ approach (Cederman, Buhaug & Rød 2009, Cederman, Weidmann & Gleditsch 2011, Cederman, Weidmann & Bormann 2015) of using the territory polygon to capture all values of all

highlights cells that fall within the group's territory, accounting for overlapping group polygons when necessary.²

3.2.3 Territorial governability

As in Chapter 2, I use the population of an ethnic group's territory to measure its governability. I likewise use the geographic concentration of this population as an alternative measure of governability to address concerns about total population as a measure of governability.

3.2.4 Capital distance

As in Chapter 2, the remaining spatial measure, which conditions the effect of population, is the distance from a group's territory to the capital and is obtained from the CShapes dataset (Weidmann, Kuse & Gleditsch 2010) on the geography of states which provides the geographic location of capitals for all major states from 1945 to the present. Combining these data with ethnic group locations from EPR allows me to measure the distance between the centroid of a group's territory and the capital.

3.2.5 Control variables

In order to account for other important causal forces, I include a number of non-spatial control variables, which I refer to as political controls. Many of these capture aspects of a group's organizational structure or capabilities. Politically excluded groups are more likely to be shut out from public goods (Cederman, Buhaug & Gleditsch 2013), so I code a group as *excluded* from political power if their political status is 'state collapse,' 'self-exclusion,' 'discriminated,' or 'powerless' according to EPR. I also include a measure of whether a group has *lost autonomy* in the past five years because these groups are the most likely to start a secessionist conflict (Siroky & Cuffe 2015), and thus the most likely to receive elevated state attention.

I also include a number of regime based controls to reflect the fact that groups do not make these decisions in a vacuum. Factors such as regime type and age (Marshall, Gurr & Jagers 2014), monetary resources, and military capability (Singer 1988) all influence the government's ability and willingness to inflict costs on rebels if they choose the more extreme goal of secession. To account for

²See the Section B.3 for a discussion of this process.

these effects, I include measures of *polyarchy* from V-Dem (Coppedge, Gerring, Lindberg, Skaaning, Teorell, Altman, Andersson, Bernhard, Fish & Glynn 2017) which captures the degree to which electoral democracy is realized in a country and *GDP per capita* (World Bank 2018) to proxy for overall state capacity.

3.2.6 Model

As nightlights are a continuous outcome variable, I analyze them with linear regression. To account for unobserved similarities in the data, I use a model with random intercepts α by country. This controls for the possibility that some countries are more likely to deploy resources in certain areas than others. I also include random intercepts γ by year to account for unmodeled temporal heterogeneity. Equations 3.1-3.5 present this model, along with all priors and hyperpriors. I employ diffuse regularizing hyperpriors on all parameters in the model to avoid overfitting the data. The response variable is the total amount of luminosity recorded in a group's territory in a given year, which represents the amount of state capacity in that territory, and thus the level of attention the government has devoted to maintaining control of that territory.

$$Y \sim \mathcal{N}(\alpha + \mathbf{X}\beta, \sigma^2) \quad (3.1)$$

$$\beta \sim \mathcal{N}(\mu_\beta, \sigma_\beta) \quad (3.2)$$

$$\alpha \sim \mathcal{N}(\mu_\alpha, \sigma_\alpha) \quad (3.3)$$

$$\mu_\alpha, \mu_\beta \sim \mathcal{N}(0, 5) \quad (3.4)$$

$$\sigma_\alpha, \sigma_\beta, \sigma \sim \text{half-Cauchy}(0, 2.5) \quad (3.5)$$

3.3 Results

I estimate four models using the data described above. The first two include only population and capital distance, the third includes and their interaction and the size of a group's territory, while the fourth includes all political control variables discussed above.³

³Standard diagnostics indicate good convergence of the chains and are available in the Supplemental Information.

	Model 1	Model 2
Population	0.81* [0.81; 0.82]	
Capital Distance		-0.49* [-0.51; -0.47]
(Constant)	0.09 [-0.13; 0.32]	-0.06 [-0.21; 0.12]
σ_α	0.60* [0.53; 0.68]	0.92* [0.82; 1.02]
σ_γ	0.50* [0.37; 0.68]	0.12* [0.09; 0.16]
WAIC	11675.11	26382.74
5-fold RMSE	0.63	0.63
Observations	13854	13854

* 0 outside 95% credible interval

Table 3.1: Linear models of nightlights as a function of ethnic group population and capital distance. The standard deviation of the country and year random intercepts are represented by σ_α and σ_γ , respectively. Continuous variables logged and standardized.

The bivariate relationships between population, capital distance, and nightlights are unsurprising. The correlation between group population and nightlights is 0.59 and the correlation between capital distance and nightlights is -0.09. More people means more state penetration, while governments are less likely to have a presence in areas far from the capital. However, a bivariate correlation does not account for unobserved heterogeneity in the data due to the dependent nature of observations across country-years. Table 3.1 presents the results of the Bayesian linear model with random intercepts by country and year, which results in a substantially more negative association between capital distance and nightlights. The logged and scaled nightlights variable ranges from -1.67 to 2.17, so the -0.49 effect of a one unit increase in logged and scaled capital distance on nightlights represents a substantively meaningful -12.78% decrease.

However, the theoretical argument about the relationship between geography and state penetration into ethnic group territories states that this penetration should be higher when the risk of a group seceding is higher. This again implies a conditional relationship in the statistical model. Territory is most suited to secession when it is more governable and located farther from the reach of the state. Using the population of an ethnic group's territory as a measure of its governability, and hence

viability as an independent state, this argument implies that the effect of population on nightlights should be increasing in distance from the capital.

	Model 3	Model 4
Population	0.73*	0.72*
	[0.71; 0.75]	[0.70; 0.74]
Capital Distance	-0.15*	-0.15*
	[-0.17; -0.14]	[-0.17; -0.14]
Population Total \times Capital Distance	0.03*	0.03*
	[0.02; 0.03]	[0.02; 0.04]
Area	0.05*	0.05*
	[0.04; 0.07]	[0.04; 0.06]
Excluded		-0.02
		[-0.04; 0.00]
Dominant Group Presence		0.05*
		[0.03; 0.07]
Lost Autonomy		0.07
		[-0.02; 0.15]
GDP _{PC}		0.14*
		[0.11; 0.17]
Polyarchy		0.03*
		[0.01; 0.05]
(Constant)	0.05	-0.02
	[-0.15; 0.25]	[-0.22; 0.18]
σ_α	0.60*	0.48*
	[0.54; 0.68]	[0.42; 0.54]
σ_γ	0.46*	0.43*
	[0.34; 0.64]	[0.32; 0.59]
WAIC	11207.09	11113.22
5-fold RMSE	0.36	0.36
Observations	13854	13854

* 0 outside 95% credible interval

Table 3.2: Linear models of nightlights as a function of the interaction between ethnic group population and capital distance. The standard deviation of the country and year random intercepts are represented by σ_α and σ_γ , respectively. Continuous variables logged and standardized.

Table 3.2 presents results from this conditional specification. Model 3 includes geographic variables measured in each group's territory, while Model 4 includes country level variables to control for regime type and state capacity.⁴ The introduction of country level control variables does

⁴Omitting groups with a monopoly on political power, or who dominate the political system within a country (Cederman, Weidmann & Gleditsch 2011) does not substantively affect the results of the analysis. Neither does limiting the sample to politically excluded groups. See Section B.4 for these results.

not significantly affect the estimates for the effect of capital distance and population, suggesting that they are strongly related to the level of nightlights within a territory.

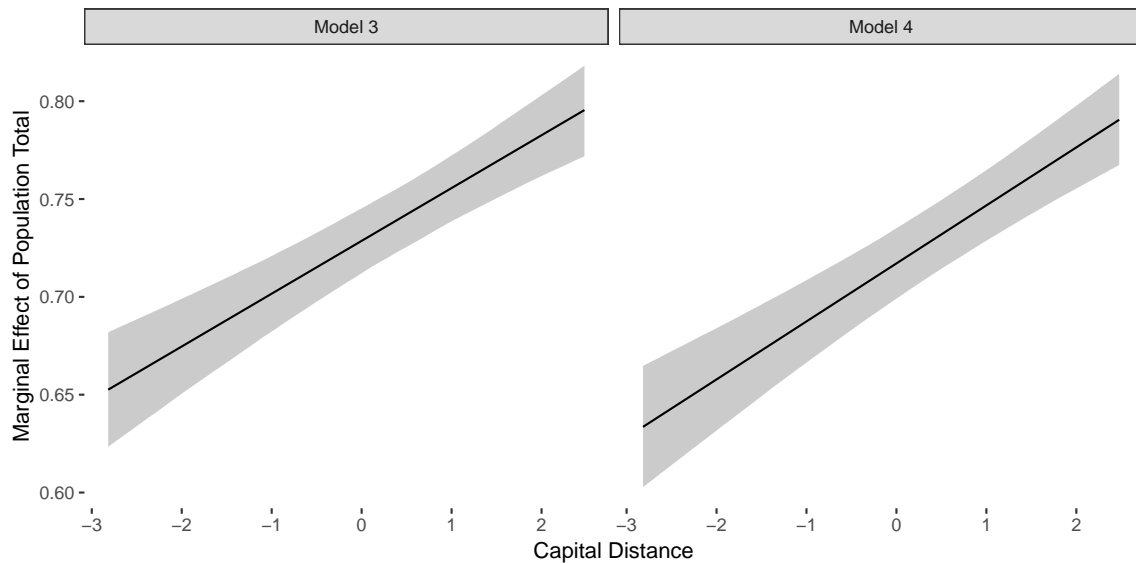


Figure 3.3: Marginal effects of ethnic group population on nightlights, conditional on distance to the capital.

Figure 3.3 presents the marginal effect of population on nightlights from Models 3 & 4. In both models, the marginal effect of population on nightlights is positive and increasing in capital distance. The maximum marginal effect in Model 3 is 0.80, so the effect of a one unit shift in logged and scaled population represents a 14.70% shift in the outcome variable. The maximum marginal effect in Model 4 is 0.79, which corresponds with a 14.61% shift in the outcome variable. This effect is substantially larger than the effect of any control variables in Model 4, suggesting that the suitability of territory to independent governance plays a significant role in government decisions to invest in a given area. The combination of population and capital distance has a substantively meaningful effect on the level of nightlights within a given ethnic group’s territory. Moving from two standard deviations below the mean of capital distance to two above results in an increase in the marginal effect of population on nightlights of 0.11, which corresponds to a 2.02% shift across the observed range of nightlights.

Exclusion’s negative estimate makes sense given that excluded groups are often shut off from access to state resources. However, groups that have lost regional autonomy have a higher nightlights value, which suggests that states are paying special attention to those groups because they are at the

highest risk of secession due to their combination of grievances and governing experience (Siroky & Cuffe 2015). Similarly, groups whose territory overlaps the dominant group's have higher levels of nightlights, reflecting the government's interest in these regions (Lacina 2015). GDP per capita and Polyarchy are also both positive, which aligns with our expectations.

Comparing the fit of Models 3 & 4 shows that the inclusion of country and group level control variables mildly improves the in-sample predictive accuracy of the model. The Watanabe-Akaike information criteria (WAIC) is akin to the Akaike information criterion and Bayesian information criterion in likelihood based models (Gelman, Hwang & Vehtari 2013). Interpretation is the same as AIC and BIC, with lower values representing a better fitting model. Similarly, WAIC penalizes the inclusion of extra parameters, so Model 4 better explains the data than Model 3, despite increasing the number of free parameters. However, the change in WAIC from Model 3 to 4 is smaller than the change from Models 1 & 2 to 3, suggesting that geographic factors explains more of the variation in nightlights than political ones do.

However, WAIC is a measure of in-sample fit, and we must assess out of sample fit as well. I perform k -fold cross-validation on Models 1-4 with $k = 5$, computing the root mean squared error (RMSE) for each fold, and present the average RMSE for all 5 folds in Tables 3.1 % 3.2. Model 2 has the worst RMSE, followed by Model 1, and Models 3 & 4 have the lowest RMSE. The addition of the political control variables in Model 4 does not substantially improve out-of-sample accuracy. The marginal difference in 5-fold RMSE between Models 3 & 4 suggests that territorial governability drives much of state resource allocation decisions.

3.3.1 Robustness to Alternative Measures

To assess the robustness of the results, I evaluate the relationship between territorial governability and government investment using an alternative measure of territorial governability. Above I have measured governability as a function of the total number of people within a group's territory, based on the argument that the larger the stock of human capital a potential government can draw on, the more attractive secession will be. However, human capital can be difficult to leverage if it is widely dispersed across a broad area, as accessing and serving these populations will prove difficult. To address this criticism, I reestimate the models in Table 3.1 and 3.2 using the Gini measure of

population concentration detailed in Section 2.3.1 instead of total population. Table 3.3 presents these results.

	Model 5	Model 6	Model 7
Population Gini	0.41*	0.16*	0.15*
	[0.40; 0.42]	[0.15; 0.17]	[0.14; 0.16]
Capital Distance		-0.39*	-0.34*
		[-0.41; -0.38]	[-0.36; -0.33]
Population Gini × Capital Distance		0.01	0.02*
		[-0.00; 0.02]	[0.01; 0.03]
Area		0.51*	0.43*
		[0.50; 0.52]	[0.42; 0.44]
Excluded			-0.28*
			[-0.30; -0.26]
Dominant Group Presence			0.07*
			[0.05; 0.10]
Lost Autonomy			0.21*
			[0.09; 0.32]
GDP _{PC}			0.17*
			[0.14; 0.20]
Polyarchy			0.02
			[-0.00; 0.04]
(Constant)	0.11	-0.03	0.03
	[-0.00; 0.24]	[-0.14; 0.09]	[-0.07; 0.14]
σ_α	0.68*	0.68*	0.58*
	[0.61; 0.77]	[0.60; 0.79]	[0.51; 0.65]
σ_γ	0.09*	0.11*	0.08*
	[0.07; 0.13]	[0.08; 0.15]	[0.06; 0.11]
WAIC	24506.12	16451.09	15532.70
5-fold RMSE	0.59	0.44	0.42
Observations	13854	13854	13854

* 0 outside 95% credible interval

Table 3.3: Linear models of nightlights as a function of ethnic group population concentration and capital distance. The standard deviation of the country and year random intercepts are represented by σ_α and σ_γ , respectively. Continuous variables logged and standardized.

The relationship between population Gini and nightlights is similar to that of total population. Effect sizes are smaller, and model fit is worse when comparing WAIC and RMSE. However, the relationship remains positive as demonstrated by Figure 3.4.

Population concentration is an equally valid measure of territorial governability and exhibits the same relationship with government investment as total population. This similarity suggests that the results are not simply an artifact of the choice of variable used to measure territorial governability.

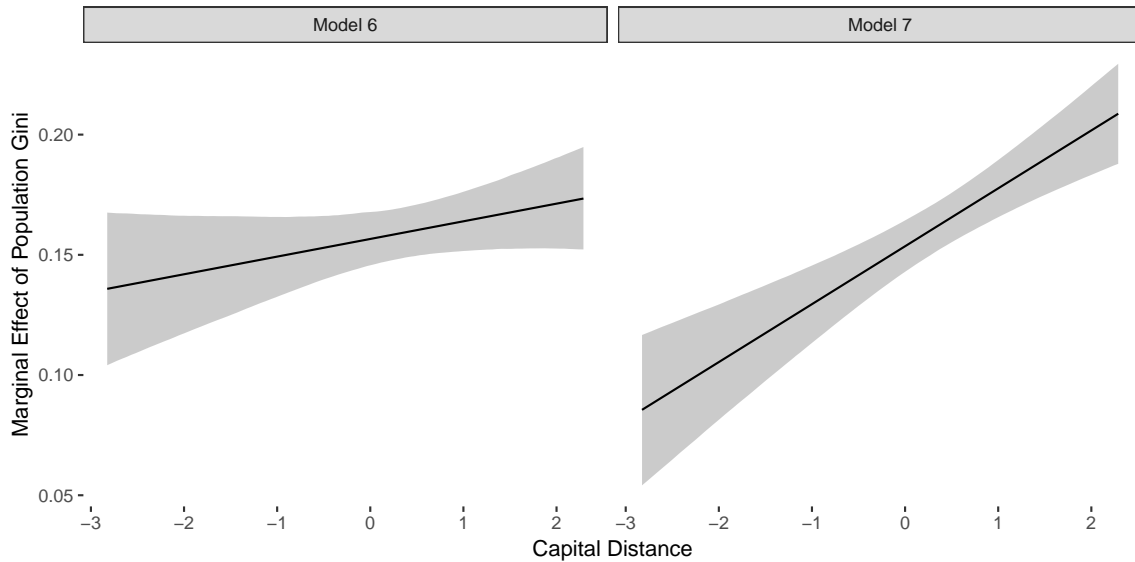


Figure 3.4: Marginal effects of ethnic group population concentration on nightlights, conditional on distance to the capital.

3.3.2 Robustness to Nonlinearities

While marginal effects plots can improve our understanding of interactive regression models (Brambor, Clark & Golder 2006), they only provide part of the picture. Another way to improve interpretability is to estimate \hat{Y} for a wide range of values and then observe the relationship between the components of the interaction term and the outcome. Figure 3.5 presents the predicted value of nightlights as a function of capital distance and population, which allows us to get a more complete sense of the relationship between them. Predicted nightlights values are highest when capital distances are lowest and population is highest, which makes sense as territory close to the capital is often inhabited by ethnic groups in power and the state is frequently capable there.

At first brush, we would expect the level of state involvement to decline with distance from the capital as it becomes more difficult for the agents of state to travel to various locations. While distance still has a negative effect on state presence within a group's territory, highly populated territories have higher levels of state attention than similarly populous territories located closer to the centers of state power. Given the increasing cost of government activity in these more remote locations, this relationship suggests that there must be a particularly compelling reason for governments to make these investments. Fear of secession and loss of territory is a valid concern that justifies such costly behavior.

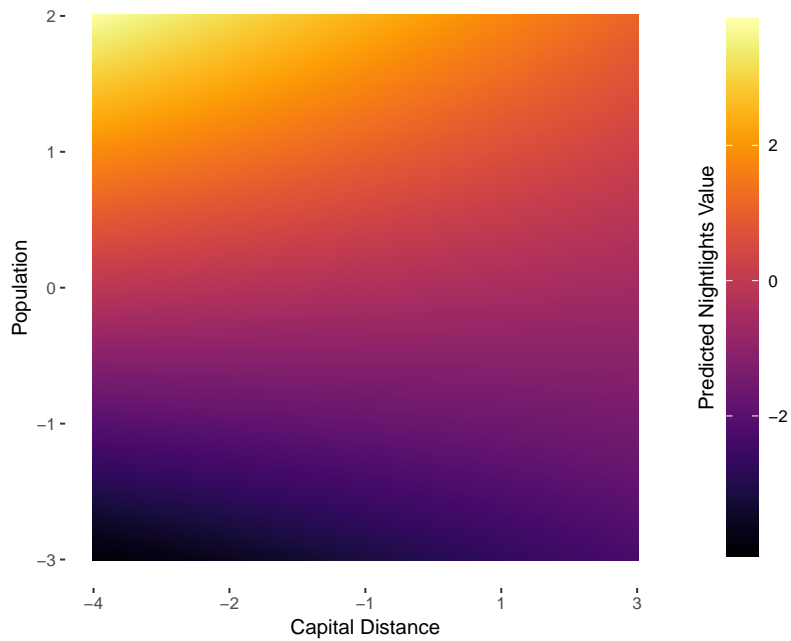


Figure 3.5: Predicted nightlights as a function of capital distance and population.

However, the smooth prediction surface highlights the simplification entailed in the model and emphasizes that it may not reflect more complicated relationships between capital distance, population, and nightlights. To address these concerns, I fit a random forest model to the data. A random forest is an ensemble of regression trees (Breiman 1984), each trained on a subset of the data (Breiman 2001). While random forests are designed to maximize predictive accuracy, they can also be used to detect nonlinearities in the relationship between variables and outcomes (Breiman 1984).

Figure 3.6 presents a partial dependence plot (Friedman 2001, Greenwell 2017) of the relationship between population, capital distance, and nightlights.⁵ A slight nonlinearity is observable in the lower 2/3 of the plot, where areas with lower population have higher nightlights close to the capital and very far away. This pattern supports my argument that states are increasing their capacity in areas most prone to secession because similarly populated areas at a middling distance from the

⁵This model includes population, capital distance, and the size of a group's territory as predictors. For full details, see Section B.6.

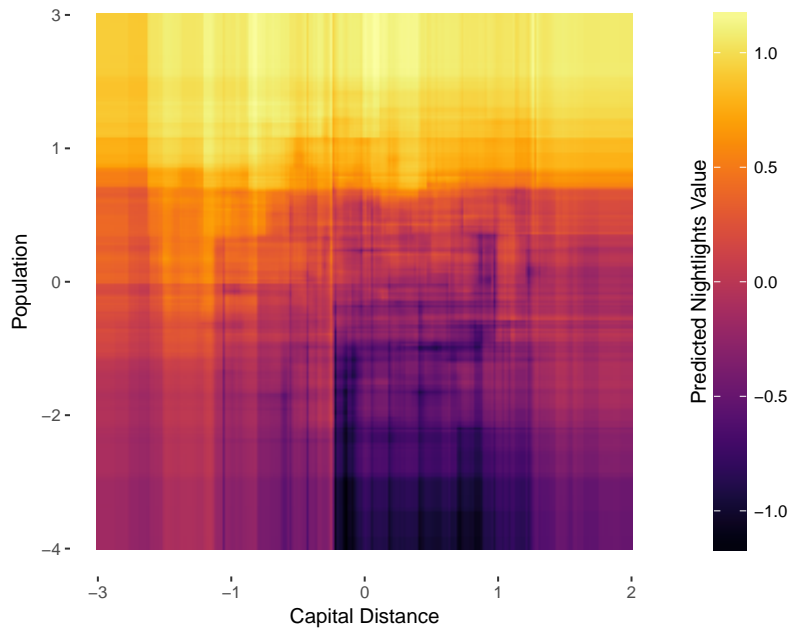


Figure 3.6: Partial dependence of nightlights on capital distance and population.

capital have lower nightlights values. State capacity is naturally high in areas close the the capital, and strategically high in areas far from the capital and more governable.

3.4 Discussion and Conclusion

The marginal effect of population on nightlights is positive and increasing as distance from the capital increases. The magnitude of the effect is substantively meaningful, which means that remote areas with high populations receive more government attention than comparably populated areas closer to the centers of state power. One interpretation is that governments strategical deploy resources to regions that are more likely to secede. This forward thinking behavior explains why we fail to observe more secessionist conflicts despite the abundance of aggrieved minorities living in governable territory.

These findings highlight an important disconnect that is often overlooked in studies of space and conflict. Geography is static when compared with the dynamism of politics. While the political fortunes of ethnic groups may shift quickly, the territory they inhabit remains largely unchanged.

This means that all actors involved in a conflict have relatively equal information about the geography within a country and can use this knowledge to their benefit. Since governments can devote their considerable resources to shutting down secessionist movements in the most likely places, then the ones that do arise may originate in territory that is less suited to secession. The prominent place of oil as a cause of secession also suggests that secessionist violence is most likely when the resources at stake can contribute to discontinuous shifts in the balance of power between governments and dissidents.

This theory also explains multiple phenomena internationally. Governments may strategically keep secession prone regions underdeveloped in order to deter self-determination movements from launching wars of independence. While underdevelopment may lead to political grievances and low level violence, states are taking a calculated risk that it is better to keep these regions unhappy but dependent than to inadvertently give them the tools for governance and spark a secessionist conflict.

Similarly, while we know that ‘sons of the soil’ conflicts can drag on indeterminately (Weiner 1978, Fearon 2004), we know less about why states engage in the internal colonization practices that often trigger the them (Fearon & Laitin 2011). One possibility is that they are the result of people in highly governable regions chafing under military controls or responding to the influx of majority group members such monitoring efforts entail (Bhavnani & Lacina 2015). Such conflicts are not particularly costly to fight, and keeping the military close at hand ensures that dissidents do not have the space to mobilize a mass movement for secession unchallenged. As such, governments may prefer the risk of sparking a low intensity sons of the soil conflict over the possibility of losing a secessionist civil war.

