Statebreakers to Statemakers:
Strategies of Rebel Governance

Jennifer Keister
Initiative for Global Development, University of Notre Dame and Cato Institute

Branislav L. Slantchev
Department of Political Science, University of California, San Diego

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Abstract Rebellion is more than a military contest. While armed confrontation between fighters and soldiers is often the most visible aspect of rebellion, rebels also have an ongoing relationship with the civilian population they purport to represent. This relationship varies: some rebels provide services and pursue policies civilians find attractive, while others extort resources from the populace and adopt unpopular positions. In an important way, rebels govern civilians. Why do their governance methods vary? We offer a simple model of how and why rebels govern using a mix of three tools: coercion, service provision, and ideological positioning. We show an important trade-off between power and ideology and trace the somewhat surprising effects various counter-insurgency strategies and rebel-sponsoring could have on rebel behavior.

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In an important sense, rebels are, and must be, rulers. Since they want to remain in power, they have to worry about getting what they need to operate. Some rebels can fund themselves with lootable resources, but since such resources are not available everywhere, most rebels have to raise support from domestic or foreign actors.[1] When foreign support is difficult to obtain and often unreliable, rebels must rely on resources extracted from the local population. Rebels vary widely in how they handle this extraction: some rule through fear, while others woo civilians with services; some pursue ideologies civilians find appealing, while others enact unpopular positions. These choices have a profound effect on civilians' experience. Civilians in rebel-affected areas care if they are coerced into providing intelligence, troops, or shelter. The populace may welcome services that improve their quality of life, and be skeptical of rebels who pursue ideological positions they find alien.

Wartime political order matters beyond borders as well: members of the international community may have an active interest in the ideological positions rebels pursue, how civilians fare during wartime, and how rebel groups sustain themselves. Contemporary debates about over conflicts stemming from the Arab Spring explicitly include discussions of both civilian welfare and rebels' ideological affiliations.

But how do rebels arrive at these positions and behaviors in the first place? Without a basic understanding of what shapes rebels' domestic behavior, we cannot hope to develop appropriate or efficacious policies, or be sure of how intervention might shape rebel behavior. To answer such questions, we first need an idea of how rebels use the instruments of power and ideology at their disposal to rule the local population in areas under their control.

1   Rebels and Civilians

Until recently, studies of rebellion and civil war have tended to focus on issues of conflict onset or conclusion (Collier and Hoeffler, 2004; Fearon, 2004; Walter, 1997; Ross, 2004*b*). While such studies offer invaluable contributions, the fact remains that the reason we are interested in onset and termination is because the phenomenon of conflict itself concerns us—the bulk of participants' and civilians' experience lies between onset and termination. Scholars have thus begun turning to study conflict processes. Many of these focus on rebels' choice of military tactics (Fearon and Laitin, 2003; Berman and Laitin, 2005; Kydd and Walter, 2002; Lapan and Sandler, 1998). While tactical choices can have different effects on civilian welfare, such studies focus on the implications of these choices from the perspective of rebel and incumbent militaries. In reality, however, rebels undertake a host of activities outside of their military-to-military relations with the state that directly affect civilians, and can consume a good portion of rebel effort and resources.

Even so, rebels' behavior vis-à-vis civilians can have a tactical military motivation. Kalyvas (2002) argues indiscriminate violence against civilians is an inefficient solution to an information-control problem all rebels face. Territorial control gives rebels good information about local populations, allowing them to carefully target those who inform on rebel

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[1]Lootable resources yield a high cash return on minimal technical or infrastructure investment. Among them are alluvial diamonds, timber, and drugs. These resources are easily extracted, sold, and converted into weapons, bribes, and other support for rebels and their operations.

operations to the government. Rebels with more limited territorial control (and thus more limited information) engage in less-discriminate targeting. Azam and Hoeffler (2002) focus on incumbent strategies and argue that terror may be used against civilians to interdict rebels' ability to draw support from the populace. Such studies offer compelling logics, but their focus on the use of force (by construction) leaves unexplained the question of why some rebels invest in civilian services and others do not.

Other studies cut into the question from a strategic, rather than tactical, angle. Collier and Hoeffler's "greed or grievance" debate raises the issue of whether rebels are merely glorified bandits, and whether lootable resources prolong conflict by giving combatants both the ability to finance their fight, and a prize over which to keep fighting (Ross, 2006; Collier and Hoeffler, 2004; Collier, 2000). However, lootable resources are provided by geographic happenstance—regardless of rebels' behavior towards civilians. Weinstein (2006) argues such resources may attract opportunistic fighters who are poorly behaved vis-à-vis civilians. For his rebels, coercion is not a deliberate organizational choice, but an outcome of resource opportunities that shape rebel recruitment. Rebel groups that lack both lootable resources and foreign sponsors (which can offer a tidy payday) attract less pecuniary "true believers" who treat civilians well.

A few scholars directly tackle the topic of rebel governance. Seminal work on the subject describes the phenomenon and proposes the terms "guerrilla governance" and the rebel "counterstate" (Vega, 1969; Wickham-Crowley, 1987). Kasfir (2002, 2005) focuses more specifically on the degree to which some rebel groups form representative political bodies and consultative structures. Relying on several case studies, Mampilly (2011) offers inductive explanations for variations in rebels' governance systems, identifying myriad factors that shape the degree to which rebels offer civilians services—including rebels' organizational structure, domestic coalition-building, state penetration into society, periods of peace or ceasefire, and challenges from humanitarian and other civil society organizations. These works provide rich descriptive evidence from in-depth case studies, but leave questions of generalizability.

In this article, we take the first step toward addressing such questions by providing a highly stylized decision-theoretic model of rebel rule. Our goal is to derive testable comparative statics that speak to the questions we posed and develop a basic framework of rebel behavior on which we may then layer additional analyses. The paper proceeds as follows. First, we outline the broad principles underlying rebel rule and derive from these a number of propositions. Second, to further investigate the implications of the model, we develop further assumptions and outline specific model. From this special case, we derive additional propositions. Finally, we discuss these propositions and their underlying assumptions in light of other approaches in the literature and the model's policy implications. Our model offers a framework whose assumptions incorporate many of the motivations and concerns articulated in the extant literature on rebel rule, state formation, and civil war. We also propose a specific role for ideology—in contrast to literatures that side-step or deny a role for ideology, and those that provide (often case-specific) arguments that ideology either solely drives rebel behavior, or influences it under a logic of appropriateness. Furthermore, by highlighting systemic effects that shape rebels' choices over how to rule, we avoid the endogeneity of many institutional arguments explaining rebel rule. Rebels' internal structures are not exogenously assigned—group at least attempt to build institutions and capabilities

they need to survive—our model suggests why some groups establish particular capabilities others do not.

2   Ruling and Benefits of Power

In intrastate conflict, rebels use force to extract political and territorial concessions from the government, which in turn uses its military to avoid making such concessions and to re-establish its monopoly on the use of force. Whether the rebellion is settled on the battlefield or at the negotiating table, *ceteris paribus*, the more resources rebels bring to bear against the incumbent, the better the bargain they can extract from their opponent.

Whatever their reasons for rebelling, all rebels want to obtain the best possible bargain from the state—thus all rebels are interested in increasing their resources. Rebels' needs are many: men, weapons and materiel, provisioning, transportation, communications, intelligence, recruitment and training, among others. Lootable resources can finance rebels' struggle, but are not universally available.[2] In their absence, rebels must build some form of support from politically motivated actors at home or abroad. Both domestic and foreign sources (including states, religious and ethnic diaspora populations, other rebel or terrorist organizations, and individuals living abroad) can supply many of rebels' more fungible needs like money and materiel.[3]

However financed, all rebels need local assets and shelter (Leites and Wolf, 1995, 32–33). At the very least, they need civilians to not cooperate with the government and to supply intelligence about government operations.[4] Civilians can also provide rebels with a variety of assets such as contributions (which may be financial, or in-kind, like food and fighters); observance of rebel-established rules; staying on the land (and thus keeping resources within rebels' reach) instead of fleeing; and shelter. In order to gain these assets, rebels need some measure of civilian compliance. Compliance facilitates rebels' operations, allowing them to stay in power and obtain needed resources and behaviors from civilians.

This challenge is not unique to rebels—even in normal politics, "support" is a complex concept. States have historically faced the same challenge of sustaining themselves, and rulers have patterned authority in myriad ways. The model developed here builds on the logics of existing political economic analyses examining the evolution of Western states.[5] These studies argue that variations in Western governance are shaped by an ongoing bargain between rulers and ruled; the former needing to extract resources (for personal gain, national defense, development, etc.) and the latter working to limit extraction and coercion, and to maximize the goods and services returned to them.

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[2]For a description and discussion of how lootable resources finance conflict and the particular ways in which they shape conflict and rebel behavior, see Collier and Hoeffler (2004); Ross (2004*a*,*b*, 2006); and Weinstein (2006).

[3]For a description and discussion of various foreign sponsors involved in intrastate conflict, see Byman et al. (2000) and Byman (2005).

[4]Many authors have highlighted the importance of civilian-based intelligence. For examples, see Popkin (1979), and Berman, Shapiro, and Felter (2009).