Government efforts to preempt secession are often successful because territory is relatively fixed in comparison to the political processes responsible for civil conflict. While populations change as people migrate and cities grow, these changes typically occur at a glacial pace, so governments have the same information as rebel groups. Given this relative informational symmetry, governments can act preemptively to try and prevent territorial conflicts from erupting. Given the graver threat that secessionist conflicts pose, governments should be more willing to commit resources to preventing them than autonomy seeking ones. Population has a positive effect on nightlights conditional on distance from the capital, which means that nightlights are higher in highly populated areas farther

from the capital than closer ones. This suggests that government are concerned about secessionist conflicts and devote more resources to suppressing them where they are more likely.

This pattern implies that the same thing that makes a territory suitable for secession also makes the government more inclined to work to retain it. While guerrillas and counterinsurgents fight for hearts and minds as a way to win the war, they are also engaged in a struggle for the population's support in the post-conflict period. Each side wants to attract and retain supporters as people are necessary for a state to function.

Since both governments and rebel movements are competing for the same pool of people, there are strong selection effects at play in the onset of civil wars. This suggests that we need to move beyond thinking about selection processes at the national level, as many studies do, to thinking about them at the subnational level.

The ability of states to preempt potential secessionist movements in the regions where they are most likely to succeed highlights an important power asymmetry we must consider when thinking about the effect of geography on conflict. While governments and rebel groups are likely to have similar levels of knowledge about geography due to its relatively static nature, governments will be better able to exploit this knowledge due to their disproportionately larger resources.

When drastic changes occur due to internal displacement from conflict, deliberate relocation campaigns, or local population booms in cities, groups may capitalize on these discontinuous shifts in population to launch secessionist campaigns. However, these rapid shifts will be largely obscured in cross-national yearly data, which may explain why these data fail to find a strong relationship between territory and group goal. The discovery of petroleum reserves can often trigger a discontinuous shift in the power of a minority group, which may explain why there is a link between oil and secessionist violence. The secessionist conflicts we do observe are likely to result of governments' inability to adapt quickly enough after a sudden change in the governability of an excluded group's territory. Another possibility is that the delay between changes in the governability in a group's territory and the state learning about these changes could give the group a narrow window to act before the state increases its commitment to the area.

The observed pattern of states directing more attention to more secession-prone areas highlights the very real relationship between territorial governability and secession. However, the data used to test this argument cannot conclusively determine why states engage in this behavior. Nightlights

are a rough proxy for state capacity, and governability is determined by many more factors than just population. Further, while the use of country and year random intercepts in the statistical model accounts for unobserved heterogeneity across observations, it does not result in causal identification.

To try to overcome the limitations of these data and this cross-national research design, I proceed by directly investigating the mechanisms at play in two different empirical implications of this theory in Part ???. Chapter 4 explores when government preemption strategies are most likely to fail and highlights the importance of information flows in this process; if nightlights, and thus government investment, are driven by demographic factors unrelated to secession concern, then a lack of information should not be responsible for the conflicts we do observe. Chapter 5 investigates the motivations of states that take drastic preemption measures by relocating entire populations. By assessing when these measures are successful, it provides insight into how the mechanisms of secession preemption function.

CHAPTER 4: WHY GOVERNMENTS SOMETIMES FAIL TO PREVENT SECESSION ATTEMPTS

The Free Aceh Movement (GAM) began its violent campaign for an independent Aceh in 1976, but by the end of 1977, efforts to establish a new nation on the island of Sumatra were declared a failure. The government no longer considered the group a threat (Schulze 2004, 76), and the conflict ended. However, the group reemerged in 1989 and posed a more serious threat that took longer for the state to defeat. One of the main motivations for this second incarnation of GAM was popular grievances over the distribution of revenue from the booming oil and gas sector, as well as the growing manufacturing sector (Ross 2005, 42-4). A rising level of economic development may have been a major cause of GAM's successful return to active operations.

The pattern of events in this story highlights a dynamic that plays out throughout the world where economic resources can spur secession. Oil was similarly a root cause of the attempted secession of Biafra from Nigeria, with the region only turning to violence after the threat of losing oil revenues as a result of redrawing state borders (Uche 2008). These resources make a tempting prize for secessionist groups as they can be used to finance the startup costs of building a new state after winning independence. Given the risk of losing access to these rents, governments work to preempt such actions.

However, the Acehnese case illustrates an important part of the puzzle that makes this task much more difficult. Territories change over time, and can become more or less suited to secession and independent governance as a result of these changes. While Jakarta was aware of the industrial growth in Aceh, it may have been less aware of the effect this growth had on the local population. Resentment over lack of equal revenue sharing provided the motivation to seek more political autonomy and secede, while the resources themselves promised to make independence less costly to achieve.

In this chapter, I explore this dynamic systematically using an agent-based model to identify relationships between government-level characteristics and the risk of conflict as a function of changes in ethnic groups territory. I include natural resources, industrial bases, agriculture, and the

human capital of a population in a single conception of ‘governability’ that describes how easy it will be to build a new state in the territory inhabited by an ethnic group. Many government characteristics, such as resource level or military superiority, have expected relationships with the probability that a secessionist conflict occurs. The main result that emerges from the model is that conflict is likely in the wake of an exogenous shock to a territory’s governability when the government is at an informational disadvantage.

The importance of information means that exogenous shocks to governability in isolation are not sufficient for conflict. If governments had perfect information, then they could simply reallocate resources to pacifying or placating the newly more governable territory. A very large exogenous shock could overwhelm preemption efforts by a resource-strapped government under perfect information, but this is not necessary when governments have poor information gathering abilities. A resource-rich but informationally challenged government may have a large enough treasury to offset modest governability increases in minority territory, but if they learn about the changes too late they may not increase their preemption efforts quickly enough.

4.1 Slow on the Uptake

If governments work to preempt secession attempts by deploying the coercive apparatus of the state, then this should prevent most, if not all, secessionist conflicts from emerging. However, governments confronting multiple peripheral minority groups must decide how to allocate their finite resources among the groups. Unless an ethnic group comprises a significant plurality of a state’s population, they are unlikely to overcome the full attention of the state’s coercive and surveillance apparatus. Yet government confronting multiple groups must choose what fraction of their capabilities to direct towards each group.

Assuming that the system begins in equilibrium, with the government successfully suppressing all secessionist sentiment, there needs to be some perturbation to trigger a war of independence. The geographic factors that determine governability — natural resources, human geography, agriculture, infrastructure — often change at a glacially slow pace. Other factors, such as distance from the centers of state power, are functionally unchanging. Despite this relatively static picture, things can

change; oil or rare earth metals are discovered, irrigation improvements can increase crop yields, or population booms can increase the size of the tax base.

If governments are able to perfectly update their information about these changes, they can likely shift the allocation of coercion among groups and maintain the status quo. Under perfect information, secession will only occur if one group's territory experiences a massive shift in governability that outstrips the government's total resources. This scenario seems highly unlikely.

A more reasonable explanation for secession is imperfect information. Central governments must collect information about all of the marginal ethnic groups within their borders. This task becomes more difficult the more remotely a group is located, and is only exacerbated if the country's transportation infrastructure is poor (Herbst 2000). Secessionist civil conflict is more likely farther from the capital (Cederman, Buhaug & Rød 2009, Buhaug 2010), and more inaccessible areas are more likely to experience episodes of violence within ongoing conflicts (Tollefsen & Buhaug 2015). The more inaccessible an area, the harder it is for agents of the central government to operate there. There is no reason why this dynamic should only apply once a conflict has begun, so governments should possess lower quality intelligence about less accessible areas.

While accessibility affects the efficacy of government monitoring efforts, more capable governments are less susceptible to this decline. With larger domestic security budgets, governments can afford to employ more local informants, invest in better information-gathering technology, and develop professionalized security agencies to aggregate and act on all of this information.

However, factors other than just surveillance capacity also affect the quality of information that governments possess about events within their borders. Regime type can play a large role in determining the amount and accuracy of information that governments receive. In hybrid and authoritarian regimes, elections serve as an important source of information about public attitudes towards the regime (Eisenstadt 2004, Magaloni 2006, Brownlee 2007, Blaydes 2011, Malesky & Schuler 2011, Little 2017). This electoral channel of information can be especially important as autocracies may be especially prone to intentional manipulation of local economic statistics (Wallace 2016). Local elections specifically can offer information about the political situation in remote regions, which local elites provide in exchange for clientelist rewards (Lust 2009, 132). In stable authoritarian regimes, governments are able to use the information gleaned from these elections to modify policy programs to bring them more in line with popular demands (Miller 2015).

In counterinsurgency campaigns, language differences can serve as a barrier to gathering the information necessary to effectively combat the insurgent forces (Gwynn 1934, Galula & Nagl 2006, Gompert & Gordon 2008) (Byman 2006, 87-8). These communication difficulties can also operate outside of an active conflict, reducing the flow of information from remote regions where the population speaks a different language than the politically empowered majority. Anecdotally, Papua New Guinea, Indonesia, Nigeria, and India are the most linguistically diverse countries in the world (Eberhard, Simons & Fennig 2019), and all have experienced violent separatist conflicts at one point or another. This pattern suggests that central governments may find it difficult to obtain reliable updates about the governability of remote ethnic group territories if they are unable to recruit coethnics as part of their information gathering efforts (Lyll 2010).

Similarly, information communication technologies (ICT) can ease the flow of information from ethnic homelands back to the centers of power. The use of cellphones and the internet allows agents of the state to rapidly communicate local developments to the central government. ICT can provide valuable information to regime forces in active conflicts (Shapiro & Siegel 2015), and can also detail the strength and disposition of the opposition in authoritarian regimes (Goebel 2013), so states with higher levels of ICT penetration should be better appraised of the governability of ethnic group territories.

As the proposed mechanism of government surveillance capacity is difficult to observe in a global cross-national manner, I rely on simulation based approaches. Agent-based model allow researchers to observe interactions between actors that may be difficult or impossible to capture empirically, and too complex to solve analytically using traditional formal models (Axelrod 1997). They are especially useful when interactions between numerous individual agents yield complex emergent behaviors (Schelling 1971). Drawing on the patterns identified above, I construct an agent-based model which puts all of these dynamics in interaction with one another. Running many simulations with many different parameter values will yield empirical predictions that reveal how informational capability affects the relationship between territorial change and conflict onset.

Agent-based models have been used to study many aspects of conflict including alliance formation when states are faced with multiple potential allies and adversaries (de Marchi 2005, 90-109), the diffusion of norms (Axelrod 1986), competition between governments and insurgencies for the support of the population (Cioffi-Revilla & Rouleau 2010), the spread of democracies throughout

the international system (Cederman & Gleditsch 2004), the role of self-sorting in determining the level of violence in an insurgency (Weidmann & Salehyan 2013), and how the density of connections between villages influences the willingness of local actors to support larger combatants within a conflict (Weidmann 2016). More relevant to this study of secession, they have also been used to study the formation and dissolution of nation states from smaller territorial units (Cederman 1997), and how the spread and adoption of cultural traits affects the emergence of polities with shared values (Axelrod 1997).

Cederman (1997) is concerned with the long-term emergence of political actors and the formation of ethnic identities, so he allows groups to absorb others and then split again. I am more concerned about the state's role in this process, so I fix the number of peripheral ethnic groups in each simulation. In addition, both Cederman (1997) and Axelrod (1997) model the spread of national identities or cultural norms, and how they lead to the formation of new political units or their splits into smaller ones. However, I am interested in the short term, day to day management of independence-minded minority groups than the construction of the nationalist identities that motivate them. As such, I assume that all peripheral ethnic groups would prefer to secede if possible. Accordingly, this model can be viewed as a 'worst case' scenario where a government confronts several groups that wish to secede, and those that are satisfied with inclusion into the state are omitted from the model.

4.2 A Dynamic Model of Territorial Change and Conflict Prevention

The model I develop to study the success and failure of secession prevention attempts is a relatively simple one. Without specifying a functional form, the probability of a secessionist civil war can be given by:

$$\Pr(\text{secession}_g) = f(\gamma_g, \alpha_g)$$

where γ refers to the governability of a group g 's territory, and α represents the government's security investment in that territory. The rest of the model is built off of this starting point, and consists of a single central government and multiple peripheral ethnic groups. The government must allocate limited resources, ρ , to preventing the emergence of a viable independence movement within each group's territory. To explore how conflicts emerge, the model simulates the interactions between the government and the groups in discrete steps, or iterations. At each iteration, the government

divides its resources between the groups proportional to their threat of secession, which is calculated as the value a group stands to gain from seceding, normalized by the sum of the potential gain for all groups:

$$\tau_g = \frac{\gamma_g \delta_g}{\sum_{g=1}^G \gamma_g \delta_g}$$

which yields an allocation $\alpha_g = \rho \tau_g$.

A group's threat of secession, τ , is a function of the governability of its territory, γ , and how far it is from the capital, δ : $\tau = \gamma \delta$. However, the government's inability to perfectly observe the state of a group's territory means that it may not know the true value of γ . Instead, it uses its own assessment ι instead, such that $\tau = \iota \delta$. Initially, $\gamma = \iota$, as the model begins in a peaceful state. However, at each iteration, there is a 5% chance that a group's territory will experience a shock to its governability. If a shock does occur, it is distributed Cauchy(0, 0.5), but cannot reduce the territory's governability below 0.

To capture the imperfect information that states possess about remote areas of their territory, at each iteration of the model the government updates its estimate of the governability of a group's territory by the difference between the current estimate and its true governability i.e. $\gamma - \iota$. However, information gathering is a costly and time-intensive process, so this update is downweighted by the surveillance capability of the government, σ , so that:

$$\iota_{i+1} = \iota_i + (\gamma_i - \iota_i) \sigma$$

with higher levels of σ representing governments with better intelligence-gather capabilities that can more quickly update their information assessments in response to changes.

The final component of the model is conflict, defined above as $f(\gamma_g, \alpha_g)$. A group decides to launch a violent secessionist when the governability of their territory is ϕ times greater than the government's allocation α :

$$\Pr(\text{secession}) = \begin{cases} 1 & \text{if } \gamma > \phi \alpha \\ 0 & \text{otherwise} \end{cases}$$

ϕ can be viewed as either the risk aversion of the ethnic groups, or the military superiority of the government's forces as higher values of ϕ require the group to stand to gain more from successfully obtaining independence.

Symbol	Meaning	Range
G	Number of peripheral groups	$\{1, 2, 3, \dots\}$
ρ	Government resource level	$(0, \infty)$
σ	Surveillance capability	$(0, 1]$
ϕ	Capacity difference	$\{1, 2, 3, \dots\}$

Table 4.1: Model-level parameters

Table 4.1 presents the parameters which govern the global state of the simulation. I refer to these as *model level parameters*, and they are the parameters that I vary in different simulation runs. By repeatedly running the simulation with the same model level parameters, I am able to estimate the average relationship between each one and the likelihood of secessionist conflict.

Symbol	Meaning	Range
δ	Distance from capital	$(0, \infty)$
γ	Actual governability of territory	$(0, \infty)$
ι	Perceived governability of territory	$(0, \infty)$
α	Government allocation of resources	$(0, \rho]$

Table 4.2: Group-level parameters

Table 4.2 presents the *group level parameters*, which are unique to each group. With the exception of δ , they evolve dynamically over the course of an individual simulation. The group level parameters δ and γ are randomly initialized at the start of each simulation by drawing them from the following distributions.

$$\delta \sim \mathcal{X}^2(10)$$

$$\gamma \sim \mathcal{N}_{[0, \infty)}(3, 1)$$

ι_g is then set to γ_g , and τ_g is calculated:

$$\tau_g = \frac{\iota_g \delta_g}{\sum_{g=1}^G \iota_g \delta_g}$$

which is then used to set the initial allocation of resources to each group's territory $\alpha_g = \rho\tau_g$.

Below, I describe the components of each iteration of the model. A more technical treatment is available in Appendix C.2

1. First check whether $\gamma_g > \phi\alpha_g \forall g \in G$. If yes, end the simulation as a civil war has occurred.
2. If not, the simulation continues, update the government's threat perception $\tau_g = \frac{\iota_g \delta_g}{\sum_{g=1}^G \iota_g \delta_g}$.
3. Using the new value of τ , the government allocates its resources to monitoring each group proportional to its threat $\alpha_g = \rho\tau_g \forall G$.
4. With probability .05, each group g experiences a shock to γ_g drawn from a Cauchy(0, 0.5) distribution. Shocks cannot reduce the value of γ_g below 0.
5. The government updates ι_g for each group by adding the difference between its current perceived governability and the actual governability, modified by its surveillance capability

$$\iota_{g_{i+1}} = \iota_{g_i} + (\gamma_{g_i} - \iota_{g_i})\sigma$$

4.2.1 Strategic Interaction

Both the government and ethnic groups possess private information, and the ability to act on this private information results in strategic interactions between the two. Ethnic groups have information on the true governability of their territory, γ , while the government's assessment of governability, ι , is privately held as well. In addition, groups know how much greater their territory's governability must be than the government's allocation to make conflict an attractive option. As governments do not know their capacity advantage ϕ relative to the group, they are unable to know whether a chosen allocation α_g will be sufficient to deter secession by group g . This uncertainty would persist in the model, even if governments exactly knew the governability of each individual territory i.e. $\iota_g = \gamma_g \forall G$.

Governments hold their own private information as well. Each ethnic group is unaware of the status of the other groups, so they only know their own γ . While governments inaccurately perceive γ as ι , they have an ι value for all groups, which they use to construct the threat level, τ . In the model, ethnic groups are unable to coordinate with one another, and their are unaware when the governability of another group's territory spikes, so they cannot initiate a conflict preemptively in

preparation for the government to divert resources to the newly ascendant group. Instead, they must wait for the government to reduce α below γ/ϕ before they can start a secession attempt. Ethnic groups are also unaware of the level of resources that the government has to work with, as they only ever observe α , so all they can conclude is that $\rho \geq \alpha$.

Both δ_g and α_g are known to both agents in each government-ethnic group dyad. Thus the main sources of uncertainty from the ethnic group perspective are the secession risks of the other groups, and the total resource level the government possesses. The government’s main source of uncertainty is whether or not γ has changed significantly and ι is now an out of data assessment. Below, I detail extensions to the model that introduce additional sources of uncertainty in an attempt to better reflect the dynamics of secession and prevention.

This agent-based-model allows us to observe the relationship between each parameter and the probability of secessionist conflict. In doing so, it will allow us to derive empirically testable implications while also identifying important confounding factors that must be accounted for in an empirical analysis.

4.3 Predictions

To evaluate the relationship between government surveillance capability, while also accounting for the role of other factors, I conduct a systematic parameter sweep. This entails selecting a number of values for each parameter, and then running simulations using all permutations of these values. For each unique combination of parameter values, I run the simulation 1,000 times for 1,000 iterations each time. For all models, I use 25 values of σ evenly spaced between 0 and 1 to approximate the effect of continuously varying government surveillance capability. Table 4.3 presents the values for G , ρ , and ϕ that I consider. This yields a total of 675 combinations of parameter values.

Parameter			
G	ρ	ϕ	σ
3	30	2	0
6	60	4	\vdots
9	90	6	1

Table 4.3: Parameter space for the baseline model.

There are two quantities of interest we obtain from the simulations. First, whether or not a given simulation experienced civil war, and second, how long the simulation lasted before it either experienced civil war or reached 1,000 iterations. I present results for whether a simulation experienced a civil war in this section, and results for the duration of simulations in Section C.1. In presenting the results of these simulations, I present the results from all 675 combinations of the four model-level parameters. All group-level parameters are randomly initialized in each simulation run from the same distributions.

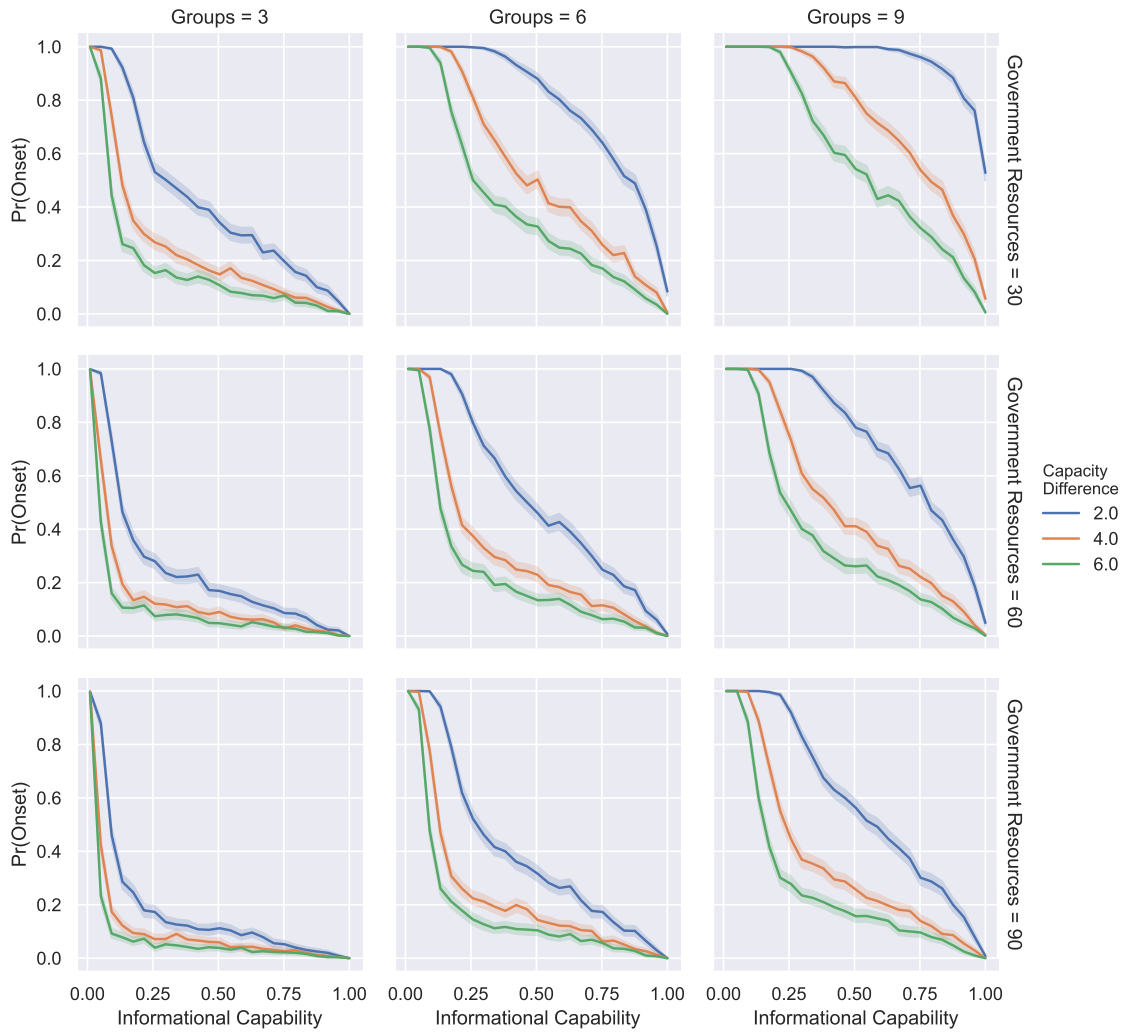


Figure 4.1: Probability of secessionist civil war onset in the baseline model. Results from 1,000 simulations at different parameter combinations, marginalizing over all parameters except number of groups, government resources, and informational capabilities. The line represents the average number of simulations that experience civil war, while the shaded region represents the 95% confidence interval.

Figure 4.1 presents the probability of secessionist civil war onset, with the probability of onset monotonically decreasing as surveillance capability increases. The more groups a government must monitor, the higher the probability of civil war onset. Higher levels of government resources also decrease the probability of conflict onset. While these results are not surprising given the assumptions of the model, they are in line with the theoretical expectations which lends support for empirically testing the implications of the model. The results also conform with previous findings that as the resources of the center increase, the probability of secession declines to 0 (Cederman 1997, 197-201).

By varying the number of groups that governments must contend with, the model allows us to account for complex behavior as the number of minority groups increases. When the government must only manage three groups, a change in the governability of one group's territory is less likely to lead to misallocation of resources as there are only two other groups they can be diverted from. The more groups a government faces, the more likely that a small reduction in the resources directed towards each one will fall below a given group's onset threshold. Further, the more groups a government must manage, the higher the changes of two groups experiencing positive shocks within a short time of one another.

While the relationship between informational capability and probability of conflict onset is affected by factors including the number of peripheral groups a central government must monitor and the government's military superiority, it is a clear one. In every panel of Figure 4.1 except the top right, maximum information capacity ($\sigma \approx 1$) is associated with virtually zero risk of conflict onset. This strong relationship suggests that informational capacity is a very important component of conflict prevention efforts.

4.4 Discussion

This information-based theory of conflict onset is more dynamic than existing theories of onset. By relying on explanations like political exclusion (Cederman, Buhaug & Gleditsch 2013), demographic size relative to the dominant group's population (Cederman, Buhaug & Rød 2009), or horizontal economic inequalities (Cederman, Weidmann & Gleditsch 2011), these theories do not allow for government efforts to preempt conflict based on their knowledge of the situation. It seems unreasonable

that governments would be unaware of the approximate population size of an ethnic minority group or its political status.

Some explanations do allow for dynamic interaction between minorities and governments such as the argument that groups that have lost political power (Cederman, Wimmer & Min 2010) or regional autonomy (Siroky & Cuffe 2015). In these cases, governments may be aware of the risks they are taking but misjudge the danger of violent response. However, the informational theory developed in this chapter provides an explanation that does not rely on inaccurate predictions or concede that war is in the error term (Gartzke 1999). Even though governments are aware of the strengths or limitations of their information gathering abilities, they cannot know whether a group has experienced a small or large shock to their governability.

As with any mathematical model of empirical phenomena, it is important to discuss the assumptions that underlie the model as they support the conclusions it reaches. The strongest assumption in the model is that all groups wish to achieve independence if possible. This may be unrealistic as ethnic groups who enjoy access to political power, even if they are not the dominant group, may be satisfied with their status in society. A natural extension would be to add grievances to the model as a group-level parameter. The higher the level of grievance, the smaller the difference between the territory's governability γ and the government's allocation α needed to trigger secessionist conflict. This reflects the fact that groups will be willing to pay higher costs of conflict, or take bigger risks in conflict, the worse their status quo outcome. Conversely, satisfied groups must face a large gap between allocation and governability to consider violent conflict as their status quo outcome is largely acceptable to them. If a group has minimal grievances, then a temporary misallocation is less likely to trigger conflict. In contrast, more aggrieved groups will require more investment to placate as the risk of a temporary mismatch is higher.

Another way to view the model is that the number of groups G merely represents the number of aggrieved groups in a polity. While the government likely cannot know precisely the level of grievance each minority group holds, it does know which groups are excluded or repressed and which are included. From this perspective, ρ actually represents the resources that the government has dedicated to preventing conflict among aggrieved groups, rather than the total pool of resources it has to distributed to all groups living within its borders. This setup would require assuming that

the selection of ρ from the government's total resources is non-endogenous, which is a rather strong assumption.

Explicitly modeling grievances has another key advantage in that it provides a way to include both carrots and sticks in the government's toolbox of prevention. If grievances make conflict more likely in the event of an underallocation to a group, then reducing their level of grievances is a smart conflict prevention strategy. However, the public goods needed to reduce grievances can also increase the governability of their territory, requiring more effort to prevent secession. Explicitly modeling this balancing act could provide insight into when governments rely on each type of prevention strategy.

Another potentially problematic assumption is treating informational capacity as a government-level parameter. Doing so assumes that governments receive updates on the status of all minority group territories with equal accuracy. This decision may be unrealistic as different groups speak different languages and governments may have more or fewer personnel who speak each language. However, if elections are an information gathering mechanism, then modeling this phenomenon at the national level would make sense. Future work should explore different information gathering mechanisms and theorize about how different ones contribute to government intelligence estimates.

The assumption that capital distance δ raises the threat of secession is well supported by literature that finds remote conflicts are more difficult for governments to win (Herbst 2004, Buhaug, Gates & Lujala 2009, Schutte 2015). The construction of the information updating mechanism is reasonable because in the absence of subsequent shocks after an initial shock, the government's estimate ι of a territory's governability will asymptotically approach its true value γ . This reflects the fact that given sufficient time, governments should be able to gather complete and accurate information on the governability of all of their territory.

While the model does contain some strong assumptions, most of them can be relaxed without seriously altering the goal of the model. Future work can investigate the effect each of these alterations has on the predictions generated by the model.

4.5 Conclusion

The theoretical contributions of this combination of information and shocks outweigh these potential shortcomings. The theory explains why conflicts still occur despite government preemption efforts. Even if the theory advanced in Chapter 3 is incorrect in some respects, it seems reasonable to assume that most states engage in *some* form of preemptive management of disgruntled minorities designed to head off violent conflict. The combination of shocks and slow to update information can explain the occurrence of conflict even if governments do not use territorial governability to allocate their efforts and shocks to governability are not what drive groups to rebel. However, it can offer less of an explanation for governmental conflicts as they are less driven by territorial concerns.

The model explains the trajectory of the Free Aceh Movement well. The province of Aceh is physically separated from Jakarta, occupying the farthest corner of the island of Sumatra, and there is a language barrier between the Acehnese and Javanese. While the government obviously knew that hydrocarbon extraction was occurring in Aceh, they clearly underestimated level of grievance over lack of local control over revenue and the level of support GAM enjoyed. The Acehnese case thus fits the current model while also providing further motivation to incorporate grievances into the model. It also suggests that just as governability may be imperfectly observed by the government, grievances may also be subject to imperfect observation.

If government investment at the local level is driven by demographic factors unrelated to secession concern, then information should play a minimal role in investment allocation. Consequently, a lack of information should not be responsible for the conflicts we do observe. The strong relationship between information and conflict onset in the model suggests otherwise. This informational theory thus gives more support to Chapter 3's argument that government investment in remote minority territories is driven by a desire to prevent secession and not by alternative explanations.

The next chapter more directly investigates the motivations of states that engage in secession preemption by exploring when they turn to large-scale population manipulation in service of these aims. While information does not play a central role in its theoretical argument, it does feature prominently in the narratives of the cases.

CHAPTER 5: DEMOGRAPHIC ENGINEERING AS A CONFLICT PREVENTION STRATEGY

The Indonesian government in Jakarta maintains a longstanding policy of encouraging migration by Javanese Indonesians to the remote province of Aceh that has sparked considerable local backlash. The province, located on the Northern tip of the island of Sumatra and home to the Muslim-majority Acehnese people, also contains extensive hydrocarbon reserves, which can explain why the government would pursue this policy despite the risk of sparking a 'sons of the soil' conflict where native Acehnese turn to violence in response to their loss of status and livelihood. This chapter seeks to answer the question of why governments engage in internal migration policies that can spark sons of the soil wars given the potentially protracted nature of these conflicts.

Secession is attractive to marginalized and aggrieved groups when they inhabit areas that are suited to independent governance. Chapter 3 outlines the ways that in which governments use information on the geographic components of territorial governability to identify minorities that pose a secession risk and work to stifle these nationalist desires. These strategies raise the costs of collective action by increasing the personal physical risk of participating in secessionist plotting or buying off potential supporters via public goods, increasing the opportunity cost of participation if arrested. Both of these approaches entail increasing the flow of state resources to the area the group lives in. However, there is another, more drastic option, available to states that involves targeting the demand side of secession. There are two broad categories within this approach, and each focuses on a different half of the secession equation. The first deters secession by simply removing the people from the governable territory they inhabit. The second entails lowering the independent governability of the group's territory.

While much of the research on forced displacement in the conflict literature focuses on population transfers as a counterinsurgency tool in active conflicts, it can also be used as a conflict prevention strategy. By separating an ethnic group from their governable territory, the state can make secession less attractive. While this displacement will generate extensive grievances and almost certainly

increase the appetite for an independent national homeland, it can greatly reduce the feasibility of these desires. The relocated group must either fight a war of migration to return to their original territory and win independence from the state, or they must try to forge an independent state in their new location. Governments are strategic in their choice of new locations for relocated groups, often placing them in barely livable regions such as Siberia or the Syrian Desert.

Lowering the governability of a group's territory could be accomplished by drastic environmental means such as manipulating water flows upstream to reduce the agricultural productivity of land. However, it is much simpler to reshape the human geography of a territory by inducing migration from the center to the periphery. Such 'internal colonialism' involves encouraging members of dominant social groups to relocate to remote areas inhabited by minority groups (McGarry 1998). In doing so, the government increases the diversity of people within a group's territory. This increased heterogeneity makes secession less attractive because if the minority were to win independence, they must either accommodate demands from the majority in their new state, or engage in an expulsion campaign to increase their share of the new state's population.

Both of these strategies involve manipulating whole populations, and can thus be termed instances of demographic engineering. I limit my investigation to the latter for two main reasons, which I will discuss in more detail in Section 5.1.1. First, forced relocation can be difficult to disentangle analytically and empirically from eliminationist policies (Valentino 2004) as with the Armenian Genocide. Second, forced relocation has become increasingly less common over time while internal colonialism continues to be a popular policy. Forced relocations experienced their height as a tool of state-building in the interwar and post-WWII period where they were used to construct more ethnically homogeneous states (Özsu 2015), and in the Soviet Union where they were used to prevent uprisings or punish rebellious minorities (Werth 2010). Since then, population transfers have fallen out of fashion in Europe (Frank 2017), and the forced resettlements that do occur in the developing world tend to be displacements due to large infrastructure projects (Mathur 2006, Housing and Land Rights Network 2014) rather than deliberate relocations of a group from one location to another.

In the following sections I use historical examples of these phenomena to illustrate how concerns about secession can underlie their use. I draw on scholarship about demographic engineering to situate these secession-related actions within the broader scope of demographic engineering, and

develop a theory of preemptive demographic engineering. I then explore this theory using qualitative case studies of internal colonialism.

5.1 Politically Motivated Population Manipulation

A demand side approach to deterring secession seeks to remove or reduce the factors that lead groups to push for secession. As I argue in Chapter 2, groups are most likely to push for secession when their territory contains all of the prerequisites for sovereign governance and independent administration. If a minority agitates for secession because their territory contains extensive mineral wealth, a government could deter secession by removing them from the land. Or the government could extract all or most of the ore in the group's territory, leaving it without the resource endowments necessary to fund a new state. In each case, the government seeks to reduce the amount of resources available to the group for funding a hypothetical future state.

The process of population growth and movement is a relatively slow one, but it can happen much more rapidly than changes in the other factors such as mineral abundance and soil arability are likely to occur. While some natural resources like timber can be developed, this happens on a very long time horizon. Others like fossil fuels or metallic ores cannot be intentionally created at all. Even if a government seeks to deny these resources to a group, plundering all of them in a timely manner can be nigh impossible. Similarly, the infrastructure that determines accessibility such as roads and ports is costly and time-consuming to build. However, there is one element of geographic governability that is much easier to alter on a short time-scale: population.

Given the relative ease of manipulating population compared to natural resources or the built environment, governments often turn to demographic engineering schemes to try to quash secessionist desires. Minorities can be removed to less governable territory, or members of the dominant group can be relocated to minority territory, thus diluting their political power and raising the cost of secession. Below I detail how governments have used both strategies throughout history and develop a theoretical argument for when we expect to see governments engage internal colonialist practices to ward off secessionist conflict.

5.1.1 Forced Displacement as a Preemption Strategy

Forced population transfers have been enacted in service of a multitude of political goals throughout history. As early as 1000 BCE the Assyrian Empire used population transfers as a way to pacify conquered populations, with an estimated 4.5 million people relocated over a 400 year period (Oded 1979, 5-6). The pre-Colombian Incan empire dispersed conquered populations throughout their territory in order to fragment local identities and hinder the formation of potential rebellious movements under the policy of *mitma* (D'Altroy 1992). Similarly, the Ottoman Empire frequently expelled populations from newly conquered territories (Şeker 2013). Sometimes forced relocation goes hand-in-hand with genocidal crimes, as with the relocation of Jewish populations to urban ghettos before transportation to concentration camps by Nazi Germany. The Armenian Genocide was billed as a relocation of untrustworthy minorities to the Syrian Desert where they would not pose a national security threat, but they were drastically undersupplied (New York Times 1916), leading to between 800,000 and 1.5 million deaths (Akcam 2006). Forced migrations also tend to occur after territory transfers. Sometimes this occurs after conflict, like with the expulsion of ethnic Germans from territory captured by the Soviets after the end of WWII (Zayas 2006, Douglas 2012). Other times it follows nonviolent change in the status of territory, as happened when India and Pakistan were partitioned after independence. This last case illustrates an important aspect of mass relocation: its violence. Despite the peaceful agreement to partition India and Pakistan, the actual process of population transfer involved many local sporadic clashes that in sum left hundreds of thousands dead (Talbot & Singh 2009).

Previous work on resettlement and conflict has focused on population transfers as a counterinsurgency tool once a guerrilla conflict has already begun. Guerrilla movements rely on the support of sympathizers and supporters, with practitioners often referring to the need for guerrillas to move among the population like 'fish in the sea' (Mao 1961). Forced resettlement can deprive insurgent groups access to sympathetic civilians (Valentino, Huth & Balch-Lindsay 2004, Valentino 2004) and reduce the effectiveness of their fighting capability (Zhukov 2015).

However, population relocation can also be used as a preemptive measure to influence the direction that a conflict may take. While the Chechen deportation in 1944 is largely agreed to be a response to the 1940-1944 Chechen insurgency, many argue that the deportation of the Crimean

Tatars in 1944 was justified under false pretenses of collaboration (Pohl 2010) to remove a potentially rebellious minority and secure Soviet strategic aims (Williams 2001, 375). The former incident is a clear case of resettlement as a punishment or counterinsurgency tool, while the latter can be seen as a conflict prevention or mitigation one. If a conflict subsequently erupts after relocating a group, it will likely pose a less effective challenge to the state. Not only will the rebel organization have less familiarity with the local environment, they will likely be forced to make do with fewer resources as groups are often relocated to desolate areas such as Siberia. Similarly, while the Armenian Genocide occurred during WWI, the Ottoman Empire rounded up Armenians across its territory and not just near the front (Akçam 2012), indicating that it was at least partially a preventive measure.

States prefer to fight autonomy-seeking groups instead of secessionist ones because secession represents a threat to the territorial integrity of the state (Zacher 2001, Anstis & Zacher 2010). If they can strategically relocate self-determination groups to areas which will lead the group to seek increased autonomy instead of independence, this may be an attractive option. The relationship between territorial governability and group goals means that states will try to relocate groups to less governable territory, as any conflict which begins after relocation would have a higher chance of being for autonomy rather than secession. Governments can also simply disperse minorities across broad swaths of territory to frustrate the collective action needed to organize a secessionist campaign. This latter strategy may be more attractive more resource-strapped governments. In extreme cases, governments may be able to relocate people to territory so ungovernable that the forced migrants will not engage in any kind of organized challenge to state authority.

When standard preemption tactics such as increasing the presence of security forces or deploying extensive monitoring efforts are insufficient or prohibitively costly, government may resort to drastic measures and try to reshape the human geography of the territory that a group inhabits. A dramatic example of this behavior is the Soviet deportations of groups such as the Chechens and Crimean Tatars to Central Asia in the 1940s. When a group's territory is exceptionally governable, and thus suited to secession, forced relocation solves the secession problem by simply removing the population to a less governable area, blunting the risk of secessionist civil war.

Relocating entire populations is a costly process, but states may still prefer it to increasing their investment in a minority's territory for two reasons. One, relocations become considerably less costly when concern for the safety and welfare of the migrants is not a primary concern. Transporting

hundreds of thousands of people is a complicated logistical problem, but becomes significantly easier if not all transportees need to survive the journey. Second, a heightened security force presence or increased public goods provision is a long-term financial commitment, requiring continued funding to achieve its goal. If a group is relocated to a sufficiently ungovernable territory, then they will require minimal attention, and thus money, from the government going forward.

While forced relocation as a conflict prevention strategy is less common today, it does still occur in connection with large scale development projects. The construction of the Three Gorges Dam on the Yangtze River displaced over a million people whose former homes were flooded by the new reservoir or were deemed at risk to mudslides due to changes wrought by the immense engineering project (Chao 2004, BBC 2007). Many of these people were relocated by the Chinese government to other areas within the country. While this type of relocation has no apparent connection to conflict prevention, it does share many other similarities with a collection of demographic engineering strategies that *do* play a role in conflict prevention.

5.1.2 Internal Colonialism

While I use the phrase internal colonialism to denote government efforts to increase government control of territories primarily inhabited by ethnic minorities, it has a rich use in scholarship from the mid-20th Century onward. This scholarship covers a broad diversity of disciplines including history, anthropology, diaspora studies, critical legal studies, and many more. With such a broad array of disciplinary approaches comes an even broader range of definitions of internal colonialism.

One stream of internal colonialism theory is characterized by a focus on “underdevelopment and dependency” where minorities who live in distinct regions are not afforded full membership in a society and suffer disparate outcomes in education, health, and livelihood due to a lack of access to public goods provided by the state (Hind 1984, 556). This understanding is typified by the observation that

the developed sections inside the underdeveloped world — in the capital and on the coast — are a curious species of imperialist power, having internal colonies, as it were (Mills 1963, 154).

Examples of this perspective include analysis of the relationship between Blacks and Whites in South Africa (Wolpe 1975). Reece (1979, 284-285), highlighting the extractive nature of internal colonialism, notes that while the rail infrastructure within Brittany consists of various incompatible narrow gauge systems making internal commerce difficult, the rail lines that connect Brittany to the rest of France are a uniform gauge facilitating the flow of goods to the national economy.

Work in this vein has examined the status of African Americans in the United States (Blauner 1969). Another studies how settler governments in Latin America worked to disperse European customs and cultural practices to indigenous communities within their borders (Epstein 1971). This more historically based vein of literature is concerned with how governments extended their reach into territories that they claimed, but did not have significant interactions with before. Yet more literature explores how contemporary ruling elites in the Global South seek to develop their extractive and productive capacity by exploiting resources in peripheral regions of their territory (Calvert 2001). This last conception of internal colonialism best describes the Indonesian government's actions in Aceh.

Exploiting gas reserves offers clear benefits to the Indonesian government, but does not require the concerted migration effort it concurrently supports. Why engage in this behavior if such outmigration risks sparking "sons of the soil" conflicts (Fearon 2004) in response? In keeping with this dissertation's emphasis on preemption and prevention, I argue that governments are trading the risk of a low-level conflict in the immediate future for the hope of preventing a secessionist movement in the long-term. When states engage in internal colonialism after gaining independence from a colonial power, a primary goal is to legitimize their control over areas within the borders defined by the colonizers but practically under control of a minority (Nithyanandam & Gounder 2004, 218-219). In doing so, they seek to reduce the legitimacy of any future secessionist claims, just as internal colonialism can dampen neighboring states' territorial ambitions by altering the "demographic facts" of the territory (McGarry 1998, 616).

Some scholars do not include a geographic component in their definitions of internal colonialism, often focusing solely on the presence of a large exploited group without access to political power and poor social mobility, and a smaller group that does enjoy these benefits (Havens & Flinn 1970). A definition of internal colonialism as "a geographically based pattern of subordination of a differentiated population *with geographically separate territory as a distinct colony*" (emphasis

original) (Pinderhughes 2011, 251) aligns with the focus on government-ethnic group dyads and the territories of these groups. Internal colonialism is frequently used to explain patterns of uneven development within countries (Orridge 1981) where a more developed core exerting political control over the periphery and overseeing unequal economic relationships that resulted in a flow of wealth to the center (Hechter 1999).

While internal colonialism has myriad different definitions from numerous analytical traditions, in this chapter I focus on the specific act of relocating members of the dominant social group or groups from areas firmly under the government's influence to peripheral regions where minority groups are the dominant local political authority. Thus, when I discuss internal colonialism or internal colonization I refer to the specific demographic engineering strategies that government employ and not frameworks for understanding or explaining this behavior.

Internal colonialism can be difficult to distinguish from conventional nation-building projects. While the construction of a hydroelectric dam may provide increase electricity to citizens throughout a state, it can also have profound impacts on the lives of locals. Whether local labor is hired has a large impact on the local economy, and governments that hire permanent employees from elsewhere in the country can dilute the strength of local identities. By relocating members of the dominant group to remote communities to maintain this infrastructure, the government gains several advantages.

First, it increases the flow of information from the periphery to the center. Governments are often unaware of what goes on in the hinterlands (Herbst 2000) due to the difficulty of transmitting information. While the rise of telecommunications has lowered this cost, communication takes two parties. Remote minorities may have very little interest in keeping the state apprised of local developments. Members of the nationally dominant group may be much more inclined to share this information with the government due to their identification with it, doubly so if they are employed by government funded or controlled projects. If out of date information can prevent governments from nipping secessionist movements in the bud as argued in Chapter 4, then internal colonialism can level the informational playing field in favor for the government.

Secondly, it can serve as a signal to a restless minority that secessionist ambitions will not be tolerated. Schelling famously paraphrased Dean Acheson's response to the question of what good seven American divisions would be against the Soviets as:

what those seven divisions can do is not defend Western Europe, but can guarantee that if they are destroyed and captured the American people will not let the war stop there. These are hostages of fortune, they are there to be threatened, to die or be captured, and escalate the war.

A similar dynamic can play out domestically, with governments using their supporters as ‘hostages of fortune’ to guarantee that any violence against them by a secessionist rebel group will instigate a costly conflict. Groups that share territory with the socially dominant group are less likely to try and secede due to the central government’s willingness to protect members of the dominant group (Lacina 2014, 701-703). Internal colonialism demonstrates the central government’s attachment to the territory. This commitment may make secession-minded group leaders think twice about starting a conflict as they fear bringing down the wrath of the regime by harming its supporters.

Finally, demographic engineering can lower the governability of a hypothetical future independent state. More ethnically diverse territory entails more competing demands and requires more careful balancing and accommodation of competing demands. If a minority inhabits a territory where it constitutes all or almost all of the population, then an independent state in that territory would satisfy Gellner’s nationalist principle that governments reflect the interests of the nation within the state (1983). The more ethnically diverse this hypothetical state’s population, the more likely it is that there will be conflicting policy preferences the government must adjudicate between. For a politically excluded minority that yearns for its own state where it can govern in line with its interests, the prospect of divided constituencies in the future state lowers the attractiveness of secession. This prospect is particularly concerning for the leaders of the potential future state as members of the dominant group in the current state will experience a precipitous drop in societal standing, and groups that have had their status downgraded are especially likely to rebel (Cederman, Wimmer & Min 2010). The Polish government expropriated minority owned land in the newly established Western and Eastern frontiers after WWI and settled Polish communities there to try and quash the irredentist ambitions of ethnic Germans and Ukrainians who found themselves no longer citizens of their respective countries (Prażmowska 2010, 114-115).

Only this last mechanism acts on the demand side of secession, but all three work to dampen secessionist ambitions. Forced relocation reduces the demand for secession by relocating groups to

less governable territory but may simultaneously increase this demand in response to the injustices that accompany forced relocations. If anything, forced relocations have the opposite informational and signaling effects as internal colonization. Governments typically relocate restless minorities to remote resource-poor areas, so they will not receive the increased information that flows from members of the dominant group living with the minority. Minorities are relocated to poorly governable territories to deter their secession, so governments will not be committed to defending these marginal areas. The multiple conflict prevention mechanisms of internal colonialism provide yet another reason to omit forced relocation from my study of demographic engineering.