[5]For examples, see Olson (1993, 2000); North (1981, 1986); Levi (1988, 1981); Tilly (1985, 1990); and Acemoglu and Robinson (2005).

2.1 Producing Compliance

To maintain their rule, rebels, like states, have to ensure some level of support from the population. This they can do by using some mix of positive and negative incentives; that is, by providing services desired by the population and coercing compliance with their rule when necessary. Extracting resources for the purposes of maintaining authority is likely to encounter some resistance even when the population generally sympathizes with the goals of the rebels and the services they provide. Along these lines, Wintrobe (1998) develops a series of models of dictatorships in which rulers invest in repression and loyalty to produce domestic power. We take this work as our starting point and replace the troublesome concept of loyalty with service provision and ideology. In doing this, we touch on logics embedded in some of the counterinsurgency literature, much of which debates counterinsurgents' use and balance between coercion and co-optation of non-combatants. Leites and Wolf (1995, 33-34) argue that "[t]he inputs acquired by combining persuasion and coercion are converted into outputs by the insurgent organization," and we incorporate these inputs into our model of production of support for the rebels. This allows us to focus precisely on the balance between the two in contrast to the idea that rebels coerce some targets and persuade others, where these choices vary by situation and the rebel group's evolution.

Like states, rebels generate compliance that is only quasi-voluntary: citizens acquiesce to authority that has the ability to sanction non-compliers (Levi, 1988, 48-70). Rebels generate quasi-voluntary compliance, π, with the use of three tools: coercion (c), service provision (g), and the ideological position they choose to enact (x):

$$\pi(c, g, x).$$

As we discuss later, there may well be a difference between the ideological position rebels inherently prefer and that which they choose to enact as rulers. We can think of this function as representing the material aspects of ruling and profiting from power because the higher the quasi-voluntary compliance, the more rebels can extract from the civilians under their rule. In this sense, rebels are motivated to increase civilian compliance. As we shall see, however, maximizing compliance is not their overriding goal.

All three tools of rebel governance generate civilian compliance. How these tools work, however, partially depends on civilians preferences. Civilians are, after all, strategic actors in their own right, though they have limited strategic choice in their interactions with rebels—civilians' choices are never free from coercion, and they frequently tread a fine line between the two combatants (Popkin, 1979; Kasfir, 2002; Kalyvas, 2002). While physical and nutritional security can overwhelm other interests, above a certain minimal level of security, civilians are also political actors. They have preferences over how they are governed, and these preferences shape the effectiveness of rebels' governance tools, and thus rebels' choices among these tools. We could model the citizen's choices in response to coercion, services and ideology in the usual way — they divide their time between rebel-supporting activities, rebel-opposing, and consumption given extent of coercion, service-provision and ideology — and then optimize the rebels' choice of instrument mix given how citizens react. Instead, we make several direct assumptions about citizens' reactions and study rebels' choice over their governance mix. This allows for a much cleaner setup and although it does not provide microfoundations for civilian behavior, we believe the assumptions reflect

dynamics that are very likely to be generated by a full model. For example, we assume that civilians prefer good public services, low levels of coercion, and a ruler whose policies reflect their own ideological interests.

2.1.1 Coercion

Coercion works both directly—by eliminating those who refuse to comply with the rebels, fighting formation of opposing rebel groups, and punishing cooperation with the government—as well as indirectly—by warning those who may yet contemplate non-compliance. Thus, coercion need not involve the direct application of violence. Instead, rulers may find it efficient to retain a coercive apparatus in conjunction with a demonstrated willingness to use it. In an extreme example, mutilation by groups like Sierra Leone's Revolutionary United Front (RUF) turns its victims into walking examples of the rebels' coercive capability and willingness to use it against non-compliant civilians (Richards, 1996). Coercion comprises forcible tax collection, seizure of crops and lands, and forced military service (e.g., the *Resistência Nacional Moçambicana*). Increased coercion increases the probabilities that violators will be caught by rebel authorities and that violators face stronger punishments. Either increases the risk non-compliers face under rebel rule.

Coercion builds civilian compliance by ensuring that tax evasion is minimal, and that organizing opposition to the rebels is more difficult because non-sympathizers who might organize against the rebels are sanctioned.[6] Kalyvas (2006) argues that rebels use violence to silence government informants and discourage future betrayals. Coercion can also discourage civilians from creating or supporting rival claimants to the rebel banner. The *Liberation Tigers of Tamil Eelam* (LTTE) have historically been adept at assassinating rival elites and their supporters in their efforts to become and remain the preeminent representative of the Tamil rebellion and population (Somasundaram, 1998; Tambiah, 1986).

Coercion, of course, is not free for rebels. At the very least, rebel groups incur opportunity costs as personnel are assigned away from pressuring the incumbent directly in order to coerce civilians. We assume that coercion always increases the rebels' ability to stay in power but the more coercive they become, the less effective each additional increase of coercion becomes in generating compliance:[7]

$$\pi_c > 0 \quad \text{and} \quad \pi_{cc} < 0. \tag{A1}$$

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[6]Wintrobe (1998, 48-49) calls this the "substitution effect" through which coercion increases support for a ruler.

[7]We considered also a variant in which coercion increased support up to a point, after which it became counter-productive as civilians begin backing the government, hiding resources, or sabotaging rebel operations. However, rational rebels would never choose to coerce beyond this point. Wintrobe (1998, 60-1) does offer a models which allows sanctioning to reduce the civilians' incentives to invest in the regime so much that it actually decreases loyalty. However, his model assumes that the rebels do not face a hard budget constraint. The optimum coercion level is either determined by the budget constraint or else by the point beyond which it is counterproductive. We consider it very unlikely that rebels would have access to so many resources that the budget would not bind. Therefore, all plausible solutions will have that feature at the constrained optimum. This is why it is sufficient to consider a function that is monotonically increasing in coercion instead of using one that is concave but then examining only the domain over which it is strictly increasing.

2.1.2 Service Provision

Service provision comprises a range of actions beneficial to civilians. Services include dispute adjudication, medical services, job placement, direct employment, establishing schools, and so on. Services produce compliance by helping generate loyalty for the rebel regime providing the goods.[8]

The provision of services makes rule more palatable and increases rebels' authority and compliance with their rule. Wintrobe (1990)'s concept of loyalty — which is also something rulers can "buy" from civilians — is rather more complicated than our notion of service provision. Both civilians and rulers have incentives to renege on their promises after having received the services and support they require. One plausible solution is to develop long-lived institutions with reputations that encourage investments in loyalty and reduce the risks of such defections. As an "instrument of political power," which is how (Wintrobe, 1990, 853-4) treats it, loyalty is difficult to grasp. The notion of instrument carries the connotation of control. While both repression and loyalty are inputs in the production of power, the ruler has only a tenuous and indirect control over loyalty. In this sense, loyalty is closer to our concept of support, which means it should be treated as something to be explained, rather than something that explains. In other words, instead of conceiving of loyalty as one of the instruments of power, we treat it as part of what the instruments produce.

Service provision is costly for rebels. Hizballah is among the most commonly cited examples of a rebel group relying on extensive service provision: it supplies civilians with hospitals, educational resources, and emergency food and water. Such operations are large-scale and large-budget—beyond the reach of many rebel organizations. But rebels can offer many smaller-scale services that nevertheless have a meaningful impact on civilians' well-being. These smaller-scale services are still costly—at the very least in terms opportunity costs, as rebels allocate loyal personnel away from efforts to pressure the incumbent to oversee or provide services.

Rebels can adjudicate disputes—which makes contracts enforceable (thus encouraging economic activity), and avoids violence between civilians. Rebels can also work to improve the economy in their areas, usually by assisting in agricultural production—a valuable contribution in the primarily agrarian societies of many revolutions. In the 1970s, the *União Nacional para a Independência Total de Angola* (UNITA) worked to educate peasants on how to save their crops from the incumbent's defoliant attacks and later sent students for agricultural training abroad (Bridgeland, 1986, 94,259). Local education is also valuable to civilians, who are frequently underserved in this area, particularly once conflict breaks out. Finally, service provision can include representative bodies or other feedback mechanisms for popular preferences.[9] Such institutions are fora for bargaining over governance, including the level and type of service provision, and the redistribution of wealth (Brautigam, 2000; Hoffman and Norberg, 1994; Acemoglu and Robinson, 2005). Higher levels of service provision are characterized not only by a greater number of services, but also their availability to a wider swath of the populace—that is, club or private goods versus public

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[8]The parallel to this logic is the "Hearts and Minds" approach to counterinsurgency, in which incumbents provide infrastructure improvements and other services to woo civilians' support. Similarly, Bueno de Mesquita et al. (2003) focus on rulers' delivery of benefits to those who support rulers' hold on power.