Governments have a number of tools at their disposal to accomplish their internal colonial goals. To facilitate such “directed migration,” states have offered free or subsidized land (often expropriated from the local minority), housing (newly constructed or similarly expropriated), free relocation, guaranteed jobs, tax breaks, exemptions from military service, and infrastructure to connect the settlement to existing majority communities (McGarry 1998, 619). These policies have the effect of making relocation to the minority group’s territory appealing to less economically successful members of the dominant group. Migrants who take jobs in the settlement serve to make relocation attractive to even successful members of the dominant group by providing social services and education in the language of the dominant group (McGarry 1998, 619). Additionally, governments can use the military as a tool of internal colonialism by garrisoning soldiers in minority group territory. While the above techniques are available to all governments, more totalitarian regimes have additional options they can draw on. The Soviet Union sometimes compelled graduating students to serve in areas strategically chosen by the government to prevent conflict and there is evidence that China has forced Han Chinese to relocate to remote minority areas (Connor 1984, 317-329). Similarly, the Ottoman Empire decreed in 1572 that one of every 10 families in several provinces would relocate to Cyprus, which the Empire had recently captured from Venice (Schechla 1993, 244)

Just as Jakarta has long supported Javanese people moving to the restive region of Aceh, Beijing encourages the large-scale relocation of Han Chinese families to Xinjiang (Côté 2011) over concern that the region’s developing economy might inflame longstanding secessionist desires among Uyghur leaders. In each case, governments hope to reshape the demographics of the region and reduce its governability from the minority’s perspective.

While internal colonization offers numerous conflict management benefits, it is not without its drawbacks. It can risk provoking a backlash from the region's current residents. The influx of new residents can upset longstanding balances in the community, and the new arrivals may inspire resentment for all the government benefits they enjoy. This is especially likely if they occupy land expropriate from longtime local residents. Yet, states may prefer to fight extended sons of the soil wars with groups that demand limited autonomy (Fearon 2004, Fearon & Laitin 2011) than risk defeat in a secessionist conflict which sees some of their territory lost to the newly independent state.

Another less drastic drawback of internal colonization is their cost. Every incentive detailed above costs the state either capital or foregone tax revenue. These high costs suggest that states may be motivated by security concerns when they engage in internal colonialism. These policies would be difficult to justify economically if they did not provide short-term returns, but security is often worth any cost.

These expenses and risks suggest that governments are only willing to engage in such demographic engineering when the benefits outweigh the substantial costs. McGarry (1998) argues that governments manipulate populations when they face security threats. However, many sons of the soil wars are sparked *by* members of the dominant group migrating to remote minority territory, so it seems peculiar to argue that the primary reason for engaging in internal colonization is security concerns. While security clearly plays a role, as I've argued internal colonialism is a tool to prevent secessionist conflict, security as a whole is too broad of a concept.

Governments are likely to engage in internal colonialism when they are worried about the potential for secessionist agitation. There are many ways to reward supporters with increased local development that do not risk setting off sons of the soil wars. Given the cost and potential risks associated with government support to encourage members of the dominant group to migrate to minority areas, there must be a concern beyond simply increasing the welfare of their supporters. When governments fear the threat of secession, then the downsides of internal colonialism become less of an obstacle.

Hypothesis 3 *Governments are more likely to engage in internal colonization when they fear a group poses a secession risk*

Internal colonialism offers numerous advantages to governments looking to preempt violent secessionist campaigns, but it can also be used for interstate conflict prevention. Territory can offer significant strategic value to governments concerned about foreign aggression. Examples abound of governments manipulating populations in strategically important territories such as Israel's settlement of the Golan Heights within a year of the Six Day War (Harris 1978), Poland's settling of veterans in Kresy, its easternmost territory won from the Soviet Union in WWI, to provide a buffer for its more central territories (Eichenberg 2010, Linkiewicz 2014), or the influx of Han Chinese to border provinces after the Sino-Soviet Split (McNamee & Zhang Forthcoming). While external threat sometimes motivates internal colonialism, qualitative case studies can help identify primary motivations by detailed study of government actions and statements.

That 4 references Aceh extensively should suggest that demographic engineering and smaller-scale preemption efforts are by no means mutually exclusive. Governments can employ both strategies to make secession less attractive and simultaneously more difficult to achieve. In fact, as this discussion of China's activities in Xinjiang in Chapter 3 indicates, expanding the presence of security forces in a region can naturally lead to a level of migration from the center. To police a region, security personnel must reside there, and while they may be assigned on rotation and live in government barracks, they can also relocate there more permanently. When security personnel bring their families with them to these assignments, they participate in internal colonialism. This is doubly true in Xinjiang as China has pursued a strategy of "integration by immigration" in the region since the 1950s (Gladney 1998, 51).

In the following section, I conduct in-depth case studies of internal colonialism in Sri Lanka and Iraq to explore whether and how concern over maintaining access to resources motivated governments.

5.2 Case Studies

To investigate these hypotheses, I conduct in-depth qualitative case study analysis of two long-running large scale internal colonization programs. Case studies are the best tool for analyzing this phenomenon for several reasons. Many of these efforts have been underway for decades, with some of them even beginning in the late 19th Century. Trying to find quantitative data the span this entire

time-series is an exceptionally difficult task. Even when data do exist, they are limited to certain cases and this data availability is not random, so any statistical results will be certainly biased.

Motivation is a central concern to this research question as states can have many reasons for engaging in internal colonialism. As the historical internal colonialism literature demonstrates, states may simply be interested in exploiting populations they view as inferior or extracting rents from far-flung primary commodity producers. By constructing historical narratives around these cases, I can get at not only what happened in what order, but use sources like statements by government officials and individual internal colonial migrants to get at motivations for many different types of actors engaged in these projects.

Qualitative case studies also allow much more nuance than large-*N* cross-national quantitative analyses. Chapter 3 uses nighttime light emissions as a measure of government investment in ethnic group territories. While this measure is available globally, it is unable to indicate whether governments choose to employ carrots, sticks, or a mix of both in any given territory. While Chapter 3 is focused on less involved prevention measures than internal colonialism, internal colonialism often goes hand in hand with these less intense practices and studying it will incidentally provide more insight into them.

Finally, every case is idiosyncratic in varying ways, and studying multiple cases in-depth helps with identifying the commonalities between them. This exercise can help identify scope conditions for the broader theory as well.

In the following section, I conduct in-depth case studies of internal colonialism in Sri Lanka and Iraq to explore whether and how concern over maintaining access to resources motivated governments. To evaluate the relationship between the resource component of a territory's governability and internal colonization, I employ a most-different case selection strategy (Gerring 2008, Seawright & Gerring 2008). This approach maximizes differences in explanatory variables across cases that nevertheless both exhibit internal colonization. Sri Lanka is a postcolonial democracy while Iraq has been characterized by military junta rule and autocracy. Iraq's Kurds have TEK in Turkey, Syria, and Iran, while the Tamils are isolated on Sri Lanka with the Sinhalese. By identifying similarities between the two cases, I can determine what factors make states more likely to engage in internal colonial practices when faced with an independent-minded minority.

I trace the history of internal colonial practices in each case and examine the effectiveness of individual policies in meeting their stated goals. Viewed holistically, these evaluations highlight when official reasons for supporting these practices are not borne out by their implementation. These discrepancies can shed light on why governments actually engaged in these practices.

5.2.1 The Sri Lankan Dry Zone

Sri Lanka's population is largely composed of a Buddhist Sinhalese majority and a Hindu Tamil minority. The country's Tamil population, dissatisfied with its marginalization in political and economic life, coalesced behind the Liberation Tigers of Tamil Eelam (LTTE) and fought a failed three decade war of independence against the Sinhalese government in Colombo. Many Tamils have given the encroachment of Sinhalese migrants into Tamil territory as a reason for the conflict. While this migration is regarded as a cause of the conflict, it also represented an attempt to prevent such a conflict from occurring.

Internal colonization within Sri Lanka has primarily involved movement of people from the country's southwestern Wet Zone to its northeastern Dry Zone. The Dry Zone suffers from rampant malaria, low and irregular rainfall, inadequate soil, and dense jungle that has to be cleared before agricultural cultivation or development can proceed (Farmer 1957, 19-39). The Wet Zone is largely free of these concerns and was thus both more populated and more densely populated at the start of the 20th Century. Under British rule, significant numbers of Tamils from India migrated to the Dry Zone to work on plantations during the 19th Century, and their descendants make up the majority of Tamils in the region today (Peebles 1990, 31).

Since the end of the 19th Century, the Sinhalese majority has engaged, with varying intensity over time, in a campaign of mass migration into the Tamil-dominated Dry Zone. One major motivation for this migration in public discourse has been the popular perception of a long ago Sinhalese 'golden age' in the Dry Zone (Smith 1979). There is substantial archaeological evidence of an ancient Sinhalese civilization in the Dry Zone from the 3rd Century BCE to the 12th Century including large monuments and extensive former reservoirs and irrigation works (Ray 1959). These sites gave rise to an image of a fallen Sinhalese civilization in the Dry Zone (Farmer 1957, 14-18) and myriad popular explanations for its decline in the 12th Century. Many public statements around resettlement efforts in the Dry Zone explicitly reference these understandings and express a desire to restore

Sinhalese civilization in the Dry Zone to its former glory before the collapse (Manogaran 1987, 78-88). However, it is possible that these statements may use public yearning for a Sinhalese restoration in the Dry Zone instrumentally to accomplish other policy objectives.

The earliest colonization attempts began in the late 19th Century when peasants from neighboring areas in the Wet Zone were enticed to relocate to Battacalua in the 1890s with the promise of government assistance (Farmer 1957, 112-115). These movements were justified by claims that they would alleviate population pressure and overcrowding in the urban areas of the Wet Zone. Colonization began in earnest with the passage of the Land Development Ordinance of 1935 which allowed alienation¹ of crown land to landless peasants, and this land went primarily to Sinhalese peasants living in the Wet Zone (Manogaran 1994, 99). These resettlement efforts were accompanied by irrigation projects in the Dry Zone to increase the productivity of the land given to the Sinhalese transplants, making resettlement even more attractive to landless peasants living in the Wet Zone. Both the transfer of land and the irrigation and infrastructure projects that supported them were framed in explicitly revivalist terms by D.S. Senanayake, the chairman of the Agriculture and Lands Executive Committee under British Colonial rule and the first Prime Minister after independence (Moore 1985, 44-46).

These efforts accelerated with the start of the Gal Oya project in 1949. The project involved damming the Gal Oya river for hydroelectric power, building numerous irrigation reservoirs, and settling Sinhalese peasants in the surrounding area and was completed in 1953. The project's architect K. Kanagasundram framed it in explicitly colonial terms and viewed crown land in the Dry Zone as land stolen by British and settled with "alien Indian Tamil Labourers" (Kanagasundram 2016). This perspective was commonly held by Sinhalese who believed that Indian Tamils who lived in the Dry Zone were complicit in the alienation of Sinhalese lands to British interests by laboring on the farms located on the land (Samaraweera 1982, 107). This attitude paved the way for widespread public support for the development and relocation efforts.

¹Writers discussing seizure and redistribution of land in Sri Lankan colonization efforts typically use the legal term alienation regardless of the coerciveness of the transfer. Alienation accurately describes the redistribution of crown (government) land, but later efforts that transferred ownership from (usually Tamil) smallholders to Sinhalese newcomers are more accurately described as expropriation given the limited compensation these landholders typically received.

While the project enjoyed high levels of popular support, getting people to actually move to the new settlements was another matter. People brought to land around Gal Oya in 1953 received “two acres of high land and five acres of paddy land — together with cooking utensils and farm implements” from the government (Kanagasundram 2016). These private goods represented an increase in state support for colonization from previous efforts which provided “domestic water, irrigation water, roads, schools, hospitals, community halls and colonization officers” in newly created settlements (Amerasinghe 1976, 622) beginning in 1939. Eventually, government support for these settlements escalated to the point that

the government provided assistance to the colonists for clearing forest, ridging, fencing, construction of toilets, and construction of wells. In new projects associated with major river basin projects, peasants are settled on land with irrigation facilities. Lowlands are even machine-cleared, stumped, ridged, and rippled by the Land Development Department. Settlers are also given additional allowance for a temporary structure, seed paddy, cash for the purchase of implements, and eighteen months of food aid (Manogaran 1987, 88)

These programs were extremely capital intensive and required a significant investment from the government.

While the government justified these plans on the ground of improving the nation’s food production capacity, some scholars have argued that increasing yield in existing paddies would have been a more effective way of achieving this goal, and that the government was more concerned with increasing the area under cultivation than diversifying the crops in production (Ponnambalam 1981, 21-23). This possibility further suggests that the government had demographic manipulation in mind when conceiving the projects and was not primarily motivated by increasing agricultural output. Even when agricultural policy shifted towards increasing paddy yield in the 50s, colonization of the Dry Zone continued apace (Ponnambalam 1981, 36). Table 5.1 details the amount of land alienated to smallholders in the period from 1936 to 1966.

In this 30 year period, over 1.26 million acres of land was alienated from the government to landless peasants, roughly evenly divided between new developments and expansions of existing settlements. This area represents 7.80% of Sri Lanka’s total 16.21 million acres of land (*Sri*

Type of Scheme	Land Area (thousands of acres)	Allottees (thousands)	Average Farm Size (acres)
Major Colonization	287	59.7	4.8
Paddy	(182)		(3.0)
Highland	(105)		(1.8)
Highland Colonization	31	8.8	3.5
Youth Settlement	7		
Middle Class	147	11.6	12.7
Special Leases	58		
Marginal Land	70		
Village Expansion Schemes	664	504.2	
Total Land Alienated	1,264	587.4	

Table 5.1: Land Alienated Under Land Development Schemes, 1936-66 (Report of the Land Utilisation Committee, August 1967, S.P. 11, Government Press as cited in Amerasinghe (1976, 623))

Lanka 2019). This constitutes a significant transfer of land to Sinhalese settlers which continued after 1966. Internal migration in the 1940s and 1950s consisted primarily of rural to rural movement (Jayewardene 1979, 52) as these Sinhalese relocated from agricultural land in the Wet Zone to newly irrigated land in the Dry Zone. Accordingly, the government justification that resettlement programs were designed to alleviate population pressure in crowded urban areas should be viewed with some skepticism.

These relocation schemes had considerable impacts on the demographics of the targeted regions. The government did not record ethnicity on census responses, so it is impossible to know conclusively how these efforts reshaped the ethnic composition of each district. Manogaran attempted to estimate the demographic effect of Sinhalese migration to Tamil-majority districts by using the national population growth rate as a benchmark, and then calculating the difference between this projected change in population and the observed one (1987, 96).

The Sri Lankan government does not provide statistics on the changes in demographic composition in the Dry Zone over time. However, by using the population growth rate for the island as a whole, it is possible to construct a counterfactual for each Tamil district. Comparing the actual change in population with this counterfactual can provide a very rough estimate of the number of Sinhalese migrants from the Wet Zone. In every Tamil district except Jaffna, this estimated Sinhalese

population growth is positive (Manogaran 1987, 96), indicating that significant numbers of Sinhalese have been relocated to Tamil majority areas in the Dry Zone.²

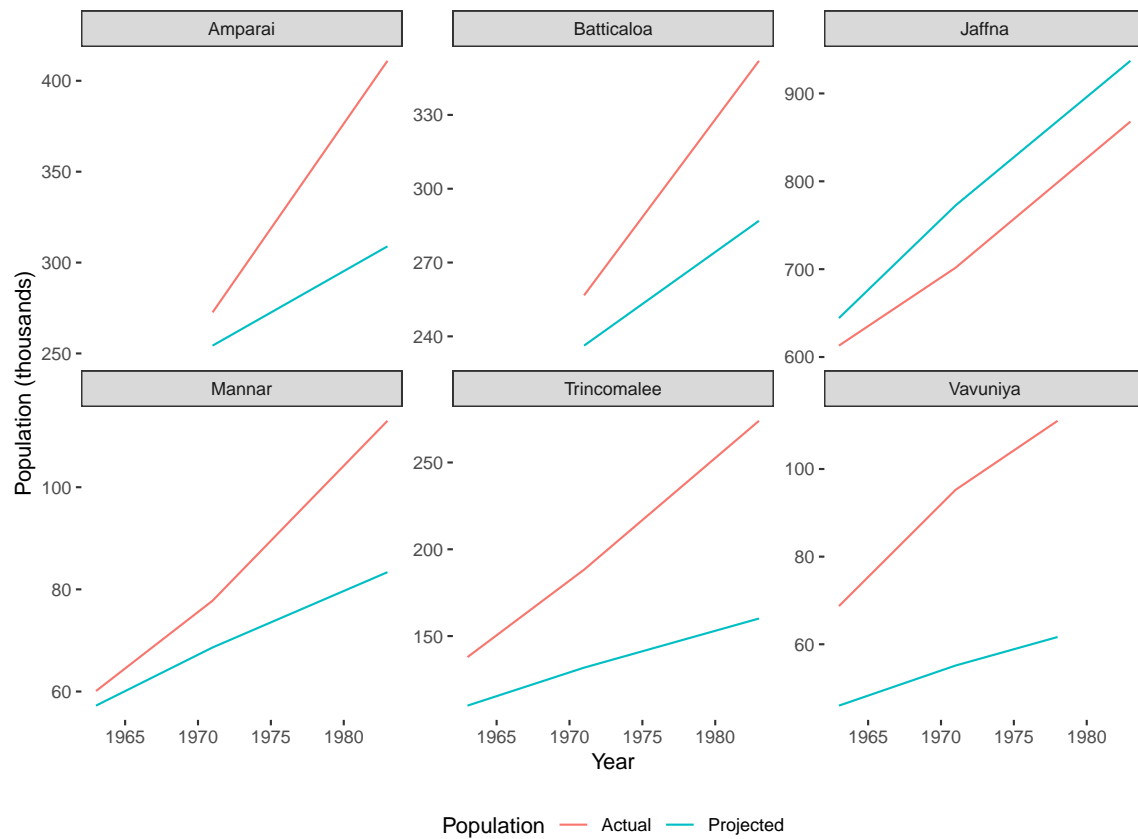


Figure 5.1: Actual versus projected population increases in Tamil districts, 1953-1983 (multiple sources, as cited in Manogaran (1987, 96)).

Figure 5.1 presents these differences graphically. In every Tamil-majority district except Jaffna, the actual population growth far exceeds estimates. These disparities are likely due to the immigration of Sinhalese from the Wet Zone, indicating that Sinhalese became a much larger share of the population in each district.

The difference between actual and projected population slightly increases after 1963 for most of the panels in Figure 5.1. This growing divergence reflects a shift in the priorities of the settlement efforts around this time, expressed through two major developments.

First, a plan to develop irrigation, hydroelectric power, and water management for the Mahaweli Ganga river was drafted in 1968 and implementation began in 1977 (Hewavisenthi 1992). Where

²See Table D.1 for a full presentation of these estimates.

earlier schemes, including the Gal Oya project, primarily settled Sinhalese peasants on unoccupied land and improved irrigation in existing Tamil villages (Kanagasundram 2016), the Mahaweli Programme explicitly targeted Tamil villages for resettling by Sinhalese and did not provide any improvements to Tamil villages. Water produced by the project went primarily to Sinhalese areas and excluded Tamil settlements (Manogaran 1987, 107).

Second, the introduction of the “Special Leases Scheme in 1965” granted up to 1,000 acres of land at a time in the Dry Zone to private companies (Amerasinghe 1976, 625) greatly accelerated the pace of Sinhalese migration as many of these plots were given to Sinhalese companies.

Despite overcrowding in Dry Zone districts due to the absence of irrigation, land and water from new projects in the Dry Zone were given to peasants who already owned land in the Wet Zone (Manogaran 1987, 90). More Sinhalese from the Wet Zone were selected for Allai, Kantalai, and Gal Oya settlements than local Tamils already living in the vicinity (Manogaran 1987, 91).

Given these inequities, it was perhaps inevitable that Sri Lankan Tamils would see the massive migrations of Sinhalese into the Dry Zone as an intrusion into their alleged “homelands,” and as attempts to swamp them (Tambiah 1992, 69). “Tamil politicians have claimed that preference was given to Sinhalese over Tamils in the selection of allottees for colonization schemes that are located in Tamil districts” (Manogaran 1987, 88), a claim which is not particularly controversial in light of the demographic changes the settlement programs resulted in. “Since Sinhala settlements in the north central and eastern provinces occurred under direct state sponsorship, it appeared to many Tamils as a deliberate attempt of the Sinhala dominated state to marginalize them further by decreasing their numbers in the area” (Perera 2001, 18).

These grievances were understandable as Sinhalese squatters were often permitted to remain on government land in the Dry Zone while Tamil squatters were frequently evicted from settlement projects (Manogaran 1987, 93). Emerging from this environment of unequal treatment in 1976, the LTTE found no shortage of recruits for their campaign of violence against the government. In short order, “resettled groups have become regular targets of violent and brutal attacks by many of these militant groups, particularly the LTTE” who aimed to “eliminate the Sinhala presence in these areas and to destroy their infrastructure in order to prevent future resettlement” (Perera 2001, 19). These early clashes quickly escalated into a full-scale secessionist campaign with LTTE leadership demanding an independent state for Tamils in the island’s northeast.

Such a hostile response to Sinhalese settlement makes even more sense when considering their colonial nature. The development of agricultural land in the Dry Zone was frequently justified as a way to increase the food production of the nation, and this was a major objective during the planning phase of the Mahaweli Programme (Peiris 1978, 611). Yet many of the individual settlements in the Programme cost significantly more than they contributed in terms of increased agricultural yields (Nithiyandam & Gounder 2004, 222). One evaluation of the earlier Gal Oya project estimated that even if the capital for the project was obtained interest-free, it would have lost money (Ponnambalam 1981, 22). These assessments cast serious doubt on the settlement schemes as simple economic development projects.

One straightforward interpretation of these resource negative projects is that the government viewed them as a security concern, and was willing to pay the cost to attain increased security. Another interpretation is that the government viewed these efforts as an economically driven project, but was willing to pay their short-term costs for the promise of longer-term rewards from developed agricultural lands in the future. Whatever the motivation, they were not fully effective in asserting control over Tamil areas of the Dry Zone. Although the government eventually triumphed over the LTTE, the conflict lasted for 25 years and claimed upwards of 100,000 lives (Ganguly 2018).

Despite the failure of Sinhalese colonization schemes to prevent the emergence of armed Tamil secessionist groups, they represented a clear attempt by the government in Colombo to assert control over the Dry Zone. By relocating large numbers of Sinhalese, the government's primary supporters, to the region, they were able to extend their influence into previously uncontrolled territory, providing a justification for violent resistance to Tamil secessionist efforts.

5.2.2 Iraqi Kurdistan

Iraq's Northeast has been historically inhabited by the Kurds since before the emergence of the modern Iraqi state in the aftermath of World War I (WWI). Large Kurdish populations also existing in neighboring regions of Iran, Turkey, and Syria. While the Kurds under Mustafa Barzani's Kurdistan Democratic Party (KDP) engaged in multiple separatist conflicts with the government in the 1960s and 1970s, today the KDP shares power with the Patriotic Union of Kurdistan (PUK) in the semi-autonomous Kurdistan Regional Government (KRG) (Owtram 2019, 305-308). Despite the fall of Saddam Hussein's regime in 2003, the Kurds have not seized the opportunity to fight for

independence in the intervening years. To understand why regime change has proved insufficient to spur an independence struggle, it is necessary to study a policy of deliberate demographic change that dates to well before Saddam Hussein came to power. This process of Arabization was active for most of the 20th Century and had a profound impact on the region.

Iraqi Kurdistan has long been characterized by patterns of demographic changes. After the discovery of oil in the early 20th Century, the Turkish Petroleum Company³ brought in large numbers of Arab and Assyrian employees beginning in 1925 rather than hiring local Kurds to fill positions (Anderson & Stansfield 2009, 32-33). Importing labor from elsewhere in Iraq continued throughout the 1930s, increasing the ethnic diversity of Kurdish-dominated Kirkuk (Talabany 1999, 12).

While migration from outside of Kurdish territory began with the petroleum industry, it did not stop there. The government developed an irrigation project in the 1930s near the Hawija plains where Kurds typically grazed, but gave plots of land to nomadic Arab families who occasionally passed through instead of Kurds who lived there more permanently (Anderson & Stansfield 2009, 35). If the government's main objective was to maximize agricultural production on the land, then it should have gone to the Kurds who already cultivated some crops there instead of Arab nomads who intermittently used it as grazing land. Throughout the 1940s the government encouraged "Arab settlement in the rural areas southwest of Kirkuk city, with tribes brought from less fertile areas west of the Tigris," which led to a major increase in Kirkuk Governorate's Arab population by the 1950s (Knights & Ali 2010, 2). These new arrivals were frequently offered water from recently completed irrigation projects for their land.

After the February 1963 coup against Abd al-Karim Qasim, resettlement efforts took on a much more confrontational character. The new military government razed Kurdish villages in Kirkuk Governorate, evicted Kurds from other villages, and resettled them with Arab tribes (Talabany 1999, 19; Anderson & Stansfield 2009, 35-36). To facilitate even greater migration to the region, the government promised Arab military members that they would receive formerly Kurdish lands in the area (Knights & Ali 2010, 4). The net effect of these demographic manipulations was to vastly increase the Arab population of Kirkuk relative to its Kurdish population.

³Later renamed the Iraq Petroleum Company.

During this period, the Ba'ath government sought to find a peaceful resolution to the conflict with the Kurds, but Barzani, unsatisfied with the government's initial overtures, resumed attacks in early 1969. With material support from Iran, the KDP was able to fight the government forces to a standstill [323-327](McDowall 2004). Faced with a well-supplied Kurdish force, the government came to the bargaining table. Despite intense negotiations around Barzani's autonomy demands, the government walked away from the talks and unilaterally declared a Kurdistan Autonomous Region in 1974, but this region encompassed substantially less land than Barzani claimed and excluded the oilfields outside of Kirkuk (Human Rights Watch 2004, 8). By doing so, the government hoped to weaken the Kurds' claim to the oil producing region around Kirkuk. After this recognition, the Iraq Petroleum Company fired numerous Kurdish employees or transferred them out of Kirkuk Governorate, a fate shared by many low-level Kurdish civil servants (Talabany 1999, 19). Transferring Kurdish civil servants not only reduced the level of Kurdish influence over local government, it also removed highly educated Kurds from the region.

Concurrently, the government began incentivizing nomadic Arabs from the al-Jazeera Desert to relocate to formerly Kurdish lands by offering free irrigated land. Some Arabs living in Southern Iraq were promised both housing and benefits by the government (Black 1993, 35). Testimony from these migrants illustrates other incentives they received as well:

We went to Hin Djok at the end of 1974, October or November. Before this, we used to live like shepherds with our sheep, south of Mosul. We had no lands, and we used to take our sheep [grazing in the desert.] In 1974, the government came and asked if we wanted lands in the north. We were very grateful and voluntarily went to the north. . . . We built our own houses, all of our families built new houses, and we also dug water wells. Each farmer got sixty dunums⁴ of irrigated land. (Sulaiman Muhammad Ibrahim al-Hadidi (2003) quoted in (Human Rights Watch 2004))

We came to Suhaila in 1974. We came from Salahuddin governorate, from the al-Jazeera desert. The government and the Ba'ath moved us from al-Jazeera to this village. The government came to us, and announced that there were lands in these

⁴An archaic unit of measurement used throughout the former Ottoman Empire. The size of a dunam varies by country, but Iraq's is equivalent to 2,500m².

villages, and if we wanted to register [for land], we could. We registered, and one day they brought vehicles to transport us. Before this, we were living like bedouin in tents. They assigned each farmer 100 dunums. (Muhammad Hassan Alawi al-Hadidi (2003) quoted in (Human Rights Watch 2004))

The transfers gave significant tracts of land to previously landless nomads, resulting in many volunteers for relocation.

Not content to chip away at the Kurdish character of Kirkuk via demography, the government renamed many streets, neighborhoods, schools, and businesses in Kirkuk city with c names (Talabany 1999, 20). The Kirkuk Governorate itself was renamed al-Ta'meem (nationalization) in 1976, referring to the nationalization of the Iraq Petroleum Company in 1972 (Talabany 1999, 24). Arab men were even offered financial rewards for taking Kurdish wives, to further shift the region's identity from Kurdish to Arab (McDowall 2004, 340).

To attract Arab replacements for dismissed or displaced Kurdish employees, the government constructed numerous housing developments in and around Kirkuk, while also offering government subsidized housing to Arabs who joined the local police forces (Talabany 1999, 19-22). Settlements were often accompanied by army camps to protect the new arrivals from violence by armed Kurdish groups (Anderson & Stansfield 2009, 38-39). This defensive posture resulted in a vast increase in the size of the security forces in the region (Harris 1977, 121). By protecting Arab migrants from Kurdish violence, the government also increased its capacity to respond to more sweeping violent challenges for autonomy or secession from the Kurds.

Migration continued into the early 1980s with thousands more homes constructed throughout Kirkuk, many being deserved for the families of those killed in the Iran-Iraq war (Anderson & Stansfield 2009, 40). Other migrants were commonly referred to as "10,000-dinar Arabs" given the incentives they received for relocating to Kurdish-majority areas, such as public housing which continued to be built into the 1990s (Knights & Ali 2010, 4).

Kurdish displacement culminated in the al-Anfal campaigns of the 1980s which destroyed hundreds of villages in Kurdish territory and killed thousands (Black 1993, Talabany 2001). The third and fourth al-Anfal campaigns in 1988 destroyed 121 villages, razing even the foundations of structures to prevent resettlement (Knights & Ali 2010, 3). The Arabization campaign took a

turn after the Gulf War in 1991, narrowed its focus even more intently on Kirkuk. The government pressured Kurds, Turkmens, and Assyrians living in the city to sign “ethnic identity correction” forms to officially register as Arabs, and threatened anyone who refused to do so (Human Rights Watch 2004, 15).

Taken together, each of the individual aspects of the government’s Arabization policy has had a significant impact on the demographics of Kirkuk. To illustrate this, Table 5.2 shows changes in the ethnic makeup of Kirkuk Governorate from 1957 to 1997. While any census figures are suspect given the above-mentioned manipulation of ethnic identification, the numbers are striking.

	1957		1977		1997	
	Census	Percent	Census	Percent	Census	Percent
Kurds	187,593	48	184,875	38	155,861	21
Arabs ⁵	109,620	28	218,755	45	544,596	72
Turkmens	83,371	21	80,347	17	50,099	7
Total	388,829		483,977		752,745 ⁶	

Table 5.2: Comparison of 1957, 1977, and 1997 Kirkuk Governorate Censuses (Anderson & Stansfield 2009, 43)

Central to Arabization was a need to expropriate land from Kurdish owners that could then be transferred to Arab settlers. The government accomplished this through a variety of legal means. The Qassim government passed the Agrarian Reform Act of 1958 which limited private land ownership to 2,000 dunums, then the Ba’ath Agrarian Reform Act of 1970 reduced this limit to 1,000 dunums which was later reduced to 300 dunums in the north (Human Rights Watch 2004, 15-16). The seizure of Kurdish land allowed it to be granted to Arabs from the south, and these incentives were largely responsible for the massive demographic shifts Kirkuk experienced over the second half of the 20th Century.

In addition to physically moving Arabs and Kurds, the government also redrew political boundaries, adding Arab majority districts and removing Kurdish majority districts from Kirkuk Governorate to further decrease the Kurdish population of the region. This gerrymandering added so many Arab dominated districts to the west and subtracted so many Kurdish districts to the east that it actually shifted Kirkuk Governorate significantly to the west and away from the Kurdish east

⁵Christians registered as Arabs

⁶Includes other minorities

(Anderson & Stansfield 2009, 27-30). Figure 5.2 illustrates the shrinking and shifting borders of Kirkuk over time. Figure 5.2a depicts them in 1968 while Figure 5.2b does so in 2002.

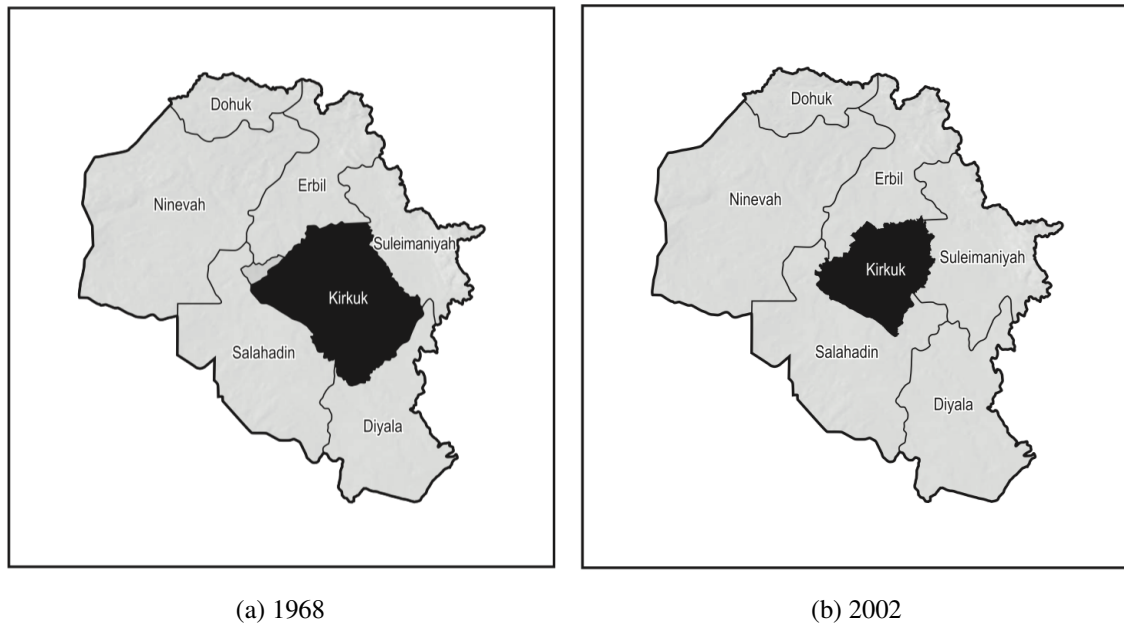


Figure 5.2: Boundaries of Kirkuk Governorate over time (Anderson & Stansfield 2009, 29,31)

If Arabization was intended to dampen Kurdish efforts towards secession, it gained new urgency following the Gulf War in 1991. Coalition forces declared a no fly zone over Iraqi Kurdistan in 1991 (Wrage & Cooper 2019), and Iraq worried that Kurdish dreams of an independent state might soon come to pass. To try and quash these hopes, the government intentionally followed a policy of overproduction in Kirkuk oil fields during the 1990s (Anderson & Stansfield 2009, 45) to extract as much oil as possible. To maintain these elevated production levels the government even reinjected crude oil into reservoirs to preserve the pressure needed to continue elevated extraction levels, a largely unheard of practice (Gerth 2003). This accelerated production schedule may have caused irreparable damage to Kurdish oil reserves, permanently reducing the ultimately recoverable yield (United Nations 2000).

This strategy had the double benefits of recovering as much oil as possible before potentially losing the Kirkuk oil fields to a separatist movement while simultaneously deterring that separatist movement by degrading the quality of the oil fields. With future extraction made costlier by intentional mismanagement of the oil reservoirs, a hypothetical Kurdish state would suffer from decreased revenue due to the degraded condition of the reserves. This overproduction policy is an

example of extreme measures that a government can take to reduce the governability of a minority group's territory.

While drastic, this scorched earth strategy should not be surprising given the stakes. Multiple Iraqi governments viewed any concessions to the Kurds as the start of a process that would inexorably lead to secession, leading them to view the status of the Kurds as a national security issue (Yesiltas 2014, 42). Thus, any challenge to the Iraqi identity of Kirkuk, let alone any concrete military threat, was viewed as a national security issue with existential implications for the state (Anderson & Stansfield 2009, 26). While Arabization employed population as a tool, it was ultimately about asserting control of Kirkuk and its valuable oil reserves. When it seemed like retaining control of those reserves was in danger, the government was willing to sacrifice them to deny the Kurds access.

This seemingly reckless attitude toward oil reserves illustrates the fact that Arabization was always about retaining control of Kirkuk's petroleum reserves. The Iraqi government was willing to destroy some of the oil to keep control of all of what remained, rather than risk losing access to oil rents in the case of Kurdish independence. While population was the tool the government used, the ultimate goal was denying a rival group access to the same resources the Iraqi state needed to function.

5.3 Discussion

The actions of the Iraqi and Sri Lankan governments reveal their concern over maintaining control over their respective minorities' territory. In each case, the government's supporters were composed primarily of a single ethnic group, Sinhalese in Sri Lanka and Sunni Arabs in Iraq. Ethnic tensions led the minority in each country to ultimately view the government's actions through a lens of replacement and seizure. A careful examination of the commonalities and divergences between the strategies employed and the ultimate outcome in each case highlights the ways in which internal colonialism functions as a method of secession preemption.

To accomplish their goals of transferring land from the regionally powerful minority to the nationally dominant group, both Iraq and Sri Lanka passed land reform laws limiting the maximum land that could be owned by an individual and then expropriating any land in excess of this amount. By giving this land to settlers from the dominant group, the government increases the legitimacy of

its claim to the land as it is transferred from the government to the settlers, and not merely directly claimed by them. While ownership was granted to Sinhalese migrants from the Wet Zone, Arabs who relocated to Kirkuk remained tenants who rented land directly from the government (Human Rights Watch 2004, 17-18). As a result, the government remained a much larger player in the everyday lives of Arab transplants than Sinhalese ones.

Outside of land, the incentives the governments used to encourage dominant group-members to relocate were noticeably different. Colombo provided mainly agricultural services including irrigation and mechanized land clearing, with the end goal of creating a population of independent smallholders in the Dry Zone. While Baghdad also provided farming land and irrigation, its focus was considerably less regional. Driven by a desire to increase Arab migration to Kirkuk, benefits often included employment in the oil industry or government jobs as minor civil servants. Though both programs provided housing, many Sinhalese settlers had to work to build their dwellings themselves in contrast with Arab arrivals who frequently moved into government constructed public housing complexes. Just as with the status of their land, the types of incentives used by the Iraqi government insinuated it into the daily lives of migrants.

While Arabization resulted in drastic changes to the culture and character of Kurdish communities in Kirkuk, Sri Lankan settlement efforts had a much smaller effect on Tamil areas. Many of the new Sinhalese villages never developed horizontal relationships with neighboring Tamil or Muslim communities and remained “ethnic colonies” among a largely Tamil landscape (Perera 2001, 18). This isolation did not facilitate the deep integration of Sinhalese migrants into the everyday life of the divisions they relocated to in the way that Arab migrants transformed Kirkuk and its outlying Kurdish villages. Arabization may have been a more successful conflict deterrent due to its more complete reshaping of everyday life.

An explanation for these differing patterns of government-individual relationships lies in the type of resource each government sought to assert its control over. The Sri Lankan schemes were highly agricultural in nature, and the end result they pursued was increased agricultural production. The programs were costly and not the most effective approach to increasing agricultural yield, which is puzzling if we assume that the goal was simply to increase national production as efficiently as possible. Instead, the settlement projects represent an effort to increase agricultural output as much as possible for Sinhalese Sri Lankans. While costly in the short-term, these land grabs ensured

that in the long-run, Sinhalese people would control the majority of agricultural production. Non-mechanized agriculture is not heavily capital dependent, so after the initial land clearing and irrigation development, the government would not be heavily involved in the Sinhalese agricultural expansion project.

Conversely, Arabization represented an effort to dominate an incredibly capital-intense sector of the economy. Petroleum extraction and refining requires extensive infrastructure and skilled labor. It is also geographically concentrated and thus vulnerable to sabotage efforts. To support and protect their effort to retain control over Kirkuk's oil reserves, the Iraqi government was required to take a very active and visible role in the lives of the citizens it had relocated to Kurdish territory. The Sri Lanka government built irrigation works that settlers could use for their personal cultivation, while the Iraqi government built clinics staffed by Arabs and schools that worked to create an Arab identity in their students (McDowall 2004, 340).

The actions of both governments pursued the goals of internal colonialism in broad strokes, but they differed greatly in execution. Each used the tools of government persuasion (McGarry 1998), but the results were very different. More importantly, their effectiveness as conflict prevention tools varied significantly. Tamil resentment led to small scale riots, the emergence of multiple armed groups, and ultimately a 25 conflict against the separatist Tamil Tigers. Although Iraq has a history of violence with Kurdish nationalist groups dating back to the 1940s (Owtram 2019, 305), neither the PDK or PUK have pushed for formal independence since the 1970s. Even the Gulf War and Iraq War have failed to spark an armed independence challenge from the Kurds.

While the type of resource the government seeks to secure plays a role in the effectiveness of internal colonization as a separatism prevention strategy, the Kurdish and Tamil cases differ on another key dimension. Sri Lankan demographic engineering consisted primarily of programs and policies that brought Sinhalese peasants into Tamil territory. Iraq relocated many Arabs to Kirkuk, but they also displaced vast numbers of Kurds and dispersed them throughout the rest of the country. In doing so, they significantly weakened the power base of Kurds in their native Kirkuk. This bidirectional movement of people is mirrored in the Breton experience where 533,267 Bretons relocated to other parts of France between 1945 and 1975 and were replaced by 442,565 people from the rest of France who migrated to Brittany during that time (Reece 1979, 285-286). France has yet

to experience any major organized violence by Breton separatists, so it appears that simply importing members of the dominant group is insufficient as a prevention strategy.

As the Iraqi government increased the presence of security forces in Kurdistan throughout the 1970s and 1980s, it hired many Arabs from elsewhere in the country rather than Kurds or local Arabs. Oftentimes these Arab migrants were directly employed by the security forces as police or intelligence officers (Talabany 2001, 97) This decision highlights the difficulty of empirically disentangling the more limited conflict prevention strategies, like increasing the size of security forces, discussed in Chapter 3 from the more drastic ones that characterize internal colonialism. China is similarly inducing Han Chinese police to relocate from elsewhere in the country to Xinjiang with high salaries and housing allowances (Radio Free Asia 2017). Their co-occurrence in these cases is consistent with the finding in Chapter 3 that governments invest more attention in territories that overlap with the dominant group's territory. This could be due to both the government directing public goods to its supporters in these areas, and to increased security force presence to protect those supporters. While cross-national quantitative analyses cannot assess what mix of positive and negative inducements governments use to preempt secession, the Iraqi and Sri Lankan cases suggest that, at least in these cases, governments employ far more sticks than carrots.

Internal migration is often figured as a cause of low level peripheral violence. These "sons of the soil" wars (Weiner 1978) may continue for decades (Fearon 2004) as locals react to the arrival of more prosperous migrants (Côté 2015) from the center (Fearon & Laitin 2011). If internal migration can spark these intractable conflicts, why would states engage in internal colonization as a conflict prevention strategy? Once again, the Iraqi and Sri Lankan cases provide an answer. Given that the Iraqi Kurds possess immense oil reserves and have TEK in three neighboring states, the fact that the Kurds have not employed violence on a large scale in pursuit of independence since the Gulf War suggests that Arabization has been remarkably effective in stymieing Kurdish separatist ambitions. Barzani fought for independence in the 1960s (McDowall 2004, 315-320), but by the 1980s the KDP was content to push for autonomy, and the establishment of the Kurdistan Regional Government in 1992 has seemingly further reduced violence. While the vast majority of Kurds still desire independence with 92% voting for it in a 2017 referendum (Chulov 2017), the KRG peacefully accepted the central government's invalidation of the referendum (Rasheed & Jalabi 2017). The relative absence of secessionist violence following the end of the Gulf War indicates that while the

Ba'ath regime's Arabization efforts were unable to stamp out Kurdish independence desires, they were successful in deterring violence in pursuit of those aims.

Although Sri Lanka failed to prevent the emergence of the LTTE and fought a bitter war against it, the government did not do so from a position of weakness. The extensive Dry Zone colonization schemes meant that there were Sinhalese inhabitants throughout the Tigers' territory, and the government did not have to be concerned about the loyalties of civilians in Sinhalese areas.. More directly, the security infrastructure of the region was already well-developed due to the need to protect Sinhalese settlers, with more than 100 army camps established in Tamil-majority divisions by the 1980s (Manogaran 1994, 116), so they were well prepared to respond to the escalation of hostilities. The government eventually emerged victorious over the LTTE in 2009, and throughout the fight was aided by the Sinhalese presence in the island's northeast.

5.3.1 Alternative Explanations

While briefly addressed at various points throughout the case narratives, it is important to explicitly discuss the shortcomings of alternative explanations for these patterns of internal colonialism. Multiple analyses found that the Sri Lankan colonization schemes cost considerably more money than they produced in increased agricultural yield, even in the medium to long-term. This revenue-negative situation suggests that economic development was not the primary motivation for the irrigation and settlement campaign. Governments are often willing to tolerate enormous costs in the name of national security, and given longstanding tensions with the Tamils, Sinhalese concern over maintaining control of the Dry Zone was rational.

Similarly, Baghdad's actions in Kurdistan cannot be explained simply by a desire for petroleum rents. The majority of revenues already went to the central government instead of local authorities, so the decision to import non-Kurdish workers from elsewhere in Iraq for the IPC was not the result of a mere attempt to increase a favored group's share of rents. Similarly, the cartographic manipulation that resulted in Kirkuk Governorate shrinking and moving south is puzzling if we limit our explanations to purely economic or patronage driven ones. By redrawing the boundaries of the governorate, Baghdad was able to reduce the amount of territory they could plausibly claim as Kurdish in the event of a secessionist revolt.

The strongest evidence for a non-economic motivation for internal colonialism comes from Iraq's handling of Kurdish oil fields during the Gulf War. A purely economic policy would have extracted as much oil from the reserves as quickly as possible if the government feared losing access. Instead, the government employed techniques that degraded the reserves and ultimately lowered the total recoverable yield. While this strategy is suboptimal from a purely economic standpoint, it is highly rational if the goal is to deter secession and weaken any potential newly independent state. Iraq could afford reduced production in the northern oil fields due to reserves elsewhere in the country, but these degradations would have a significant impact on a hypothetical Kurdish state with no other reserves to turn to. These drastic measures are unsurprising given "some Iraqis feared ceding such areas would undermine Iraq's strategic security" during negotiations with Barzani's KDP in the 60s and 70s (McDowall 2004, 327).

In both cases, the benefits of agricultural improvements went primarily to members of the favored group living far from the area. These programs were not simple agricultural infrastructure projects because if they were, the people already living on the newly irrigated and tilled land would have been the beneficiaries of it. Instead, both governments also implemented expensive incentive campaigns to induce their supporters to relocate to these areas. If improving outcomes for supporters was the primary goal, the governments could have improved areas where they already lived. The actions of both governments align with a desire to assert control over less 'governed' spaces within the state's borders. Baghdad already controlled oil revenues from Kirkuk, and Colombo gained precious little in agricultural production from the Dry Zone, so the resettlements make little sense from an economic or clientelistic perspective.

Another potential explanation for these internal colonial behaviors is the desire to build a buffer against foreign subversion composed of loyal populations. While people can be resettled to support this aim (McNamee & Zhang Forthcoming), such external concerns are unlikely to play strong roles in both cases. Sri Lanka is an island, so the need to establish a buffer against a neighboring state was not present. These concerns are more relevant in the Kurdish case where Iran supplied arms and supplies to the KDP in the 1970s, but Arabization continued well after Iran agreed to stop supporting the Kurds. While maneuvering against foreign rivals can contribute to internal colonialism, it is clearly not a necessary condition as Sri Lanka engaged in this practice without the presence of a neighboring rival.