[9]For descriptions of these, see Wickham-Crowley (1987) and Kasfir (2005).

good.[10]

We assume that the provision of services increases support, although it does so with decreasing marginal effectiveness:

$$\pi_g > 0 \quad \text{and} \quad \pi_{gg} < 0. \tag{A2}$$

Rebels will invest first in those services that are most effective in meeting popular demand. Further investments will then be pushed into services to which civilians are less responsive. Civilians may welcome additional services, but are simply less impressed with subsequent provision as more needs and desires are met.[11]

It is important to realize that our conceptualization does not treat coercion and service provision as substitutes. In fact, we, like Wintrobe (1990, 852-4, 855), assume that they are complements:

$$\pi_{cg} > 0. \tag{A3}$$

Service provision generates voluntary support for rebels—that is, civilians support the rebels rather than an alternative. When civilians decide whether or not to support an alternative, they weigh the benefits they might get and the costs such support will entail. Coercion makes supporting alternatives riskier and costlier (Kalyvas, 2006). Rebels always try to discourage support for the incumbent: Taliban night letters intimidate supporters of the Afghan government and secular education; massacres of Algerian villages allegedly perpetrated by the Armed Islamic Group (GIA) in the 1990s deterred defection (Kalyvas, 1999). Because increased coercion makes supporting alternatives costlier, the effectiveness of service provision in generating support for the rebels must be increasing in the level of coercion.

Analogously, greater service provision makes coercion more effective. When rebels provide more services, a slight increase in coercion causes less resentment than the same increase where fewer services are provided. If we think of coercion as a form of taxation, higher taxes may be viewed as "more justified" when there are more public services to pay for. In other words, these tools of rule make each other more effective.

Taken together, the assumptions we have made so far imply that there is a diminishing marginal rate of substitution between coercion and service provision:

$$\text{sgn}\left(\frac{\mathrm{d}\frac{\pi_c}{\pi_g}}{\mathrm{d}\,c}\right) = \text{sgn}\left(\frac{\pi_{cc}\pi_g - \pi_c\pi_{gc}}{\pi_g^2}\right) = \text{sgn}\left(\pi_{cc}\pi_g - \pi_{cg}\pi_c\right) = -1.$$

To see what this means, take two combinations of coercion and service provision that generate the same level of support, $(c, \hat{g})$ and $(\hat{c}, g)$ where $\hat{c} > c$ and $\hat{g} > g$. Consider now an increase of coercion by $\triangle c$ in both cases. We know that this will increase support in both cases, so let us ask ourselves how much rebels can now reduce service provision by if they wanted to maintain their support at the original level. The assumptions imply that they would have to decrease service provision by more from $(c + \triangle c, \hat{g})$ than they would from $(\hat{c} + \triangle c, g)$. The intuition is that since at $\hat{g}$ the increase of $\triangle c$ yields a sharper increase in

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[10]States too distribute goods to buy support, and Bueno de Mesquita et al. (2003) describe regime type in terms of the state's distribution of club/private goods provision versus public goods.

[11]A similar logic is embedded in Allen and McIntosh (2006).

support than it does at g while $c + \triangle c < \hat{c} + \triangle c$ still, it would take a larger drop in services to return to the original level too. (In technical terms, the isoquants of π are convex at the origin.)

2.1.3 Ideology

The political and ideological position rebels take is the third tool of rule that we consider. Ideology is a separate component of rebel rule (e.g., pursuing Islamist or Marxist goals), but may frequently entwine with other tools (e.g., the ideological content of educational structures and other services).[12] We assume that both rebels and civilian populations have ideological preferences, and that these matter for rebel governance.

This distinguishes our approach from the common views that disregard ideology by assuming it is either a fig leaf used to cover materialist preferences (Kung and Chen, 2011) or a residual category that explains only things that self-interest cannot (Levi, 1988, 51). North (1981, 54) sees a political role for ideology in that it is "designed to get people to conceive of justice as coextensive with the existing rules and, accordingly, obey them out of a sense of morality." This somewhat limits the role of ideology to overcoming the free rider problem but it is consistent with the effect we envision ideology to have in our model.

Once one admits the possibility that ideology might be useful politically, it is a short step to argue that leaders might adopt ideological positions as matters of political expediency. As Downs (1957, 28) put it, they "formulate policies to win elections, rather than win elections in order to formulate policies." He was, of course, speaking of parties in democracies, but the idea lends itself to settings like ours. For instance, Bueno de Mesquita (2008) argues that terrorist leaders establish factions with ideological positions designed to maximize support. In this vein, we assume that rebels can choose the ideological content of policies they enact. They can adopt platforms that resonate more with the preferences of civilians for whom ideology is not instrumental. In other words, civilians have ideological preferences—over the relationship between church and state, the ability to practice their own religion, land reform, and even foreign policy. They might not be able to articulate precise definitions of "self-determination," "sharia law,", or "Communism," but this does not mean they do not care about them or that they cannot make reasoned choices despite limited conceptual understanding (McCubbins and Lupia, 1998; Green, Palmquist, and Schickler, 2002). Just because civilians cannot define *sharia* law does not prevent them from wanting it, or from identifying any less strongly as Muslims.

Like civilians, rebels have intrinsic preferences over the ideological content of their policies. However, unlike civilians, rebels also have instrumental preferences in that the choice of that content can affect the level of support they are able to generate through coercion and service provision. The key in this relationship is the ideological distance between the preferences of the actors and the policies enacted—not the specific nature of the ideology itself.

All else equal, rebels want the most compliance possible in return for their investment in coercion and service provision. This matters because the marginal effectiveness of service

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[12]We use ideology in the manner of Kalyvas (2001) who argues persuasively against the conception that modern civil wars lack ideology, pointing to biases in much existing research in discounting rebels' ideological motivations.

provision must be decreasing in the degree of extremism of the policies rebels supply. The wider the ideological gap between rebels' policies and civilians' preferences, the less effective services are in generating compliance. Ideological distance makes civilians skeptical about the rebels' intentions and thus leery of cooperating with rebels too readily. They will, of course, welcome goods and services, but their enthusiasm for (and compliance with) the provider will be dampened by any divergence between the ideological position the rebels enact and civilians' own preferences. For example, rebels who build a *madrassa* (Islamic school) for an observant Muslim population will find these civilians more compliant than those who offer the same population a secular institution. The more rebels' ideological platform diverges from civilians' the less likely civilians will comply, because they feel little desire to contribute to a cause that does not reflect their own preferences, and the less attachment they feel to a governance structure that pursues policies they dislike. In contrast, ideological congruence produces support in return for service provision as civilians comply with a cause they see as morally justified and that advances their own interests and values.

For the same of simplicity, we collapse ideology to a single dimension.[13] Our definition of ideology is concerned with the distance between the ideology most preferred by the median civilian and the ideological policies implemented by the rebels. We call this distance *extremism* and denote it by x, where $x \in [0, 1]$ normalized to equal civilians' preferred ideological position at zero ("moderate"), and fully divergent at 1 ("extreme").

Our definition of extremism is local because a global definition is unhelpful. Governance is a local phenomenon—between a particular authority and a particular population. If rebels choose to impose *sharia law* on a population of Buddhist peasants, the rebel policy would be quite extreme whereas that same policy would be very congruent when introduced to a population of strict followers of Islam. This definition of extremism also means that we are agnostic over what civilians' ideological preferences and the policies supplied by rebels actually are—we care only how far apart they are from each other. We attach no inherent value to any particular set of ideological preferences and are ignorant about where these come from.

Ideology has a complex role in our model because it has three separate effects. Two of these concern the generation of compliance (we shall discuss the third effect separately). The direct effect of increasing extremism is to reduce support:

$$\pi_x < 0. \tag{A4}$$

The further the rebels' enacted ideological position from the preferences of civilians, the less compliance will the rebels receive from any given mix of service provision and coercion. We also assume that increasing extremism would continue to produce a palpable reduction in support even when the existing level of extremism is high:

$$\frac{\mathrm{d} \frac{-\pi_x}{\pi}}{\mathrm{d}\, x} \geq 0 \quad \Leftrightarrow \quad \pi_{xx} \leq \frac{\pi_x^2}{\pi}. \tag{A5}$$

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[13]For an established approach to this assumption in another context, see Poole and Rosenthal (1997) We note that the simplicity of the model does not negate the complexity that can characterize ideological phenomena. While we collapse ideology to a single dimension, conceptualizing it as a multi-dimensional phenomenon does not change the logic, it simply complicates the calculations.

The intuition here is that becoming even more extremist should not be rewarding for rebels that are already quite radical.[14] Consider our hypothetical Buddhist civilians under the rule of Muslim rebels. Building mosques might be satisfying for the rebels, but will not generate much compliance from civilians. Even if civilians welcome rebel efforts to establish law and order, rules governing personal dress and behavior along Islamic lines will reduce civilians' compliance (A4). Should the rebels adopt more extremist beliefs and thus implement more rigorous enforcement of these rules, support will decline even more steeply (A5).