Fear of a secessionist threat is not the only reason why states engage in internal colonialism. Sometimes it can be driven by a desire to ensure that supporters reap the benefits of new economic activity or simply efforts to develop underdeveloped regions within a state. However, it can just as easily be an attempt to swamp the local political of an aggrieved minority with designs on independence.

5.3.2 Demographic Engineering as a Conflict Management Strategy?

Both Iraq and Sri Lanka failed to fully prevent the emergence of an armed secessionist group, but neither has had to permanently cede any territory to their respective movements. Internal colonization may thus be less of a conflict prevention strategy than a conflict management strategy. Although it runs the risk of sparking territorial violence by transplanting settlers into minority territory, this conflict will never come as a surprise. In the most effective scenario, internal colonialism overwhelms and fractures local political movements, preventing the emergence of an armed challenger. Even when it fails to do so, it establishes infrastructure the government can use in the fight against the group and eliminates the element of surprise.

This long-term success through short-term failure dynamic is embodied by American westward expansion in the 19th Century. The Indian Removal Act of 1830 represented a reversal of previous policy that recognized Native American nations in the Southeast as sovereign political entities. In doing so, the government reneged on treaties previously signed with the Cherokee, Chickasaw, Choctaw, Creek (Muscogee), and Seminole nations (Perdue 2012), signaling a shift from viewing native groups as sovereign nations to subjects of the United States, living within its borders.

Following this decision, the government forcibly relocated native American nations into reservations (Foreman 1953) while simultaneously encouraging white Americans to settle in areas formerly or currently occupied by natives via the promise of 'free' land, just as the Iraqi government relocated Arabs to Kurdistan with the promise of government jobs and housing. And just as Baghdad had to increase and strengthen the security forces protecting these new arrivals, Washington had to protect its investment in the railroads (White 2011) and white settler communities.

Although there were violent clashes until the early 20th Century as native nations tried to resist the westward expansion of European settlers (Tucker, Arnold, Wiener, Pierpaoli Jr. & Coffey 2008), US government policy was ultimately effective in deterring future secessionist conflict. American

internal colonialism was a conflict management tool since it did not prevent violence entirely, but did prepare the US government to respond to native challenges to its authority from a position of superiority.

5.4 Conclusion

While states are more likely to engage in internal colonialism when minority groups inhabit territory with exploitable resources, the nature of those resources appears to affect the form the colonization takes and its ultimate effectiveness as a conflict management strategy. Extractive industries result in a more concentrated and intense state presence than more agricultural ones, which leads to a larger role for the state. This increased role may lead to higher initial friction with the local population, but aggressive intervention seems to more effectively deter secession in the long-run.

Long-running low intensity conflicts where core meets periphery may actually be evidence of conflict management. In essence, states are trading the risk of facing a well organized secessionist army unprepared in the future for the near certainty of facing disorganized and scattered resistance now. Based on the case evidence, it seems that internal colonial efforts where the state is more directly engaged are more effective in preventing conflict. Given the heavy hand of Beijing in Xinjiang, an organized mass violent Uyghur separatist movement is unlikely to emerge anytime soon.

The importance of government involvement in conflict prevention suggests that the informational mechanism may be more important than either the credibility of retaliation or increasing ethnic diversity. The mass migration of Sinhalese drastically affected the demographic of the Dry Zone but was insufficient to prevent the emergence and popularity of the Tigers. The presence of large numbers of Sinhalese that Colombo would fight to protect similarly failed to deter the LTTE. As the Dry Zone colonization schemes were primarily rural-agricultural, the government played a much more hands off role than they did in Kirkuk. Accordingly, the central government in Iraq was much more informed of local developments than in Sri Lanka. This heightened information flow contributed to conflict prevention efforts.

Internal colonialism is ultimately a conflict management strategy. At its most effective, it can prevent secessionist violence or limit violent conflict to autonomy seeking groups. When less effective it can fail to prevent the emergence of armed separatists, but still give governments an upper

hand by providing channels for them to receive information about local developments building up security infrastructure.

CHAPTER 6: CONCLUSION

This dissertation makes multiple contributions to the study of peace and conflict. It links post-independence state building, and the early modern state building literature, with conflict onset in the present day. It gives information a central role in explaining when and where secessionist conflicts are likely to occur, and it explores the many ways in which governments work behind the scenes to prevent the emergence of armed separatist groups within their territories.

The role of information in this argument is marginally, but importantly, different from the way it is typically operationalized in signaling models. Many signaling models are one shot games where actors either learn or fail to do so, and then stable equilibria are reached. In this dissertation, information is treated differently. Updating an intelligence estimate after changes in a situation can be a slow, incremental process. This multiple step model of information updating allows for a second shock to occur while governments are still adjusting to the first one. This conception of information captures the reality for many resource-strapped states that lack access to satellite imagery, ICT monitoring, and other costly tools of surveillance.

One of the most important implications of this research concerns conflict duration rather than onset. The conflicts we witness are likely not started by the most capable dissident groups because those groups arouse too much suspicion from the state. This selection effect could explain why many civil wars drag on for decades; if a government is not willing to invest the capital needed to prevent the emergence of secessionist groups in a territory, then it will be unlikely to commit the military resources necessary to quickly defeat the group if it does emerge. Similarly, if the groups that do emerge are weak, then they will face great difficulties defeating the state or forcing them to the negotiating table. These dynamics could help explain why civil wars some civil wars last for such long amounts of time.

The potential dependence of conflict duration on preemptive efforts highlights the importance of viewing civil war holistically no matter the specific aspect of interest in a given analysis. Failing to do so robs actors of their strategic agency in our understanding of conflict. If governments and

dissidents can make reasonable predictions about the future and plan accordingly, then failing to include this behavior from in models of conflict means that we are likely to reach biased inferences as were omitting important interactions between opponents.

This research seeks to find a synthesis between geographic and political explanations for conflict and peace. Theories of politics often ignore the geographic, territorial, concrete environments that actors and movements exist in and must contend with. Conversely, geographic theories of peace and conflict often overlook the cleavages behind the conflict and seek to explain how combatants confront one another over time in an exogenously driven clash.

This dissertation represents a first effort at combining these two forces, geography and politics, so it naturally focuses on the start (or failure to start) of conflicts. This is a necessary precondition for understanding how these factors shape the trajectory of conflicts at the macro and micro level throughout their duration.

Chapter 2 advances a broad theory of the relationship between geography, state building, and the goals that rebel groups fight for, and Chapter 3 details why the patterns suggested by this theory are not empirically observable in a cross-national annual dataset. Although the preemption argument in Chapter 3 provides an explanation for why we do not observe these predictions, it cannot directly test the proposed mechanism of preemption.

To overcome this limitation, Chapters 4 and 5 directly investigate the ways in which governments try and sometimes fail to prevent conflict. Concerted preemption efforts stop separatist rebel groups from organizing and mobilizing, but they rely on accurate information. When that information is geographically derived and hence relatively static, conflict is rare. When conditions on the ground in minority group territories shift, governments that are slow to adapt may face a secessionist crisis. Even geographic conditions can change on short time scales, as with the discovery of extractable commodities or the destruction wrought by natural disasters.

Chapter 5 provides a detailed exploration of two governments' attempts to manipulate human geography to their benefit. These case studies reveal that while governments engage in internal colonialism to try and preserve their control over valuable resources, the nature of those resources has a large impact on what the program will look like. Moreover, different internal colonial programs differ vastly in their effectiveness as conflict prevention tools. Efforts where governments are more

directly involved in the lives of their citizens seem to be more effective at preventing and managing conflict.

One striking through-line that emerges is the centrality of information in successful conflict prevention efforts. Chapter 4 develops a theory of prevention failure that emphasizes the importance of up to date information. When governments are unaware of changes in the governability of a minority group's territory, they can not properly update their portfolio of prevention strategies. If their information is seriously out of date, or if they lack the resources to adapt quickly enough, then marginalized minorities may seize their moment and use the element of surprise against their oppressors.

Similarly, the experiences of government directed settlement in the Sri Lankan Dry Zone and Iraqi Kurdistan in Chapter 5 highlight the importance of information. While both governments relocated massive numbers of their supporters from the dominant group, the government was much more closely involved in Kurdistan. These close ties provided more information on happenings in the region and allowed the government to channel separatist desires into satisfaction with simple regional autonomy. In contrast, the Sinhalese expansion into the Dry Zone appears to have given birth of a violent secessionist insurgency where only mild discontent existed before.

Another lesson from these cases of internal colonization is the danger of incomplete conflict prevention strategies. Baghdad committed to breaking the will of the Kurds by dispersing them throughout Iraq, whereas Colombo limited itself to supporting Sinhalese transplants. However, the LTTE was eventually defeated, so even governments which cannot afford to commit wholeheartedly to internal colonialism may experience benefits in the form of advantages in combating a secessionist group.

There are many avenues to further develop and refine this research agenda. The overall argument of geographic governability relies on a conception of ethnic group territorial homelands that can serve as the basis for new states. Data limitations in the cross-national analyses require relying on broad, inaccurate measures of where groups live. These measures provide no way of knowing the breakdown of population by ethnic group when two more groups overlap. Newly available data harness machine learning methods and household survey data to produce more granular estimates of population numbers by ethnicity (Müller-Crepon & Hunziker 2018), but at present only cover limited spatial and temporal ranges. Future work can apply these approaches with historic survey

data to obtain more accurate measures of ethnic groups throughout time, improving the measurement of population beyond the methods currently available.

Another important line of inquiry involves exploring when governments offer carrots, and when they wield sticks in their secessionist preemption efforts. While security forces can be effective in disrupting the formation of dissident military organizations, a heavy hand may spark backlash as in Aceh and the Sri Lankan dry zone. Positive strategies like public goods are not without their own pitfalls. If the government substantially improves infrastructure and the capital base in a minority group's territory without addressing the underlying grievances, they may make secession more attractive by increasing the resources available to fund a future independent state. As discussed in Chapter 4, incorporating grievances and multiple strategies of prevention into an agent-based model of informational conflict onset may be a promising avenue.

Understanding how governments select a mix between these two strategies, and how they adjust them in response to changing levels of grievance and nationalist desire, can offer insight into the causes of preemption failure. The nightlights data used to measure government investment in Chapter 3 cannot distinguish between appeasement and preemption and thus cannot provide any insight into this question. One plausible explanation is that more politically excluded groups will be more likely to be targeted with repressive strategies as they lack access to the political process and the government will pay a minimal political cost for this exclusion.

Even within the appeasement half of the set of preemption strategies, there is considerable variation. Increasing education may reduce the desire for secession by providing concrete benefits to minority members. However, it would be difficult to retain these benefits during the transition to an independent state as they are funded by the central government. In contrast, improvements to a region's physical infrastructure — paving roads, building hydroelectric dams, upgrading electrical grids — will be considerably harder for governments to take back in the event of a secession crisis.

This difference could potentially explain the divergent outcomes in Sri Lanka's Dry Zone and Iraqi Kurdistan. The Sinhalese colonization schemes significantly improved irrigation Baghdad mainly built housing for transplants who worked in a preexisting oil industry. Did substantially improving the Dry Zone's agricultural infrastructure contribute to Tamil secessionist desires? Future work should answer this question by investigating the differential effects of different types of public goods.

Given the importance of information as an explanatory force, spending more time theorizing the sources of misinformation is warranted. Thus far, I have largely elided this important topic, and largely assumed that poor quality information is either due to a lack of resources or transparent political institutions. However, there are a wealth of other potential sources of bad information. Confirmation bias may lead governments to be slow to update in the face of new information, and this effect may be especially large when members of the dominant group hold negative stereotypes about the minority. Domestic politics could also play a role; if small members of the winning coalition enjoy significant veto power, then monitoring minority groups far out in the countryside may fall low on the government's priority list. Just as language and cultural barriers can be an impediment to intelligence gathering in counterinsurgency, they can also negatively affect efforts in peacetime. Understanding the sources of informational weakness that can lead to conflict onset may also help us better understand the role information plays in active conflicts and conflict resolution.

This informational theory of secession also has implications for conflict management practitioners. If secessionist conflict results from a mismatch between government expectations and conditions on the ground in minority group territories, then improving the flow of information from the periphery to the center should reduce the likelihood of violent secessionist conflict. The model developed in Chapter 4 almost never predicts conflict when governments can perfectly update their information after a shock. Any conflicts that it does predict under these conditions are due an exceptionally large positive shock to the governability of a group's territory that overwhelms the resources the government can commit to preemption.

It is important to note, however, that this formulation only suggests that improved information flows can contribute to the barest definition of peace. Information only ensures negative peace, with positive peace requiring more to be achieved (Galtung 1969). China's surveillance state in Xinjiang will likely give Beijing the information it needs to prevent any large-scale, popular armed movement for independence from emerging in the region. However, the conditions reported in Xinjiang — the ubiquity of surveillance cameras, the biometric tracking of gasoline purchases, the monitoring of household electricity usage, the numerous re-education camps — clearly indicate that the region's Uyghur citizens fail to enjoy the benefits of positive peace.

In other cases, increased information flows may lead to more responsive governance for minorities. Central governments can reduce separatist desires by providing the specific services and goods

that members of a minority group want. However, information alone does not determine what form the peace will take. The only constant across cases is that more information should lead to a lower chance of armed contention between the government and non-state actors.

While these policy implications may strike a pessimistic tone, the overall picture is less distressing. By focusing on the role of information, and bad information, in conflict onset, this dissertation advances us beyond the self-proclaimed defeat of accepting that war is in the error term. By drawing on potential post-conflict concerns, it acknowledges the strategic thinking of rebel movements and provides new insights into conflict onset. Continuing to probe the causes and differential effects of different sources of information bias in conflict prevention may yield conflict management strategies with more uniformly positive outcomes.

APPENDIX A: SUPPLEMENTAL INFORMATION FOR CHAPTER 2

A.1 Missing Data

I multiply impute missing values using the `mice` package (van Buuren & Groothuis-Oudshoorn 2011). I generate five imputed datasets, run four chains on each, and then perform inference on all 20 chains pooled together, averaging over the uncertainty in different imputed values (Little & Rubin 2002, 217-218). Although it is possible to employ a model that jointly specifies the probability of an observation's absence alongside the parameters of interest, doing so is unnecessary in this case. When the proportion of missing information in a dataset is low, this “uncongeniality” between separate imputation and analysis models does not affect inference of imputed data (Meng 1994). The percentage of missing data in the data is .24%, so this should not affect the validity of my inferences.

	% Missing
Lost Autonomy	0.47
Polyarchy	0.73
GDP per capita	6.60

Table A.1: Missingness of explanatory and control variables.

A.2 Population Considerations

Using the ‘cookie cutter’ approach (Cederman, Buhaug & Rød 2009, Cederman, Weidmann & Gleditsch 2011, Cederman, Weidmann & Bormann 2015) requires correcting for cells where multiple group territories overlap. I do this by dividing the cell value by the number of group polygons that cover it for each cell in the raster data. For example, the settlement areas of Slovaks and Hungarians overlap in Southern Slovakia. Each raster cell in these areas has its population value divided by two before aggregation to the group level, so the Slovaks and the Hungarians each receive half of the cell's population. While equal distribution of population between overlapping territories is a strong assumption, it introduces less bias than ignoring the problem. Doing nothing double counts the population of overlapping cells, resulting in ‘extra’ population in a state. Figure A.1 illustrates this downweighting for population in Nigeria.

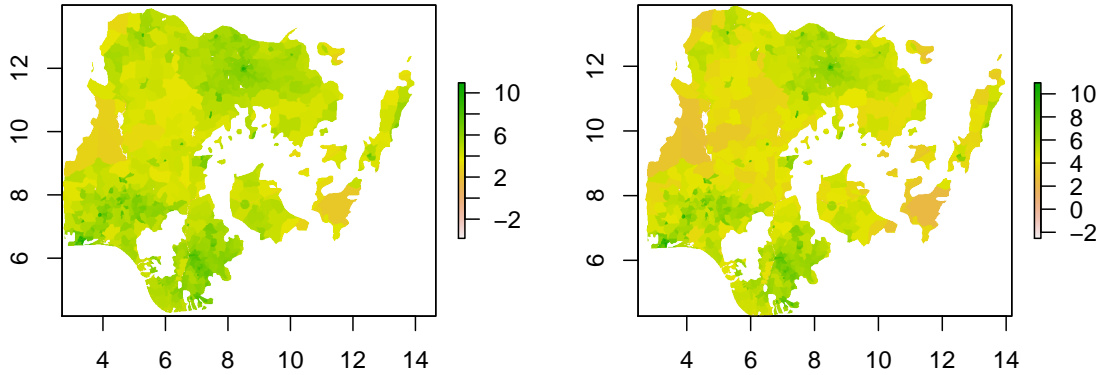


Figure A.1: Population weighted by overlapping ethnic group territories in Nigeria

A.2.1 Population Concentration

The population Gini measure is calculated by treating each grid cell in the population data as an individual in the standard Gini index formula:

$$G = \frac{\sum_{i=1}^n \sum_{j=1}^n |x_i - x_j|}{2n^2\bar{x}} \quad (\text{A.1})$$

Each grid cell with no population contributes to a higher Gini coefficient because between two territories with equal population, the one with more unoccupied areas will have a more concentrated population overall. This excellently captures the theoretical concept of population concentration. While Weidmann (2009) uses the Herfindahl-Hirschman index (HHI) to measure population concentration, his unit of analysis is ethnic group territory polygons, not grid cells within a polygon. Thus, his data will have no instances of a unit with zero population. As the Herfindahl-Hirschman index is based on market share (Rhoades 1993), it ignores observations with a zero value. It is calculated as:

$$H = \sum_{i=1}^n s_i^2 \quad (\text{A.2})$$

where s_i is the market share of firm i (Rhoades 1993). In this case, s_i represents the population share of grid cell i of the total population in a group's territory. As such, cells with zero population are not included in H . Substantively this means that two territories with the same number of equally populated grid cells have an identical H , even if the second territory has several additional empty grid cells. We would say that the population of the latter territory is more concentrated within its area, so the Gini coefficient is a better measure of population concentration when measuring population at the grid cell level. This property is inappropriate when many observations have zero population and these unpopulated grid cells indicate a more concentrated population.

A.3 Capital Distance

Distance to the capital is measured using geodesic (straight line) distance. While geodesic distance underestimates the 'on the ground' travel distance, this measurement error is less relevant at the national level distances under study than in analyses of smaller areas. I use the CShapes dataset (Weidmann, Kuse & Gleditsch 2010) which provides the locations of national capitals and records any changes in their location such as the 1960 move of Brazil's capital from Rio de Janeiro to Brasília

A.4 Nested Logit Model

There are numerous potential strategies that can be used to analyze the relationship between territorial governability and initial rebel group goal. The simplest would be to estimate a logistic regression of goal choice as a function of territorial governability and a set of control variables. However, this approach risks producing biased inferences because it represents a type of selection bias due to omitting groups which do not turn to violence (King, Keohane & Verba 1994, 129-136). A better approach is to include the lack of violent conflict as a possible outcome in the model. As there is no natural ordering of the set of outcomes {nonviolence, secession, autonomy}¹, multinomial logistic regression is the best way to estimate these relationships (McFadden 1984).

Unfortunately, multinomial logistic regression is subject to the independence from irrelevant alternatives (IIA) assumption, which states that the odds of one alternative over another are inde-

¹I use the term nonviolence instead of status quo because there are a multitude of ways that self-determination groups can work for change without employing violence against the state (Chenoweth & Stephan 2011, Cunningham, Dahl & Frugé April 1,3 2017), and status quo implies an acceptance of the current conditions.

pendent of the presence or absence of any other irrelevant alternatives (McFadden 1974). Given the potential costs and gains associated with militarily confronting the state, nonviolence cannot be treated as an irrelevant alternative to secession and autonomy.

To deal with this violation of the IIA assumption, I employ a nested logit model. Nested logistic regression is appropriate when clusters of alternatives are likely to share unobserved attributes (Fischer & Aufhauser 1988), and can be thought of as analogous to multilevel models which account for dependence caused by unobserved factors at the group level (Gelman & Hill 2007). As secession and autonomy-seeking civil wars are both forms of violent conflict, they are likely to share several unobserved attributes. The structure of a nested logit can absorb much of this dependence, freeing me from the need to try and include every relevant variable they have in common, leading to a more parsimonious and interpretable model (Achen 2002).

A further advantage of the nested logit model for my analysis is the ability to include different predictors across choice sets, and for the decision between choice sets. This allows me to use variables such as horizontal inequality (Cederman, Weidmann & Gleditsch 2011, Cederman, Buhaug & Gleditsch 2013) and demographic balance (Cederman, Buhaug & Rød 2009) to explain the decision to engage in violent conflict or not, and then, conditional on a group turning to violence, the effect of territorial governability on the choice between secession and autonomy.

Equation 2.1 presents the general form of the nested logit model, where i indexes observations, j indexes alternatives, and m indexes the choice sets that alternatives are nested under. The vectors \mathbf{y} and \mathbf{c} denote the alternatives chosen by each observation, and the choice sets that they fall within. The matrices \mathbf{Z} and \mathbf{X} represent the predictors that determine which choice set an observation falls into, and the choice of alternatives within that choice set, respectively. The model can have different predictors \mathbf{Z}_m within different nests m , but as written below, it uses the same predictors within each nest. I_{im} is called the inclusive value and represents the expected utility for all alternatives within choice set m . The parameter λ_m

Since there are only two alternatives in the violence choice set, I replace the categorical distribution with a binomial one. Multinomial logistic regression requires the omission of a reference category, so with only two alternatives, the interpretation of regression coefficients is the same. A binomial specification is also more computationally efficient and numerically stable.

Equations A.3-A.15 present the simplified version of the nested logit model that I use to explain the choice of goal by rebel groups, including all priors and hyperpriors. Here I replace the more general notation of m choice sets with n to denote the degenerate nonviolence choice set and v for the violence choice set. I select the violence choice set as the omitted category for the upper level multinomial logit. Although this means that the β coefficients for the violence choice set are 0, and thus $\eta_{iv} = 0$ the probability of it being selected is not 0 because λ_v and I_{iv} are still included in π_{iv} .

$$y_i \sim \text{binomial}(\delta_i/\lambda_v) \quad (\text{A.3})$$

$$c_i \sim \text{categorical}(\pi_{im}) \quad (\text{A.4})$$

$$\pi_{im} = \frac{\exp(\eta_{im} + \lambda_m + I_{im})}{\sum_{h=1}^M \exp(\eta_{ih} + \lambda_h + I_{ih})} \quad (\text{A.5})$$

$$I_{in} = \log [\exp(\eta_{in}/\lambda_n)] \quad (\text{A.6})$$

$$I_{iv} = \log [\exp(\delta_i/\lambda_v)] \quad (\text{A.7})$$

$$\delta_i = \gamma \mathbf{z}_i \quad (\text{A.8})$$

$$\eta_{in} = \beta \mathbf{x}_i \quad (\text{A.9})$$

$$\eta_{iv} = 0 \quad (\text{A.10})$$

$$\beta \sim \mathcal{N}(\mu_\beta, \sigma_\beta) \quad (\text{A.11})$$

$$\gamma \sim \mathcal{N}(\mu_\gamma, \sigma_\gamma) \quad (\text{A.12})$$

$$\mu_\beta, \mu_\gamma \sim \mathcal{N}(0, 5) \quad (\text{A.13})$$

$$\sigma_\beta, \sigma_\gamma \sim \text{hcauchy}(0, 5) \quad (\text{A.14})$$

$$\lambda \sim \text{beta}(2, 2) \quad (\text{A.15})$$

This modeling choice offers two advantages. Second, the nonviolence choice set is degenerate with only one alternative, so $\delta_{in} = \eta_{in}$ and I replace δ_{in} with η_{in} in the model. This reduces the number of parameters to be estimated, while keeping the structure and implications of the model the same.