This discussion of the role of ideology also points to an indirect effect: the more extreme the rebel policies, the less effective must service provision be in generating compliance relative to coercion:[15]

$$\frac{\mathrm{d}\,\frac{\pi_c}{\pi_g}}{\mathrm{d}\,x} > 0 \quad \Leftrightarrow \quad \pi_{cx}\pi_g > \pi_{gx}\pi_c. \tag{A8}$$

To understand this, take the support generated by the policy mix (c, g, x) and consider what happens when rebels become more extreme in their policies to $\hat{x} > x$. The level of support will decline, and our assumption states that coercion will be more effective in restoring support to its previous level than service provision. The intuition is that since civilians discount the services provided by extremists, increases in their provision will not be as effective as increases in coercion. In other words, when it comes to quasi-voluntary compliance, extremism decreases both support and the effectiveness of public service provision in generating it. This dynamic bites regardless of rebels' intentions: from accounts of several close to him, Abu Sayyaf Group's (ASG) founder wanted to provide services, but found the ideological position he insisted on was insufficiently popular to attract technocrats capable of providing services under ASG auspices. This was one of the reasons that ASG opted to instead invest in a heavily coercive apparatus.[16]

Among the simplest functional forms that captures all these assumptions is a variant of the Cobb-Douglas production function,

$$\pi(c, g, x) = c^x(c + g)^{1-x},$$

where $x \in [0, 1]$ is extremism relative to the civilians' preferred ideological position normalized at zero.[17]

Our model offers a short run definition of ideology in that civilians are assumed to hold fixed ideological preferences; in the long run, these preferences may shift. Civilians may be persuaded through the demonstrated efficacy of a rebel movement that belies earlier skepticism of their ideological position, or through campaigns of ideological education and debate (which Marxist revolutions are particularly noted to employ). Alternatively, familiarity may breed contempt: villagers initially impressed by rebel's ideological conviction and promise of a better life, may find the group disappointing over time. As these diametrically opposed possibilities suggest, the long-term effects are likely to be path-dependent. Since they will

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[14]In technical terms, this is merely a condition on the rate of decrease in support: it could either be accelerating or, if it decelerates, it should not do so by so much that it gives rebels an incentive to be very extreme.

[15]In technical terms, the marginal rate of substitution between coercion and public goods provision is increasing in extremism.

[16]Author interview, Former ASG member, Metro Manila, Philippines, December 2009.

[17]Our main results do not depend on the particular functional forms, but we shall make use of them to derive additional comparative statics.

only have a limited effect on imperatives facing rebels at present, we shall ignore them for now, leaving the endogeneity of ideology for future study.

2.2 Ideological Constraints on Rebel Rule

As described above, one can think of $\pi(c, g, x)$ as representing the benefits of staying in power. It is tempting to think that rebels maximize compliance, which, in turn, improves their chances vis-a-vis the incumbent. However, rebels also care about the ideological positions they enact. Like the civilians they rule, rebels take into account how closely the profile of their rule tracks to their own ideological preferences. The third role of ideology in our model is as an expression of the preferences of the rebels. It affects the utility they obtain from any given level of support: the closer their policies to their ideal ideological point, the higher the payoff from ruling. The distance of the enacted policies from their ideal point acts as a discount on the material benefits from power. Thus, rebels are neither "realpolitikers" who care only about how much power they produce regardless of the ideology adopted to do so, nor "ideologues" who care only about their ideological preferences regardless of the problems that might pose for generating compliance.

Going back to our fanciful hypothetical, consider Islamic rebels who rule over Buddhist civilians and are interested in providing services in the form of building houses of worship. If the rebels build mosques, the civilians are not likely to value them much, and as a result their compliance will decrease. However, from the perspective of the rebels, this decline will be at least somewhat compensated for by the fact that the policy is close to their own ideal point. The rebels could also build temples, which the civilians are much more likely to view favorably. For the rebels, the resulting increase in compliance will be at least partially offset by the diminishing utility of ruling with policies so far from their own ideological ideal.

Thus, even rebels with strong ideological commitments will avoid making extreme nuisance of their positions although they would not simply abandon these commitments for expediency's sake. Describing rebels in Syria's Civil War, one observer noted, "All of the key mujahedin commanders in the city seem cognizant of the need to avoid antagonizing the local population Abouzeid (2013)."

Let $r \in (0, 1]$ denote the rebels' ideal point for ideology (again defined relative to civilians' preferred ideological position normalized at zero) and let

$$b(x; r)$$

denote the utility benefit arising from the distance between the policy they choose to enact and their intrinsic ideological preferences. It has the usual properties for such a metric in that it is concave:

$$b_x \begin{cases} > 0 & \text{if } x < r \\ = 0 & \text{if } x = r \\ < 0 & \text{otherwise} \end{cases} \quad \text{and} \quad b_r = \begin{cases} < 0 & \text{if } x < r \\ = 0 & \text{if } x = r \\ > 0 & \text{otherwise.} \end{cases} \tag{A9}$$

In our conceptualization, it does not matter whether the rebels are extreme on the left or on the right; the only thing that matters is how far their policy is from the preference of the

civilians. Moreover, we assume that the more extreme the rebels are, the more they value the ideological content of the policies they enact:

$$b_{xr} > 0. \tag{A10}$$

Among the simplest functional forms that captures these properties is one based on the common Euclidean distance metric:

$$b(x;r) = 1 - (r - x)^2.$$

Since rebels care neither for strict ideological implementation that generates zero civilian compliance nor for such compliance when the ideological compromise needed to generate it is great, we assume that they maximize

$$U(c, g, x; r) = b(x;r)\pi(c, g, x).$$

This formalization also implies that more extremist rebels find it more difficult to tolerate ideological compromises even when doing so would increase the compliance they obtain. While generating compliance with a large ideological compromise could provide them with resources they need to stay in power, the fruits of such success are quite unappealing.

2.3 Budgetary Constraints on Rebel Rule

Rebels' ability to generate compliance is also constrained by their budget (B)— both coercion and service provision build compliance, but both are materially costly for rebels.[18] In contrast, we assume that the ideological content of policies does not entail direct physical costs. The rebels' budget comes from income they control themselves (e.g., lootable resources like drugs or diamonds), contributions by donors, and income raised from the civilian population under their control. In the longer term, the ability to raise income from civilians must depend on the policy mix the rebels choose to implement: the more supportive the population, the more it is likely to yield to the rebels. Of course, if expanding the budget means implementing less desirable policies, civilians might balk at the tax increases. It would be interesting to tell this story in a dynamic setting, but for now we wish to analyze what happens in a world where the budget constraint is binding. This is likely to be the situation most rebel groups face anyway since their hold on civilians tends to be precarious. Moreover, our model already has a strong bias toward generating compliance even without considering the potentially salutary effects this compliance has on the purse, so there is little need to intensify that tendency.

Like all budget constrained actors, rebels' actions are sensitive to the price they have to pay for both coercion ($p_c > 0$) and services ($p_g > 0$). We assume linear costs so that for any policy mix (c, g), it is necessary that $p_c c + p_g g \leq B$. This means that the budget is relevant only insofar as it constrains rebels' ability to generate support (i.e., there is no private consumption).[19] It also means that rebels cannot borrow to relax the budget

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[18] We differ here from Wintrobe (1998, 1990) who assumes that budgets do not bind dictators' actions because rulers can always extract more resources if needed.

[19] In this, our model differs from models like Collier and Hoeffler (2004), in which rebels loot for profits that are at least partially privately consumed, and from the "tinpot" dictator who maximizes personal profit Wintrobe (1998, 1990)

constraint. Since support is increasing in relation to the use of the policy instruments, the rebels will spend the entire budget in any equilibrium. Thus, the rebels optimize

$$U(c, g, x; r) \quad \text{subject to} \quad p_c c + p_g g = B.$$

To make the model interesting, we assume that coercion is more costly than service provision:

$$p_c > p_g. \tag{A11}$$

Without this assumption, rebels would be rewarded for their extremism. Recall that as they get more extreme, coercion becomes more attractive relative to service provision as a tool for generating compliance. If it were also cheaper to coerce, it would be easy for radical rebels to implement rule that is both extremist and very coercive.

3 The Power-Ideology Trade Off

Our rebels are neither "realpolitikers" willing to sacrifice all ideals for compliance, nor "ideologues" who pursue ideology at the expense of pragmatic power considerations. However, their twin interests in retaining ideological purity and gaining civilian compliance may not be simultaneously achievable under all circumstances—rebels can face what we term the "power-ideology tradeoff."

Since the budget constraint must bind at the optimum, we can rewrite the optimization problem to eliminate the service provision variable by letting it be a function of coercion:

$$g(c) = \frac{B - p_c c}{p_g}.$$

The resulting unconstrained maximization problem is then

$$\max_{c,x} b(x; r)\pi(c, g(c), x). \tag{1}$$

Consider for a moment what would happen if rebels were realpolitikers, merely interested in maximizing compliance. Since $\pi_x < 0$, it follows that they would choose $x^* = 0$, that is, an ideological policy that is entirely congruent with what the civilians prefer. We now show that this implies that such rebels must also focus on service provision instead of coercion. (All proofs are in Appendix A.)

PROPOSITION 1. *Realpolitiker rebels' rule is as non-coercive as possible.* □

If rebels were only interested in maximizing compliance, the optimal level of coercion strictly increases in the degree of extremism of the policies they implement. But, as we have seen, such realpolitiker rebels would choose the least extreme policy irrespective of their ideological preferences, which means that they will also coerce at the lowest possible level.