A.5 Estimation

Estimation in the Bayesian framework via Markov chain Monte Carlo sampling also avoids the numerous computational issues present with likelihood based estimation of nested logit models. Full information maximization of the joint likelihood is asymptotically efficient and produces consistent parameter estimates, but the likelihood is not necessarily concave, so convergence is not guaranteed (Fischer & Aufhauser 1988, 53-54). Conversely, sequential estimation of the upper and lower likelihood is computationally feasible but inefficient, although it produces consistent estimates. The larger issue is that the variance-covariance matrix has to be separately estimated, otherwise standard errors will be biased downwards (McFadden 1981). MCMC can simultaneously estimate the full model because it explores the entire posterior distribution instead of searching for a maximum. I estimate the nested logit model using the Stan programming language (Carpenter, Gelman, Hoffman, Lee, Goodrich, Betancourt, Brubaker, Guo, Li & Riddell 2017) in R (R Core Team 2019) via the RStan interface (Stan Development Team 2017).

A.6 Alternate Models

This section presents results from multinomial logit models of rebel group goal in territorial civil war and nested logit models without an interaction between population and distance.

A.6.1 Multinomial Model

The multinomial models replicate the analysis in Chapter 2, but instead model rebel goal as a multinomial logit between the choices of {nonviolence, autonomy, and secession}. In these models I include all governmental conflicts in the nonviolence category, so they do not account for the violation of the IIA assumption caused by the similarity between governmental and territorial forms of conflict. Results from these models are similarly null and suggest that the lack of evidence of a relationship between territorial governability and rebel group goals in territorial conflict is less likely to be due to specific modeling choices.

	Model 1	
	Autonomy	Secession
Excluded	1.04	-0.50
	[-0.19; 2.34]	[-1.31; 0.33]
Lost Autonomy	-0.40	-0.33
	[-3.02; 2.02]	[-2.33; 1.34]
ln(Inequality) ²	-1.12*	-0.41*
	[-2.20; -0.23]	[-0.88; -0.04]
ln(Balance)	-1.46*	0.50
	[-3.01; -0.04]	[-0.32; 1.33]
Polyarchy	0.91	0.47
	[-0.27; 2.11]	[-0.24; 1.19]
ln(GDP _{pc})	-0.21	-0.18
	[-1.75; 1.32]	[-1.32; 1.10]
ln(Area)	0.72	-0.52
	[-0.37; 1.89]	[-1.06; 0.01]
ln(Population)	0.72	-0.07
	[-0.45; 2.00]	[-0.77; 0.65]
Capital Distance	-0.09	1.01*
	[-1.10; 0.98]	[0.26; 1.78]
ln(Population) × Capital Distance	-0.50	-0.22
	[-1.29; 0.23]	[-0.64; 0.19]
Polynomial Time	✓	✓
Observations	11551	

* 0 outside 95% credible interval

Table A.2: Multinomial logit results of the choice of goal in territorial civil conflict. The omitted category encompasses all other forms of political activity, including acceptance of the status quo, nonviolent resistance, governmental conflict, or political violence below the intensity threshold required for inclusion.

A.6.2 Unconditional Model

Table A.3 presents results from a nested logit model that replicates results in Table A.3 without an interaction between capital distance and group population. This specification assumes that the effects of distance and population are constant regardless of how far a group's territory is located from the capital or how populous it is. The relationship between both distance and population and group goal is inconclusive, providing further evidence of the lack of consistent relationship between territory and choice of group goal.

A.7 MCMC Diagnostics

Figures A.3 and A.4 present traceplots from the main model presented in Chapter 2.

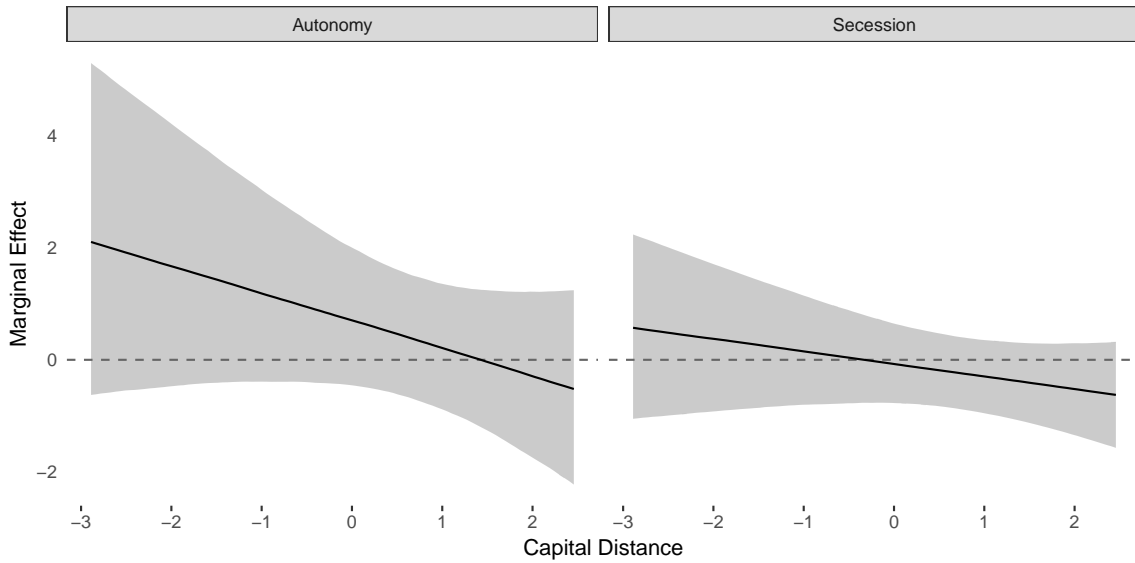


Figure A.2: Marginal effect of population on autonomy and secession as a function of capital distance from Table A.2.

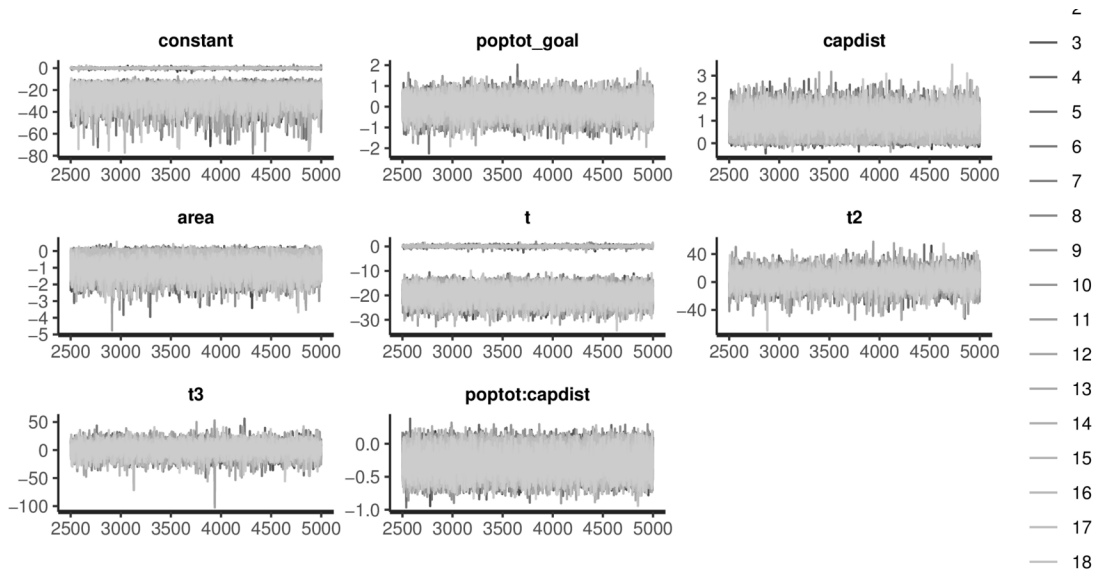


Figure A.3: Marginal effect of population on autonomy and secession as a function of capital distance from Model 1.

<u>Model 2</u>		
	Goal	Onset
Population	-0.04 [-0.78; 0.56]	-0.00 [-0.39; 0.32]
Capital Distance	0.68* [0.02; 1.59]	0.05 [-0.36; 0.51]
Area	-0.64 [-1.78; 0.11]	-0.23 [-0.79; 0.21]
Excluded		-0.02 [-0.33; 0.27]
Downgraded		0.09 [-0.55; 0.70]
Inequality ²		0.28* [0.11; 0.49]
Balance		0.04 [-0.22; 0.29]
Polyarchy		-0.25* [-0.47; -0.04]
GDP _{pc}		0.29* [0.03; 0.56]
(Constant)	-15.28 [-40.53; 0.53]	4.20 [-0.33; 15.60]
Polynomial Time	✓	✓
Observations	11529	

* 0 outside 95% credible interval

Table A.3: Nested logit results for the onset and choice of goal in territorial civil conflict. Onset coefficients represent the effect of a variable on a group remaining peaceful. Goal coefficients represent the effect of a variable on a group fighting for secession over autonomy, conditional on choosing violence.

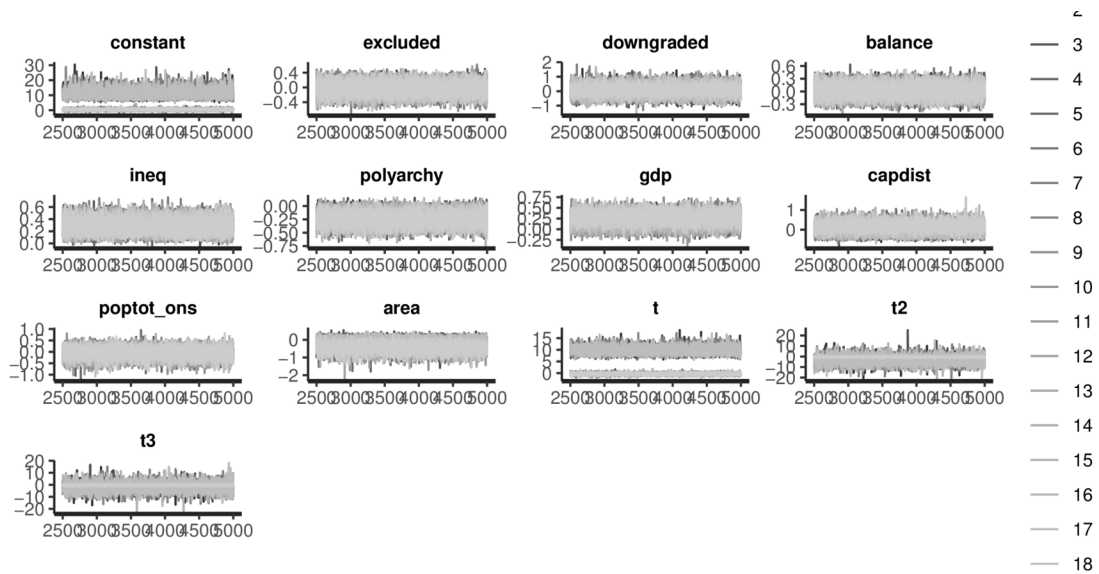


Figure A.4: Marginal effect of population on autonomy and secession as a function of capital distance from Model 1.

APPENDIX B: SUPPLEMENTAL INFORMATION FOR CHAPTER 3

B.1 Descriptive Statistics

Figure B.1 presents descriptive statistics for all predictors included in the various models. Due to their skewed untransformed-distributions, *nightlights*, *population*, *capital distance*, *area*, and *GDP* are log-transformed. Figure B.1 depicts these transformed distributions. Continuous predictors are centered and scaled before analysis.

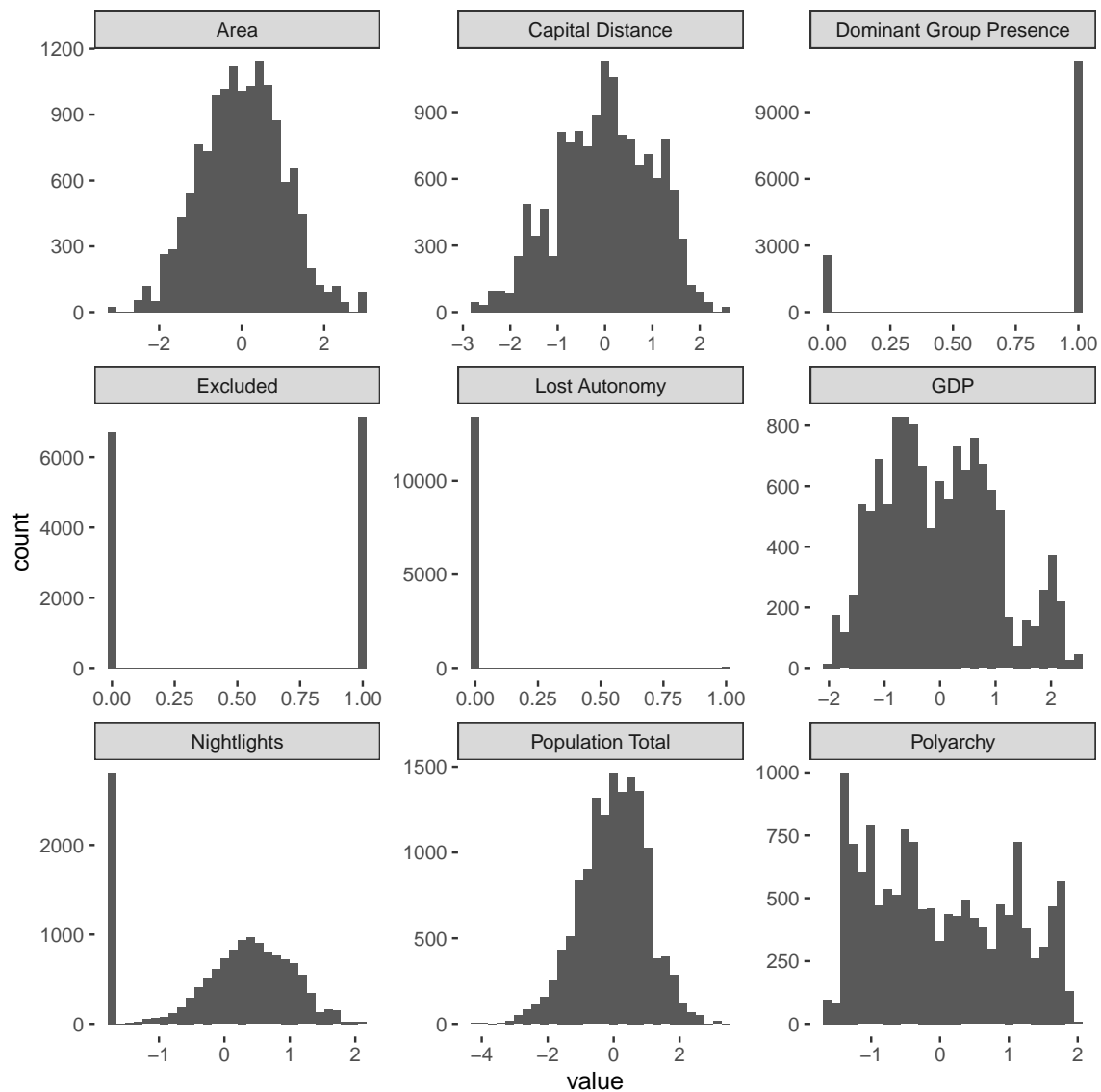


Figure B.1: Distributions for predictors included in analysis. Continuous predictors are shown centered and scaled. Demographic balance, horizontal inequality, GDP, population density, nightlights, accessibility, and area are log transformed.

B.2 Missing Data

Table B.1 presents the missingness of explanatory and control variables. Due to the fact that no variable has more than 10% of data missing I treat these observations as missing not at random and multiply impute them (Rubin 1987) using the `mice` package (van Buuren & Groothuis-Oudshoorn 2011), generating five imputed datasets. For all models with missing data, I estimate two chains on each imputed dataset and then pool all 10 chains together for inference.

	% Missing
Polyarchy	0.85
Lost Autonomy	2.70
GDP per capita	6.49

Table B.1: Missingness of control variables.

B.3 Nightlights Considerations

One of the main downsides of the DMSP OLS data is that they are unable to distinguish variation within urban areas where light levels are high due to saturation from neighboring pixels (Hsu, Baugh, Ghosh, Zhizhin & Elvidge 2015). In these cases, all pixels in a saturated area receive the maximum value. This phenomenon can be clearly seen in the area around Seoul in Figure B.2. I am interested in variation between entire ethnic group territories, not within individual cities, so this is less problematic for my analyses.

Another shortcoming of these data is that the units of brightness are not inherently meaningful and are not stable over time. In addition to sensor drift within a satellite over time, values are not comparable across satellites. The maximum value in the data is 63, but that does not mean that 63 in two years of the same satellite is equivalent, or that 63 between two satellites is equivalent. Users of the data have developed an intercalibration method to deal with these issues (Wu, He, Peng, Li & Zhong 2013). Essentially, geographic regions that do not vary over time are identified, one year of data is chosen as a reference raster, and then a model is fit using all other years to explain the invariant region in reference year. The coefficients of this model represent the difference between a given satellite-year and the reference raster. Once this model is trained, it is applied to the rest of the world, adjusting estimates for all other years so that they can be compared to the reference year.



Figure B.2: Nightlights in North and South Korea in 2006.

Following Wu et al. (2013), I select the Japanese prefecture of Okinawa, the American territory of Puerto Rico, and the nation of Mauritius as invariant regions to calibrate the DMSP OLS data.

B.4 Political Status

I also estimate models explaining the level of nightlights in a group's territory using two different subsamples of ethnic groups: one that leaves out groups with a monopoly on political power and dominant groups, and another that only includes politically excluded groups.

B.4.1 Non-Dominant Groups

Table B.2 replicates Table 3.2 using a subsample that omits groups that hold a monopoly on political power or are dominant in a political system. The results are substantively similar, with the distribution of *lost autonomy* being significantly more uncertain and centered around zero.

Figure B.3 displays a similar pattern of an increasing marginal effect of population on nightlights as distance from the capital increases, in line with the effect in Figure 2.3.

	Model 1	Model 2
Population	0.74*	0.74*
	[0.72; 0.76]	[0.72; 0.76]
Capital Distance	-0.16*	-0.16*
	[-0.18; -0.14]	[-0.17; -0.14]
Population Total \times Capital Distance	0.02*	0.03*
	[0.01; 0.03]	[0.02; 0.04]
Area	0.05*	0.05*
	[0.04; 0.07]	[0.03; 0.07]
Dominant Group Presence		0.03*
		[0.01; 0.05]
Lost Autonomy		0.00
		[-0.09; 0.10]
GDP _{PC}		0.28*
		[0.24; 0.31]
Polyarchy		0.05*
		[0.03; 0.07]
(Constant)	0.02	-0.04
	[-0.20; 0.25]	[-0.24; 0.15]
σ_α	0.67*	0.45*
	[0.60; 0.76]	[0.40; 0.51]
σ_γ	0.50*	0.45*
	[0.37; 0.68]	[0.34; 0.61]
WAIC	10990.06	10822.71
5-fold RMSE	0.38	0.38
Observations	11930	11930

* 0 outside 95% credible interval

Table B.2: Linear models explaining nightlights as a function of non-dominant ethnic group population and capital distance. The standard deviation of the country and year random intercepts are represented by σ_α and σ_γ , respectively. Continuous variables logged and standardized.

B.4.2 Excluded Groups

Table B.3 replicates Table 3.2 using a subsample limited to politically excluded groups. The results are substantively similar, with the distribution of *lost autonomy* being significantly more uncertain but still largely positive.

Figure B.4 displays a similar pattern of an increasing marginal effect of population on nightlights as distance from the capital increases.

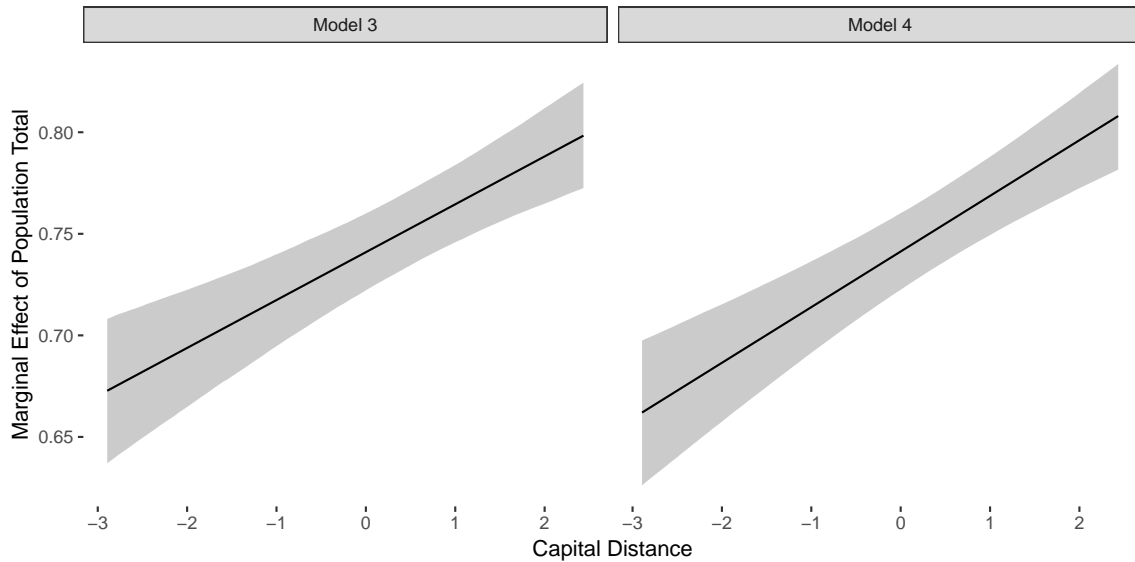


Figure B.3: Marginal effects of non-dominant ethnic group population on nighttime light levels, conditional on distance to the capital.

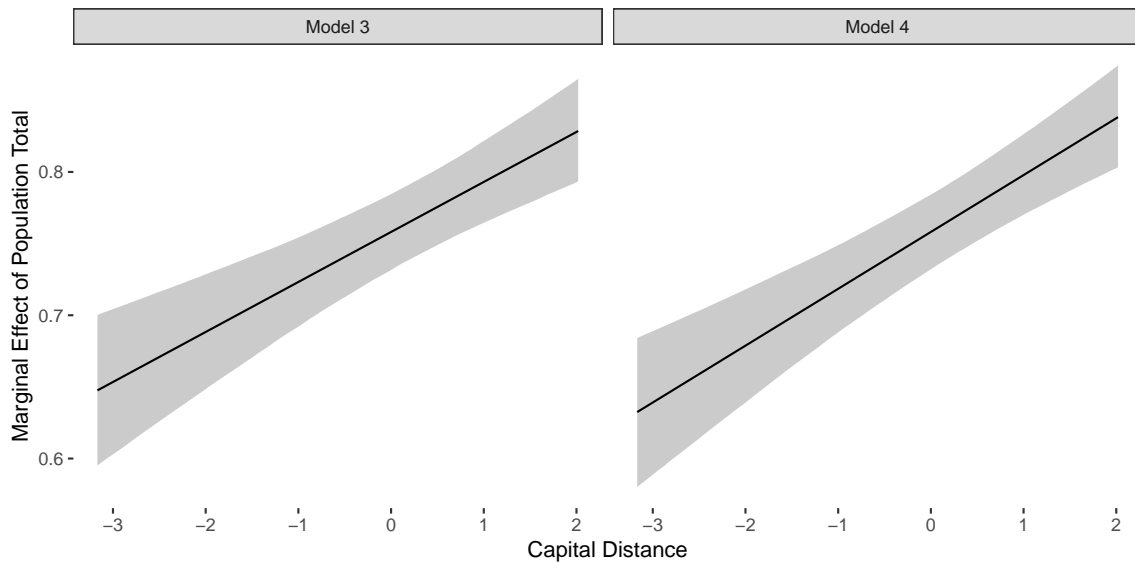


Figure B.4: Marginal effects of excluded ethnic group population on nighttime light levels, conditional on distance to the capital.

B.5 Out of Sample Accuracy

Due to the stratified nature of the data, I conduct grouped k -fold cross-validation. In this modification of k -fold cross-validation, entire states of ethnic groups are included or excluded from the folds at a time. The reported RMSE of each model thus captures its ability to predict nighttime light levels

	Model 3	Model 4
Population	0.76*	0.76*
	[0.73; 0.78]	[0.73; 0.78]
Capital Distance	-0.15*	-0.15*
	[-0.18; -0.13]	[-0.18; -0.13]
Population Total \times Capital Distance	0.03*	0.04*
	[0.02; 0.05]	[0.03; 0.05]
Area	0.04*	0.03*
	[0.01; 0.06]	[0.01; 0.05]
Dominant Group Presence		0.05*
		[0.00; 0.09]
Lost Autonomy		0.08
		[-0.03; 0.18]
GDP _{PC}		0.34*
		[0.30; 0.38]
Polyarchy		0.02
		[-0.01; 0.05]
(Constant)	-0.01	-0.07
	[-0.29; 0.26]	[-0.29; 0.16]
σ_α	0.78*	0.54*
	[0.69; 0.88]	[0.47; 0.62]
σ_γ	0.54*	0.47*
	[0.40; 0.73]	[0.35; 0.65]
WAIC	7776.37	7597.13
5-fold RMSE	0.42	0.41
Observations	7076	7076

* 0 outside 95% credible interval

Table B.3: Linear models explaining nightlights as a function of excluded ethnic group population and capital distance. The standard deviation of the country and year random intercepts are represented by σ_α and σ_γ , respectively. Continuous variables logged and standardized.

in countries it has not seen before. In doing so, it provides a more honest estimate of out of sample accuracy than the random split into training and test sets provided by traditional k -fold cross-validation.

B.6 Random Forest

The random forest model is fit using the `randomForest` package (Cutler & Wiener 2018) in R. The model is fit using the default parameters of 500 trees, $\frac{p}{3} = 1$ variable randomly chosen to make each split, $\frac{2}{3}$ of the data randomly sampled for each tree, minimum terminal node size of 5, and no cap on the number of terminal nodes in a tree. Partial dependence is assessed using the `pdp` package

(Greenwell 2017) in R as a function of capital distance and population, marginalizing over the effect of area.

B.7 Prior Sensitivity Analysis

As with any Bayesian analysis, one possible concern is that the results are driven more by the choice of prior than the information provided by the data. This possibility is unlikely given the use of diffuse hyperpriors rather than directly specified priors and the large number of observations. To assuage these concerns, I reestimate the full controls model from Table 3.2 with narrower and wider hyperpriors. For the narrow priors model, I set:

$$\mu_\alpha, \mu_\beta \sim \mathcal{N}(0, 2.5) \tag{B.1}$$

$$\sigma_\alpha, \sigma_\beta, \sigma \sim \text{half-Cauchy}(0, 1) \tag{B.2}$$

and for the wide priors model I set:

$$\mu_\alpha, \mu_\beta \sim \mathcal{N}(0, 10) \tag{B.3}$$

$$\sigma_\alpha, \sigma_\beta, \sigma \sim \text{half-Cauchy}(0, 5) \tag{B.4}$$

Figure B.5 replicates the marginal effects from the full controls model for both the narrow and wide priors.

There is no substantive difference between either of the marginal effects plots and the one in Figure 2.3. In neither specification does the 95% credible interval cross zero. The results in Chapter 3 are thus not likely to be a result of prior choice rather than relationships in the data.

B.8 Estimation and MCMC Diagnostics

I estimate the models using the Stan probabilistic programming language (Carpenter et al. 2017) in R (R Core Team 2019) via the RStan interface (Stan Development Team 2017). Due to missingness in the variables, I multiply impute the missing values using the `mice` package (van Buuren &

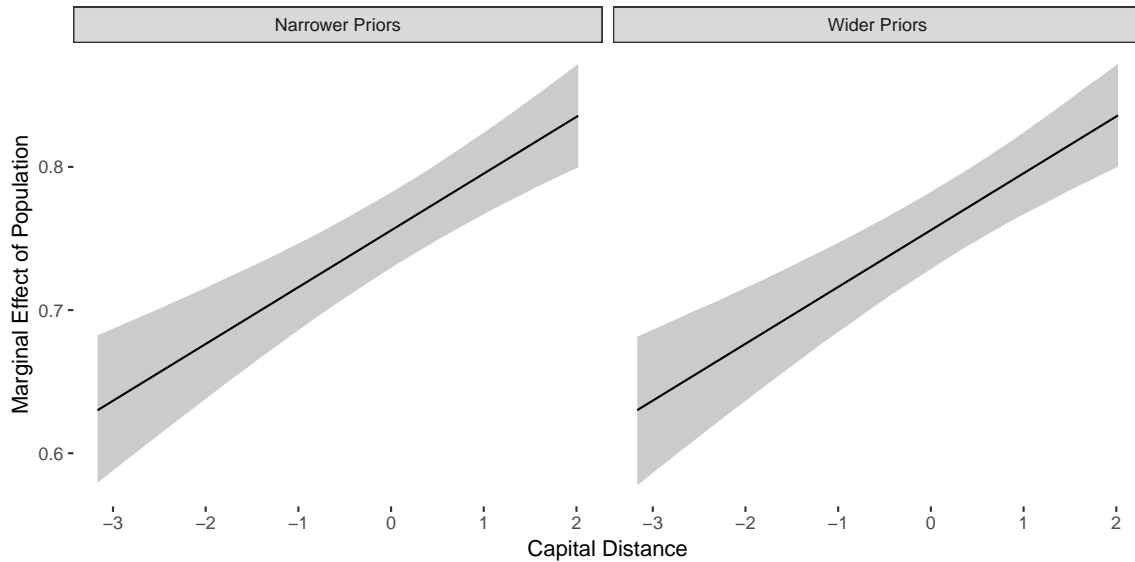


Figure B.5: Sensitivity analysis for narrower and wider priors for marginal effects for Model 4 in Table 3.2

Groothuis-Oudshoorn 2011). I generate 5 imputed datasets, run two chains on each, and then perform inference on all 10 chains pooled together, averaging over the uncertainty in different imputed values (Little & Rubin 2002, 217-218).¹ I run four chains for 2,000 warmup iterations followed by 2,000 sampling iterations. All inference is based on the sampling iterations. Standard diagnostics indicate good convergence of the chains.

This section presents diagnostics of MCMC samples for Model 6. Figure B.6 displays the traceplots for the regression coefficients β . Each shade of grey represents a different chain, and the overlap between them provides evidence that the chains have converged to the stationary distribution. Figure B.7 presents a plot of the Geweke diagnostic statistics for β . The diagnostic tests whether the chain has converged to the stationary distribution by comparing the means of the first 10% and final 50% of the samples in each chain. Almost all estimates are within ± 1.96 standard deviations of the mean, offering further evidence that the chains have converged to the stationary distribution.

¹Although it is possible to employ a model that jointly specifies the probability of an observation's absence alongside the parameters of interest, doing so is unnecessary in this case. When the proportion of missing information in a dataset is low, this "uncongeniality" between separate imputation and analysis models does not affect inference of imputed data (Meng 1994). The percentage of missing data in the data is .24%, so this should not affect the validity of my inferences.

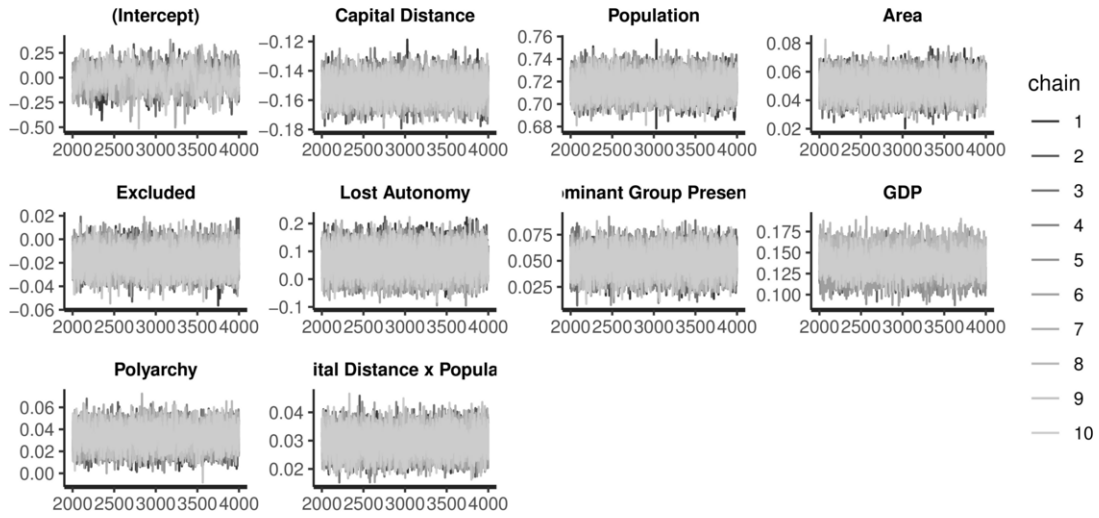


Figure B.6: Traceplot of samples for β in Model 4. Each shade of grey represents samples from one chain initialized at different starting values.

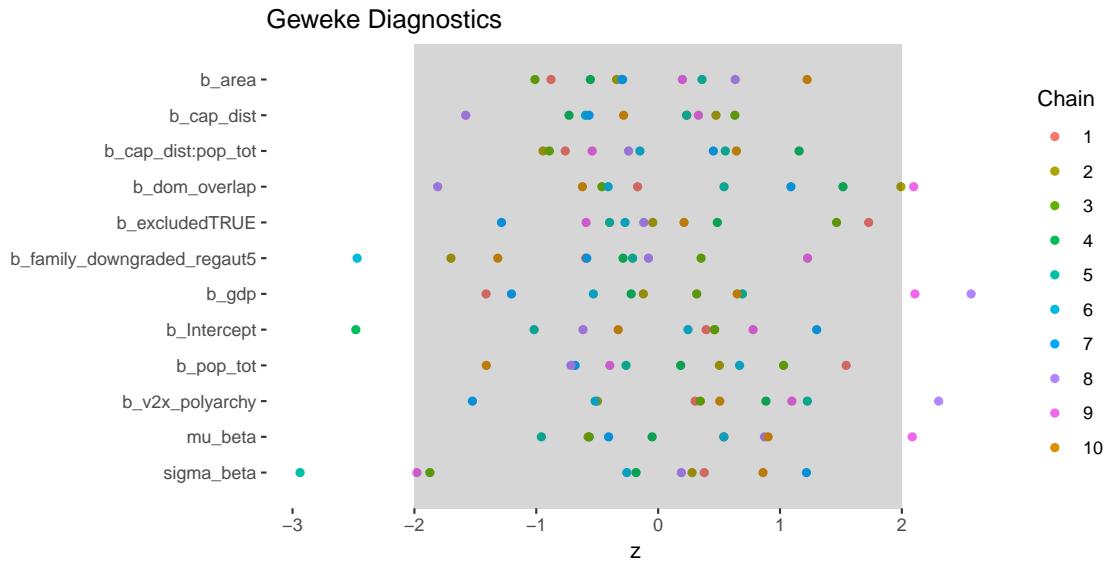


Figure B.7: Geweke diagnostic plot for β in Model 4. Dots are z-scores of the difference in means of the first 10% and final 50% of the samples in each chain.

APPENDIX C: SUPPLEMENTAL INFORMATION FOR CHAPTER 4

C.1 Iteration Models

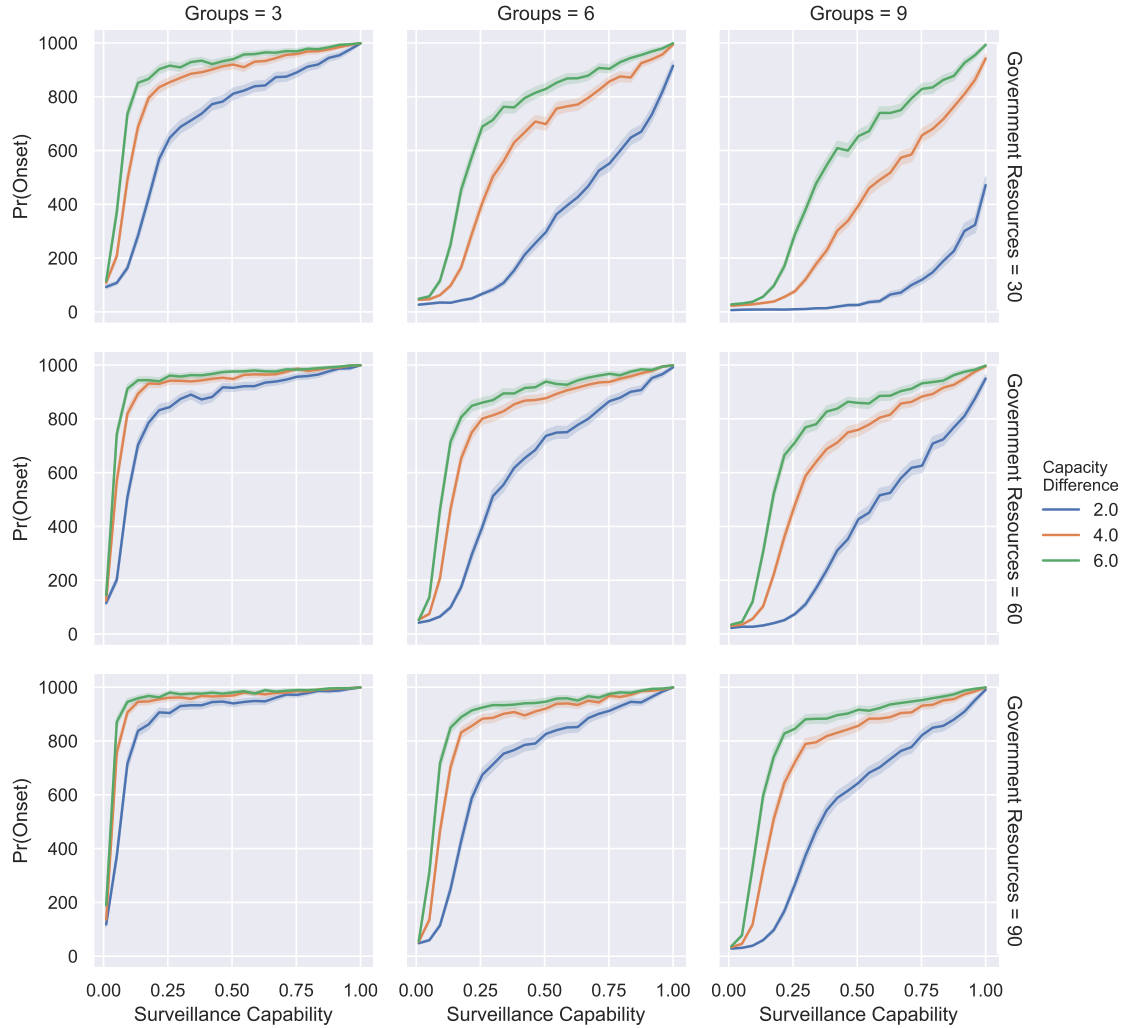


Figure C.1: Duration to secessionist civil war onset in the baseline onset model. Results from 1,000 simulations at different parameter combinations, marginalizing over all parameters except the slope of the logistic curve, government resources, and surveillance capabilities. The line represents the average number of simulations that experience civil war, while the shaded region represents the 95% confidence interval.

Figure C.1 presents the average duration of a simulation prior to secessionist civil war onset. The average duration appears to be monotonically increasing in σ , indicating that governments that are more capable of surveilling their territories are less likely to experience a secessionist conflict. Similarly, as the number of ethnic groups that governments must keep in check increases, the average

iterations before civil war decreases. As the government's resources increase, the average duration similarly increases.

C.2 Model Details

```

for  $i = 0$  to iterations do
  if  $\forall$   $\text{governability}_{\text{perceived}} > 2 \times \text{allocation}$  then
    | end simulation
  else
    | update government threat as  $\text{governability}_{\text{perceived}} \times \text{distance}$ 
    | normalize threat
    |  $\text{allocation} = \text{resources} \times \text{threat}$ 
    for  $g = 0$  to groups do
      | if  $\mathcal{U}(0, 1) > .95$  then
        | |  $g$ 's  $\text{governability} = \max(g + \text{Cauchy}(0, .5), 0)$ 
      | end if
    end for
    |  $\text{governability}_{\text{perceived}} += (\text{governability}_{\text{actual}} - \text{governability}_{\text{perceived}}) \times \text{surveillance}$ 
    | capability
  end if
end for

```

Algorithm 1: Algorithmic representation of the model.

C.3 Extensions to the Model

Cederman (1997) develops a basic model of actor competition and state formation, and then increases the complexity by introducing dynamics such as defensive alliances and core-periphery dynamics, evaluating how each addition changes the implications of the model. I follow a similar procedure and consider three additions to my model, each of which introduces new parameters:

1. Changing the variance of the random shock that that groups can experience to their territory's governability i.e. changing the scale of the Cauchy distribution.
 - New parameter: β the scale in the Cauchy distributed shock

2. Allowing the effectiveness of government surveillance to vary probabilistically i.e. σ becomes the mean of a normally distributed random variable instead of a fixed weight to the information update.
 - New parameter: ϵ the variance of the truncated normal distribution used to modify the government's update of ι

C.3.1 Variance of the Shock

Altering the variance of the shocks that groups can experience to the governability of their territory has the effect of changing the predictability of the system. When the of shocks is constrained to be small, even when governments are slow to update their information on the new governability of a group's territory, this new governability is unlikely to be large enough to tip the group into open rebellion. In contrast, when the variance of the distribution of the shocks is higher (when the scale of the Cauchy distribution is larger), governments are confronted with a more unpredictable world. Learning about developments in a far-flung province could represent the majority of the change that has occurred, or it could be just the first drip in a flow of new information about a radical change.

To modify the variance of the shocks, I introduce the new parameter β which is the scale parameter of the Cauchy distribution the shocks are drawn from $\text{Cauchy}(0, \beta)$. Where the scale of this Cauchy distribution is 0.5 in the baseline model, β varies in this extension.

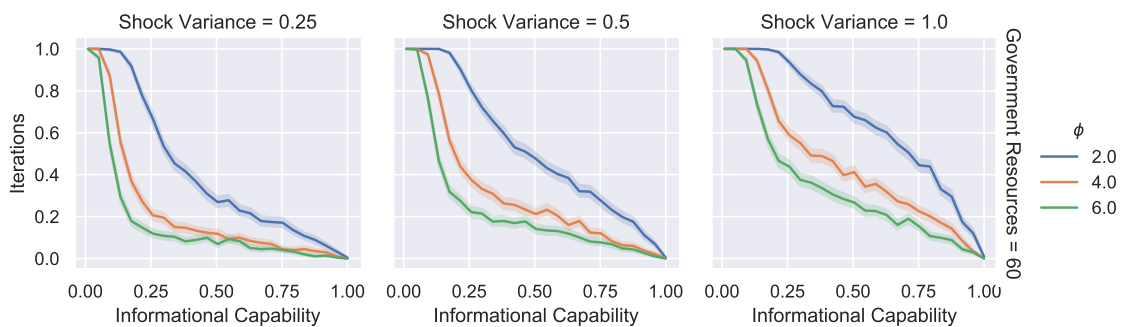


Figure C.2: Probability of secessionist civil war onset in the varying shocks model. Results from 1,000 simulations at different parameter combinations, marginalizing over all parameters except the scale of the shock, government resources, and surveillance capabilities. The line represents the average number of simulations that experience civil war, while the shaded region represents the 95% confidence interval.

C.3.2 Stochastic Surveillance

Introducing a stochastic component to the government’s information update on ι further increases the uncertainty around new information about groups’ territories. News of a small increase in governability in group g ’s territory could be an accurate assessment of a minor shift, or it could be just a small part of a larger picture that represents a significant shift in a territory’s governability.

Where above σ is simply a modifier that slows down the government’s updating of a territory’s perceived governability *iota*, now it is the mean of a truncated normal distribution bounded at 0 and 1. Thus, at each iteration the government may learn very little about the changes in a territory, or it might almost entirely close the gap between ι and γ . To vary the consistency of the government’s domestic surveillance efforts, I introduce a new parameter ϵ which is the variance of this normal distribution:

$$\sigma_i \sim \mathcal{N}_{[0,1]}(\sigma, \epsilon)$$

where σ_i is the value used to weight the information update at iteration i . Larger values of ϵ represent less certain monitoring efforts whose effectiveness may vary over time, while smaller ones denote professionalized operations that operate consistently over time.

Table C.1 presents the additional parameters introduced in each extension of the model. Collectively, they decrease the certainty of the state’s perspective

Symbol	Meaning	Range
c	Onset probability curve steepness	$(0, \infty)$
β	Scale of the shocks	$(0, \infty)$
ϵ	Variance of information update effectiveness	$(0, \infty)$

Table C.1: Extended model-level parameters.

The results for this extension indicate that weakening the link between ι and γ reduces the curvilinear relationship between surveillance capability and conflict onset. In the left panel of Figure C.3, this curvilinear relationship is still observable, but as the variance of the shock increases from left to right, it is replaced by a largely linear and slightly negative relationship between surveillance capacity and conflict onset.

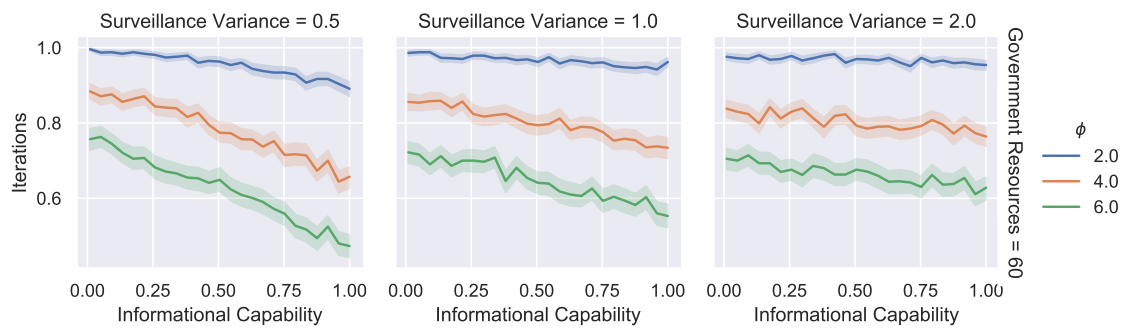


Figure C.3: Probability of secessionist civil war onset in the stochastic surveillance model. Results from 1,000 simulations at different parameter combinations, marginalizing over all parameters except the scale of the shock, government resources, and surveillance capabilities. The line represents the average number of simulations that experience civil war, while the shaded region represents the 95% confidence interval.

APPENDIX D: SUPPLEMENTAL INFORMATION FOR CHAPTER 5

D.1 Sri Lanka

This section presents the full numeric estimates used to construct Figure 5.1.

District	1953	1963	1971	1983
<i>Jaffna</i>				
Actual	491,148	612,955	701,603	868,000
Projected		644,320	772,539	937,146
Difference		-31,365	-70,936	-69,146
<i>Mannar</i>				
Actual	43,689	60,095	77,780	113,000
Projected		57,235	68,624	83,364
Difference		2,860	9,156	29,636
<i>Vavuniya (1953-1978)</i>				
Actual	35,112	68,712	95,243	111,000
Projected		45,996	55,149	61,656
Difference		22,716	40,094	49344
<i>Trincomalee</i>				
Actual	83,917	137,878	188,245	274,000
Projected		109,931	131,807	160,119
Difference		27,947	56,438	113,881
<i>Batticaloa</i>				
Actual		197,022	256,672	352,000
Projected			236,229	286,970
Difference			20,443	65,030
<i>Amparai</i>				
Actual		212,100	272,605	411,000
Projected			254,308	308,933
Difference			18,297	10,2067

Table D.1: Actual versus projected population increases in Tamil districts, 1953-1983 (multiple sources, as cited in Manogaran (1987, 96)).

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