Any incentive to depart from this non-coercive behavior must therefore come from the other component of the rebels' utility function: their ideology. This means that rebels have absolutely no reason to implement policies that are more extreme ideologically than their

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own ideal point: $x > r$. Since increasing extremism only lowers compliance (given the extremist discount noted in A4 and A5) and for $x > r$, it also lowers their ideological benefit, rebels are always strictly better off choosing some $x \leq r$. In this range, $b_x > 0$ so rebels might have incentive to become more coercive even at the cost of some compliance. To put it differently, because enacting a radical policy would cause a loss in compliance, rebels have an incentive to compromise ideologically—this is the *power-ideology trade off*.

Rebels face a delicate balancing act between satisfying their own ideological goals and supplying policies that do not engender too much resistance. To be sure, rebels vary both in how far their own ideal point is from civilians', and in their willingness to compromise on these ideological goals in exchange for increased compliance. We now show that the more extremist the rebel preferences, the more inclined they must be to trade power for ideology, which necessarily makes them more coercive as well.

PROPOSITION 2. *As rebels become more extremist in their preferences, they are less inclined to trade power for ideology: they implement more extreme policies, provide fewer services, and rule more coercively.* □

Because realpolitiker rebels maximize compliance by implementing policies that are ideologically congruent with the preferences of the civilians, and because extremist policies generate less compliance despite increasing levels of coercion, we obtain our main result:

COROLLARY 1. *The quasi-voluntary support ideological rebels are willing to generate is strictly worse than the support realpolitiker rebels obtain. The more extremist the rebels, the fewer services they provide, the more coercive their rule becomes, and the less compliance they generate.* □

This is the outcome of the "extremist discount" under which rebels with preferences far from civilians' find services less efficient in generating compliance. Such groups face an unpleasant choice: compromise and enact a more popular ideology, or maintain their extreme ideology and resort to coercion in order to get what they need. Che Guevera ran into this problem in Boliva, leading and training the Cuban-backed *Ejército de Liberaciòn Nacional de Bolivia* (ELN). The ELN represented the views of a very few local guerrillas, not the local Communists (who were ideologically closer to Moscow than Havana), or the local population (Time Magazine, 1967). Indeed, in spite of Che's occasional provision of medical service (which had built civilian support in Cuba), locals largely refused to aid or join the ELN, and ultimately began informing on the organization.[20] Faced with such popular reluctance, Che himself proposed to force compliance "through planned terror" rather than his iconic medical kit (James, 2000, 151).

Under the extremist discount, civilians are unlikely to be fully compliant with radical rebels' demands, even if the rebels provide services civilians want—thereby leading such rebels to use coercion to extract by force what they could not gain by co-option. Extremists are coercive in this model not because they have a taste for violence but because their ideological distance from civilians means that in order to make service provision effective, rebels' policy concessions have to be fairly significant, which makes non-coercive rule unattractive to the rebels.

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[20]See Che's own diary, particularly his monthly analyses in James (2000, 151,164,176, 202, 219).

4 Discussion

The power-ideology trade off exists in a very general setting but to investigate how it changes in response to the other parameters of the model, we need to make further assumptions about the functional forms. We establish that the variants of the widely used well-behaved functional forms for production and policy preferences yield intuitive comparative statics in this model. With these functional forms, the rebels' maximization problem is

$$\max_{c,x} \left\{ \left[1 - (r-x)^2 \right] c^x (c + g(c))^{1-x} \right\}.$$

We know from the general solution that more extremist rebels become more coercive, provide fewer services, and implement more extreme ideological platforms. Thus, we only need to examine how the policy mix changes with relative prices of rebels' tools of rule (g and c) and the size of the budget rebels use to invest in these tools.

PROPOSITION 3. *The larger the rebels' budget, the more coercive their rule is* and *the more services they provide. The ideological content of the policies rebels implement does not depend on the size of the budget. However, the higher the price of service provision (coercion), the fewer (more) services the rebels provide, the more (less) coercive their rule is, and the more (less) extremist the policies they implement.*   □

This is an important result because it suggests that if the rebels become richer, they will simply consolidate their rule without altering their ideology. In this model, wealth solidifies the form of rule rather than leading to reforms in either rebels' ideological position or the mix of tools they use to maintain their rule.

However, shifts in the marginal of g and c can affect both the rebels mix of these tools and the ideological position they enact. Specifically, as the marginal costs of service provision decrease, budget constrained rebels will find it an attractive investment (and coercion less attractive). Moreover, recall that the extremist discount means that radical rebels must substitute coercion for service provision if they wish to avoid ideological compromise. This substitution becomes more difficult if coercion's price rises relative to serve provision—rebels may chose to compromise ideologically, as this will allow them to advantage of the price break in service provision. By the same token, as the marginal costs of coercion decrease, rebels will coerce more, serve less, and increase the extremism of their policies. This is so because extremism makes service provision less effective, and coercion a more attractive investment. This substitution becomes easier and even more attractive as coercion's price drops relative to service provision.

Our model takes a more expansive view of the tools of rule than do many of the political-economic theories of regime type, state origins, or rebel behavior. Some do not make adequate room for coercion (North, 1981; Mampilly, 2011) while others focus on coercion almost exclusively (Kalyvas, 2006; Weinstein, 2006). Some admit a role for ideology without studying it (Levi, 1988) while others conflate its means and ends (Wintrobe, 1990). Our model attempts to maintain analytical distinctions between the tools and what they are intended for even though in practice such distinctions might be a lot harder to draw. In doing so, it offers an explanation for the institutional choices that rebels might make.

4.1 Civilians and Ideology

Although civilians are not separate actors in our model, their preferences are embedded in how we model rebel rule. We assume that civilians respond not only to material incentives (as represented by coercion and service provision) but also to ideologies embodied in the enacted policies. This assumption differentiates this model from other approaches. Leites and Wolf (1995, 42–5) specifically reject the importance of ideology in their "system model" of insurgency, claiming that "preferences, affect behavior but are not identical with it; nor in most cases are they the primary influence on it." Our model offers one way in which ideological preferences can matter — by affecting the relative efficacy of service provision for generating support—thus linking these and the rebels' institutional choices. In particular, even though the rebels' own ideological preferences (r) play a key role in selecting their policy mix, it is the policies they enact (x, which are explicitly defined in reference to civilians' preferences), along with the corresponding mix of coercion and service provision, that is of interest.

This approach militates against the assumption tacitly made in some discussions of "Hearts and Minds" counterinsurgency programs that suggests that civilian support is a simple question of price. Our approach may help explain why counterinsurgents that provide services at levels comparable or even higher than those provided by the rebels might fail to generate nearly as much support for the state as rebel services (and often more coercive tactics) do for the rebellion. Counterinsurgents implementing ideologies far from civilian preferences will, like rebels, find service provision a less effective tool with which to generate support for the regime. Even if counterinsurgents invest just as much in coercion and service provision as a more ideologically-appealing rebel rival, the state will generate less compliance.

While we want to think seriously about ideology here, we do not veer to the other extreme and chalk up everything to non-materialist concerns. Our rebels are neither ideologues that focus on ideological purity to the exclusion of all political expediency nor realpolitikers who are solely concerned with maximizing quasi-voluntary compliance with their rule. While rebels would prefer avoid ideological compromise, they will offer some concessions if straying too far from the civilian preferences would make their rule disproportionately more difficult. This helps explain why in 2013 radical Islamist rebels in Syria were concerned about the divergence between their ideological position and civilians', and about the reduction in civilian support they believed it to entail (Abouzeid, 2013; Holmes and Dziadosz, 2013).

In Syria's diverse population, radical Islamist ideology is indeed far from the median civilian. Rebels adhering to this ideology (either for intrinsic reasons or because it allows them to maintain operational unity and power) would find that any governance mix of coercion and service provision will generate less compliance if it is wrapped in policies that closely track their ideological preferences. They might make some compromises in an effort to improve civilian support but since they are so far from the median, any compromise that is likely to make service provision sufficiently attractive as primary tool of rule is also going to be too far removed from the rebels' own ideological commitments. Radical groups like these are thus likely to engage in limited compromise and rely on more coercive ruling strategies. In the Syrian case, radicals may have initially tried some ideological compromise. When the radical Islamic State of Iraq and al-Sham (ISIS) took over the city of Raqqa,

it administered utilities, ran bakeries, and maintained courts to handle everyday disputes — all efforts at service provision. To make these efforts more effective, the courts seem to have deliberately imposed lighter sentences so as to not offend the skeptical civilians too much (Holmes and Dziadosz, 2013).

The implications of the model can illuminate a range of seemingly baffling behaviors of groups like radical jihadists in Syria, Al-Shabaab in Somalia, and Che's *Ejército de Liberaciòn Nacional de Bolivia* (ELN) who demonstrably did not reflect the majority preference of the populace they claim to represent, but refuse to compromise and thus had to rule coercively. While radical groups may debate within themselves the risks of alienating the population, they face the reality that in the face of popular skepticism, coercion may be the only viable strategy: service provision is so ineffective that providing it in sufficient quantities might be prohibitively costly (especially when coercion is an option).

While ISIS originally compromised, and enacted a platform more moderate than their own preferences, they must have chafed under these restrictions. As the Syrian Crisis wore on, the group compromised less and less, and residents in Raqqa and other rebel-controlled cities increasingly complained that ISIS was imposing their views on them, and were not only forcibly expropriating resources but also brutally enforcing these beliefs (Hassan, 2013; Dettmer, 2013). By 2014, ISIS's platform clearly diverged from civilian preferences, and the group's rule was increasingly brutal—publicly crucifying some who violated their religious laws, demonstrating both their ideological position and their willingness to use coercion against civilians (Lister, 2014; Mendelsohn, 2014)

4.2 Donors and Other External Factors

Our model shows how other exogenous factors—the marginal costs of coercion and service provision—can shape rebel rule. Because the extremists' discount links ideology to the material tools of rule, changes in the relative costs of these tools can drive concomitant ideological shifts.

The relative prices of these tools can change due to exogenous events. For example, Tuareg Mercenaries returning to Mali from the Libyan civil war (2011) brought with them a trained capacity for violence, extensive military hardware, and the connections to a pipeline of weaponry. As they joined the long-running struggle for independence from the Malian state, the rebels' relative price of coercion dropped, resulting in a noticeable increase in coercion by groups operating in Northern Mali—as suggested in Proposition 3.

Deliberate interventions can also affect the relative costs of rebels' tools of rule. The model suggests that foreign sponsors and domestic counterinsurgency efforts may shape rebel governance by changing these costs.[21] Studies of the risks and motivations of foreign sponsorship of rebel groups explicitly or implicitly consider how sponsors can control their rebel protègès.[22] While these studies seem to agree that the sponsors' ability to shape rebel behavior is limited, our model shows that the indirect effect donors have on the relative costs of coercion and service provision might affect that behavior, intentionally or not.

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[21]A number of studies note around half of all insurgencies have some form of foreign sponsorship. See Cunningham, Gleditsch, and Salehyan (2009) and Byman et al. (2000).

[22]See, *inter alia*, Byman et al. (2000); Byman (2005); Byman and Kreps (2010); Bapat (2011, 2006); and Salehyan (2011).

For example, when donors provide military aid (e.g., materiel, military training, foreign fighters) they lower rebels' marginal cost of coercion—Proposition 3 suggests this might lead rebels to coerce more, serve less, and to radicalize their policies. Thus, even though donors give military assistance for other reasons—most obviously, to enable the rebels to fight the government—their choice of assistance can have effects beyond that aid's intended use. While it might be necessary to provide military assistance so that rebels can press the government more effectively, donors would have to be cognizant that doing so might increase humanitarian abuses and radicalize the rebels simply because it lowers the relative price of coercion. Conversely, relying on humanitarian aid (medical training, agricultural aid, textbooks) might well push the rebels into more accommodating ideological positions that enable them to take better advantage of more-affordable service provision. Fungible (e.g. cash) assistance, can be applied with equal ease to coercion and service provision—because it does not differentially affect these tools' marginal costs, it also has no impact on rebels' ideological platform.

Donors who may care about civilian welfare in addition to rebels' staying power could to take these indirect effects into account. The public debate over British support for the Free Syrian Army explicitly referenced these concerns over the form of aid: "[U.K. Foreign Secretary William] Hague said the U.K. had no intention of sending weapons to the FSA, saying: 'It would be hard to guarantee how [they] would be used.'" In the context of concern for civilian welfare, the British government could not be sure guns would not be used against the populace—weapons would simply make coercion cheaper. Consistent with the theory's suggestion that such donors may instead provide humanitarian aid, Hague went on to note the U.K. would send "non-lethal practical assistance (Borger, 2012)."

Thus, Proposition 3 suggests that gaining humanitarian assistance or losing a military sponsor may not only force rebels to respond to the higher relative price of coercion with increased service provision, but may further "tame" them by inducing them to moderate the ideological content of their policies. Conversely, the provision of military aid, or loss of a donor who provided humanitarian assistance should cause an uptick in coercion with a corresponding increase in extremism. Donors can also switch from one type of aid to another (or opt for something fungible, like money) in the expectation that doing so would affect what the rebels do even if the donor is not explicit about it. The model thus suggests donors and observers should pay attention to the form of aid offered rebels—as this can shape the position rebels enact as well as their blend of coercion and service provision—both in terms of what they offer rebels, and in considering the ramifications of any interdiction policy.

4.3 The Institutions of Rebel Rule

Scholars recognize that rebels' institutional structures are important. Mampilly (2011) suggests that choices of Maoist organizational structures or co-optation of humanitarian organizations allow rebels to provide more services. Weinstein (2006) sees the rebels' treatment of civilians as arising from mostly exogenous recruiting options. But rebels organizational structures are not exogenously determined. To be sure, all rebels face systemic constraints, and may inherit various forms of organization or find various structures optimal for reasons other than governance. However, our model shows that rebels have rule-related motivations to choose specific organizational forms. Similarly, it suggests that personnel recruitment

should be at least partially shaped by the rebels' need for various types of recruits—groups will at least attempt to woo service providers should their optimal governance mix require it and recruit violence entrepreneurs should they need to rule through coercion.

Moreover, in its parameterized form, our model also implies that rebel governance structures do not have to be sensitive to rebels' overall wealth. Proposition 3 shows that increased access to resources may simply cause rebels to consolidate their rule by simultaneously increasing coercion and service provision but without altering the proportional policy mix or making adjustments in the ideological content of the policies they enact. In other words, neither is coercive rule an artifact of fiscal desperation, nor is service provision a luxury available only to wealthy rebels.

The Abu Sayyaf Group (ASG) in the Philippines provides an example of this. In the early 2000s, the ASG received a number of large cash payouts in kidnapping-for-ransom activities. These payouts injected a large amount of fungible assets into the rebel organization. Because the payouts were cash, they would not have affected the marginal costs of either service provision or coercion. Instead, they simply shifted the ASG's budget curve outward. In response to this influx, ASG did not alter the ideological position they enacted. Nor did they shift their mix of coercion and service provision. The organization historically relied on very limited service provision and extensive coercion—primarily providing private or club goods in the form of payouts to members and to buy silence from those in a position to inform on the group. Flush with cash, ASG made more such private payouts, but did not funnel all, or even most, of this largesse into publicly-accessible services. The money allowed them to improve their arsenal, and continue coercing civilians. Under the relaxed budget, their behavior, in effect, was more of the same.

4.4   Strategies of Counterinsurgency

Although our model does not consider the rebels' struggle with the government directly, it does have something to say about the impact of various counterinsurgency (COIN) policies on rebel rule. This is because the government's actions can also target the parameters that shape rebel rule. While most analyses focus on how COIN coercion or service provision can cut off rebels' popular support and woo the civilians to the government's side, our model suggests that such attempts can also shape rebel rule.

The government may also try to woo civilians to its side by using service provision. Such tactics are a mainstay of the "hearts-and-minds" approach, which focuses on winning civilians' allegiance through "good governance," largely characterized by the provision of services, and investing in organizational structures and behaviors within the military that protect civilians from violence (United States Department of the Army and United States Department of the Marine Corps 2007; Thompson, 1966; Nagl, 2002). Counterinsurgents build mass-based services like schools and roads, or disburse elite-focused payouts to dissuade individuals from collaborating with the rebels and encourage cooperation with the regime.

On one hand, these tactics will increase the relative price of service provision for the rebels and decrease the civilian support they are able to generate under a fixed budget. This is the intended effect but there are two problems with the strategy. First, COIN operations cannot afford to ignore the role of ideology on their efficacy. Building schools that are staffed by pro-government teachers and providing government-sponsored curricula might

not generate much support among a population whose ideological preferences diverge from the government's. Such efforts will be both costly and relatively ineffective against rebels whose preferences are closer to those of the civilians (and who might be better able to adjust their policies to reflect such closeness).

Second, even when ideology is accounted for and COIN operations are successful in decreasing the support of the rebels, there might be serious unintended consequences. Our model suggests that when the relative price of service provision goes up, rebels will not respond by trying to compete with the government in winning hearts and minds. Instead, rebels will become more coercive and even more extremist Proposition 3. Thus, efforts to cut off aid to rebels can have indirect effects on civilian welfare. Successful interdiction of humanitarian aid may well limit rebels' ability to generate support, but by driving up the price of service provision, will push rebels to compensate with greater coercion and facilitate more extreme policies. In other words, the well-meaning COIN effort might well end up in more civilian suffering precisely when it is successful in eroding rebels' support.

Conversely, COIN coercion directed at civilians—scorched earth policies, interrogations, arrests of suspected sympathizers and informants, collective punishment, and targeting civilians in retaliation for cooperation with rebels—increase the relative price of coercion for the rebels (as will conventional military operations designed to degrade their fighting ability). The model suggests that rebels will respond not by intensifying their own coercive efforts but by shifting toward service provision. The conventional wisdom states that these coercive tactics might radicalize the opponents of the government, but we hypothesize that this will not necessarily radicalize the rebels themselves. In fact, rebels may attempt to compensate for their decreasing ability to afford coercion by becoming more moderate and thus making their service provision even more effective in generating support. These COIN operations might be intended to "drain the sea" of rebels' popular support (Valentino, Huth, and Balch-Lindsay, 2004; Downes, 2007; Trinquier, 1964; Luttwak, 2007; Azam and Hoeffler, 2002; Azam, 2002; Ellsberg, 1970; Leites and Wolf, 1995). Our model suggests, however, that they might be far less effective in doing so because rebels will alter their policy mix to compensate.

5 Conclusions

The model developed in this article offers several innovations. First, it provides conceptual distinction among the tools of rebel governance, and between those and the constraints they face in choosing how to rule. The model starts with the assumption that both coercion and service provision help rebels solve their need for civilian compliance, and that rebels' budget constraint can affect how rebels choose between these. We then go further by incorporating ideology in a complex triple role: a direct effect on the level of civilian support, and indirect effect through its impact on the effectiveness of service provision relative to coercion, and another effect on the rebels' value of ruling. While complex, ideology's role in our model is specific and explicit. In so doing, our model differs from previous work that sidesteps ideology completely, considers it determinative, or argues it is important but in unspecified and possibly idiosyncratic ways. Our treatment allows us to specify a mechanism by which ideology shapes the rebels' relationship with civilians. While rebels may choose to adopt an ideological position because it is more popular, doing so is a choice that

may carry with it internal costs for rebels' own utility.

Moreover, this approach suggests an explanation for why radical rebel groups are often so brutal to civilians. Weinstein (2006) argues that ideologues are well-behaved — those who join the movement out of genuine conviction do not abuse civilians as opportunistic rebels (who join for material gain) are wont to do. In our model, if such ideologues hold convictions far from the popular preferences, they will coerce civilians precisely because they are extremists for whom compromise is unattractively costly. The extremism of these rebels makes service provision relatively inefficient in generating compliance, and induces the rebels to more violent tactics. Coercion may simply be the only way these rebels can generate enough compliance from a skeptical populace to survive. However, we also acknowledge that ideological compromise with civilians is possible, but unpleasant for rebels, and thus represents a strategic choice for them.

In this, our model informs both academic and policy interest in issues of "radicalization" (though in these contexts this term is often defined differently than how we use it here, or not defined at all). While we assume ideology is static, the mechanisms we outline suggest very real and pragmatic limitations (at least in the short term) for rebels attempts to enact ideologies radically different from civilian preferences. Furthermore, these limitations will likely also curtail foreign supporters' ability to pull rebels' ideology further from civilians'.

This model also offers a simple mechanism that helps us understand the effect of a variety of events and actions on the rebels' governance mix. Future research may build on this model to develop models of rebel rule encompassing dynamics between rebels and incumbents or subsets of the civilian population. Ideological preferences, for example, could conceivably vary across geographic areas or demographics. Our model could be applied on a more fine-grained scale to understand how rebels may adapt to these varied environments.

Finally, this paper offers a basis on which to build a better understanding the influence of counterinsurgency, foreign sponsors, and other exogenous events on rebel rule. While not included here as strategic actors, the model suggests ways in which efforts to aid or defeat rebels can affect the relative prices of coercion and service provision and result in adaptations in rebel strategy and ideology that might be far from the intended. This suggests avenues for future research in exploring the role of various forms of assistance offered to rebels—not merely the source and amount.[23] This also proposes considerations for policymakers by suggesting that some common arguments in favor of one counterinsurgency tactic or another might be missing a crucial piece of the puzzle in that they do not adequately account for what rebels will do in response. As such, they might be overlooking consequences for civilians that should be of interest. Additionally, our conceptualization of ideology not only explains why radical rebels may be brutal, but also why COIN service provision may be frustratingly ineffective when pursued by a state ideologically distant from civilians.

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[23]Several datasets are already collecting information on the forms aid rebels receive: see Högbladh, Pettersson, and Themner (2011) and Cunningham, Gleditsch, and Salehyan (2013)

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A Proofs

Proof of Proposition 1 Consider the problem of maximizing π only, for which the first-order condition is

$$\pi_c + \pi_g g_c = 0,$$

and which we can write as the familiar ratio of marginal benefits to marginal costs:

$$\frac{\pi_c}{\pi_g} = \frac{p_c}{p_g}. \tag{2}$$

Under our assumptions, the left-hand side is strictly decreasing in c:

$$\frac{d\frac{\pi_c}{\pi_g}}{dc} = \frac{\left[\pi_{cc} + \pi_{cg} g_c\right] \pi_g - \left[\pi_{cg} + \pi_{gg} g_c\right] \pi_c}{\pi_g^2} < 0,$$

and the right-hand is constant, which implies that if an interior solution exists, it is unique, so we denote it by c^*. We can now write (2) as

$$\pi_c(c^*(x), g(c^*(x)), x) = -\pi_g(c^*(x), g(c^*(x)), x) g_c$$

and use the implicit function theorem and the fact that $g_x = g_{cx} = 0$ to obtain

$$\pi_{cc} c_x^* + \pi_{cg} g_c c_x^* + \pi_{cx} = -\left(\pi_{cg} c_x^* + \pi_{gg} g_c c_x^* + \pi_{gx}\right) g_c,$$

or

$$c_x^* = -\frac{\pi_{cx} + \pi_{gx} g_c}{\pi_{cc} + \pi_{cg} g_c + g_c(\pi_{cg} + \pi_{gg} g_c)} > 0. \tag{3}$$

Since $x^* = 0$ for realpolitiker rebels, $c^*(x^*)$ is at the lowest possible level. (With our specific functional forms, $c^*(0) = 0$.) ∎

Proof of Proposition 2 The first order conditions (FOCs) of the maximization program in (1) are

$$U_c = b\left(\pi_c + \pi_g g_c\right) = 0$$
$$U_x = b\pi_x + b_x \pi = 0.$$

Since $b > 0$ at any optimum, the first requirement recovers the condition for maximizing compliance in (2). This is not surprising, of course, because it simply means that rebels would choose the best mix of coercion and service provision for any given ideological policy. As before, if a solution exists, it is unique, and we shall denote it by $c^*(x)$, where we also note that $c_x^* > 0$ from (3).

The second requirement equates the marginal benefit from implementing a policy that is closer to their preferences with the marginal loss in compliance this inevitably causes:

$$\frac{b_x}{b} = -\frac{\pi_x}{\pi}. \tag{4}$$

This condition represents the trade-off between power and ideology. Since the left-hand side is strictly decreasing in x,

$$\frac{\mathrm{d}\frac{b_x}{b}}{\mathrm{d}x} = \frac{b_{xx}b - b_x^2}{b^2} < 0,$$

because $b_{xx} < 0$ for any $x < r$, but the right-hand side is non-decreasing by (A5), it follows that if (4) has a solution, then it is unique, and so we denote it by $x^*(c)$.

We know that at any interior optimum where (2) and (4) are satisfied, it must also be the case that $U_{cc}U_{xx} - U_{cx}^2 > 0$ and that the following conditions also hold:

$$U_{cc} = b\left[\pi_{cc} + \pi_{cg}g_c + g_c(\pi_{cg} + \pi_{gg}g_c)\right] < 0 \tag{5}$$

$$U_{xx} = b\pi_{xx} + b_{xx}\pi + 2b_x\pi_x < 0, \tag{6}$$

where we note that under our assumptions $U_{cx} = b\left(\pi_{cx} + \pi_{gx}g_c\right) > 0$ as well. Since $c^*(x)$ is strictly increasing, it is invertible, which implies that a solution to the system of FOCs must satisfy

$$x^*(c) = c^{*-1}(x^*(c)),$$

which implies that

$$x_c^* = \frac{1}{c_x^*} = -\frac{U_{cc}}{U_{cx}}$$

and that $x_r^* = 0$. That is, the optimal ideological choice cannot depend directly on the rebel preferences, only indirectly so through their choice of coercion. This follows from the fact that $c^*(x)$ does not depend on r directly: $c^*(x;r) = c^*(x;\hat{r})$ for any $\hat{r} \neq r$ (this is because π does not depend on r directly). This implies that its inverse cannot depend on r directly either. We can now write (4) as a function of coercion:

$$b_x(x^*(c);r)\pi(c,g(c),x^*(c)) = -b(x^*(c);r)\pi_x(c,g(c),x^*(c)). \tag{7}$$

We can use the implicit function theorem to find out how extremism affects the optimal level of coercion. Since

$$\frac{\mathrm{d}b}{\mathrm{d}r} = b_r + b_x x_c^* \frac{\mathrm{d}c}{\mathrm{d}r} \qquad \frac{\mathrm{d}\pi}{\mathrm{d}r} = \left(\pi_c + \pi_g g_c + \pi_x x_c^*\right)\frac{\mathrm{d}c}{\mathrm{d}r} = \pi_x x_c^* \frac{\mathrm{d}c}{\mathrm{d}r}$$

$$\frac{\mathrm{d}b_x}{\mathrm{d}r} = b_{xr} + b_{xx} x_c^* \frac{\mathrm{d}c}{\mathrm{d}r} \qquad \frac{\mathrm{d}\pi_x}{\mathrm{d}r} = \left(\pi_{cx} + \pi_{gx}g_c + \pi_{xx}x_c^*\right)\frac{\mathrm{d}c}{\mathrm{d}r},$$

an application of the theorem yields

$$-(U_{cx} + x_c^* U_{xx})\frac{\mathrm{d}c}{\mathrm{d}r} = b_{xr}\pi + b_r\pi_x > 0,$$

where the inequality follows from assumptions (A4), (A9), (A10), and the fact that $x^*(c) < r$ at the optimum. But since

$$-(U_{cx} + x_c^* U_{xx}) = \frac{U_{cc}U_{xx} - U_{cx}^2}{U_{cx}} > 0,$$

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it follows that

$$\frac{\mathrm{d}c}{\mathrm{d}r} = \frac{(b_{xr}\pi + b_r\pi_x) U_{cx}}{U_{cc}U_{xx} - U_{cx}^2} > 0$$

as well. It now further follows that

$$\frac{\mathrm{d}g}{\mathrm{d}r} = g_r + g_c\frac{\mathrm{d}c}{\mathrm{d}r} = g_c\frac{\mathrm{d}c}{\mathrm{d}r} < 0 \quad \text{and} \quad \frac{\mathrm{d}x^*}{\mathrm{d}r} = x_r^* + x_c^*\frac{\mathrm{d}c}{\mathrm{d}r} = x_c^*\frac{\mathrm{d}c}{\mathrm{d}r} > 0$$

In other words, ideological extremism causes rebels to become more coercive, provide fewer services, and implement policies further away from the civilian preference. ∎

LEMMA 1. *At an interior solution, the following conditions obtain:*

$$\lambda(c) = \mu(c), \tag{S}$$
$$\mu_c > \lambda_c, \tag{H}$$

where

$$\lambda(c) = \ln\left(\frac{c}{c + g(c)}\right) < 0 \qquad \mu(c) = -\frac{2(r - ac)}{1 - (r - ac)^2} \qquad a = \frac{p_c - p_g}{B} > 0. \qquad \square$$

Proof. At an interior solution, the first-order conditions are

$$U_c = \left[\frac{1 - (r - x)^2}{c^{1-x}(c + g(c))^x}\right]\left[\frac{(x - ac)B}{p_g}\right] = 0$$
$$U_x = c^x(c + g(c))^{1-x}\left[2(r - x) + \left(1 - (r - x)^2\right)\lambda(c)\right] = 0,$$

Since $x > 0$ at an interior solution, it follows that the first condition can only be satisfied if the second term is zero:

$$x^*(c) = ac. \tag{8}$$

Similarly, the second condition can only be satisfied if its bracketed term is zero:

$$x^*(c) = r - \frac{1 - \sqrt{1 + \lambda(c)^2}}{\lambda(c)}, \tag{9}$$

where we recall that $x^*(c) < r$.[24] Thus, the solution requires that both (8) and (9) be satisfied, which yields (S).

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[24]To see that this solution is unique, observe that the bracketed term equals zero at the roots of the following quadratic:

$$\lambda(c)x^2 + 2(1 - r\lambda(c))x - \left[2r + (1 - r^2)\lambda(c)\right] = 0.$$

The larger root is inadmissible because it exceeds 1:

$$r - \frac{1 + \sqrt{1 + \lambda(c)^2}}{\lambda(c)} > 1 \Leftrightarrow r > \frac{\lambda(c) + 1 + \sqrt{1 + \lambda(c)^2}}{\lambda(c)} \Leftrightarrow r\lambda(c) < 1 + \lambda(c) + \sqrt{1 + \lambda(c)^2}.$$

Since $\lambda(c) < 0$, $r\lambda(c)$ is decreasing in r, so it will be sufficient to establish the result at the lowest value $r = 0$. We just need to show that $1 + \lambda(c) + \sqrt{1 + \lambda(c)^2} > 0$. This is satisfied whenever $\lambda(c) + \sqrt{1 + \lambda(c)^2} > 0$, which holds because we can rewrite it as $\sqrt{1 + \lambda(c)^2} > -\lambda(c) \Leftrightarrow 1 + \lambda(c)^2 > \lambda(c)^2$.

Equation (S) implicitly defines the optimal level of coercion, c^*. Depending on the configuration of the exogenous parameters, (S) might have no solution or several, some of which are saddle points. At a maximum, the second-order conditions must be satisfied:

$$U_{cc} = -\left(\frac{aB}{p_g}\right)\left[\frac{1-(r-x)^2}{c^{1-x}(c+g(c))^x}\right] < 0$$

$$U_{xx} = -2c^x(c+g(c))^{1-x}\left[1-(r-x)\lambda(c)\right] < 0,$$

which we can readily verify, and the determinant of the Hessian must be positive: $U_{cc}U_{xx} - U_{cx}^2 > 0$, where

$$U_{cx} = \left(\frac{B}{p_g}\right)\left[\frac{1-(r-x)^2}{c^{1-x}(c+g(c))^x}\right] > 0.$$

This requirement can be simplified to

$$2a\left[1-(r-ac)\lambda(c)\right] > \left(\frac{B}{p_g}\right)\left[\frac{1-(r-x)^2}{c(c+g(c))}\right],$$

but since (8) obtains, we can rewrite this as

$$2ac(1-ac) > \frac{1-(r-ac)^2}{1-(r-ac)\lambda(c)},$$

and, after noting that (S) obtains as well, we can further whittle this down to (H). If this condition is violated, then the second-order conditions imply that the solution to (S) is a saddle point. ∎

Proof of Proposition 3 The following notation will be useful:

$$\lambda_c = \frac{1}{c(1-ac)} > 0 \qquad \mu_c = a\zeta > 0 \qquad \zeta = \frac{2\left[1+(r-ac)^2\right]}{\left[1=(r-ac)^2\right]^2} > 0.$$

Denote an arbitrary parameter by $v \in \{p_c, p_g, B\}$ and let $c^*(v)$ denote a solution to (S). By the implicit function theorem,

$$\frac{dc}{dv} = \frac{\lambda_v - \mu_v}{\mu_c - \lambda_c},$$

which we can use to find

$$\frac{dg}{dv} = g_v + g_c\frac{dc}{dv} \qquad \text{and} \qquad \frac{dx}{dv} = a_vc + a\frac{dc}{dv}.$$

Consider first the effect of varying the budget: $v = B$. Note that

$$\lambda_B - \mu_B = -\frac{1}{B(1-ac)} + \frac{ac\zeta}{B} = \left(\frac{c}{B}\right)(\mu_c - \lambda_c) > 0.$$

Since (H) is satisfied, we obtain

$$\frac{dc}{dB} = \frac{c}{B} > 0.$$

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Since $g_B = 1/p_g$, we also obtain

$$\frac{dg}{dB} = \frac{1}{p_g} - \frac{p_c}{p_g}\frac{dc}{dB} = \frac{B - p_c c}{B p_g} > 0.$$

Finally, since $a_B = -a/B$, we also obtain

$$\frac{dx}{dB} = -\frac{ac}{B} + \frac{ac}{B} = 0.$$

Consider now the effect of the price of service provision: $v = p_g$. Since

$$\lambda_{p_g} - \mu_{p_g} = \frac{B - p_c c}{p_g B(1 - ac)} + \frac{c\zeta}{B} > 0,$$

we obtain

$$\frac{dc}{dp_g} = \left(\frac{c}{aB}\right)\left(\frac{\mu_c + ag(c)\lambda_c}{\mu_c - \lambda_c}\right) > 0.$$

Since $g_{p_g} = -g(c)/p_g$, we also obtain

$$\frac{dg}{dp_g} = -\frac{g(c)}{p_g} - \frac{p_c}{p_g}\frac{dc}{dp_g} < 0.$$

Finally, since $a_{p_g} = -1/B$, we obtain

$$\frac{dx}{dp_g} = \left[\frac{c(1 + ag(c))}{B}\right]\left(\frac{\lambda_c}{\mu_c - \lambda_c}\right) > 0.$$

Consider now the effect of the price of coercion: $v = p_c$. Since

$$\lambda_{p_c} = \mu_{p_c} = -\left(\frac{c}{aB}\right)(\mu_c - ac\lambda_c) = -c\left[\frac{\zeta}{B} - \frac{1}{B - (p_c - p_g)c}\right] < 0,$$

where the inequality follows from $ac < 1 \Rightarrow \mu_c - ac\lambda_c > \mu_c - \lambda_c > 0$, we obtain

$$\frac{dc}{dp_c} = -\left(\frac{c}{\mu_c - \lambda_c}\right)\left[\frac{\zeta}{B} - \frac{1}{B - (p_c - p_g)c}\right] < 0.$$

Since $g_{k_c} = -c/p_g$, we also obtain

$$\frac{dg}{dp_c} = \left(\frac{c}{p_c - p_g}\right)\left[1 + \frac{p_c}{p_g(\mu_c - \lambda_c)c}\right] > 0.$$

Finally, since $a_{k_c} = 1/B$, we obtain

$$\frac{dx}{dp_c} = -\frac{1}{B(\mu_c - \lambda_c)} < 0. \qquad \blacksquare$$