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THE EMPIRICISTS' INSURGENCY

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ABSTRACT

Research on insurgency has been invigorated this past decade by better data, improved methods, and the urgency of understanding active engagements in Iraq and Afghanistan. This empiricists' insurgency reinforces a classic literature on the essential role of civilians while challenging older theories about how they affect conflict outcomes. It provides a general framework describing "irregular" insurgencies (where government capacity exceeds rebel capacity), which is analytically cohesive and empirically tested using subnational data from multiple conflicts. The new research provides guidance on intervention design, including governance improvement, development programs, and rules of engagement. The design of interventions matters: some key evidence comes from measuring the effects of misguided policies. The framework may enable better conceived and implemented interventions, including foreign engagements with and without troop deployment, depending on the type of insurgency and mindful of political limitations. We position these findings in the literature, and highlight directions for future research, including legal aspects of countering insurgency.

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Introduction

Imagine a typical environment faced by government forces (or their allies) in a modern insurgency, perhaps a village in Afghanistan or the Philippines, where rebels ambush government patrols or deploy improvised explosive devices (IEDs) to attack them. Preparations for these insurgent actions are likely to be observed by civilians, community members who could anonymously report the insurgents to government forces. Those tips from civilians are critical. They allow government forces to leverage their advantage in technology and equipment in order to effectively pursue insurgents who could otherwise vanish into the population, raising the government's chances of controlling the village. Both government forces and insurgents therefore have strong incentives to elicit civilian tips through a variety of methods, including winning "hearts and minds." Both sides therefore might attempt to provide services of value to noncombatants while avoiding gratuitous civilian casualties.

In many senses that stylized narrative would be familiar to a reader of the classic literature on 20th century insurgency, yet new data and methods allow a more precise understanding of current insurgencies. Examining first the similarities, classic references dating back to at least the communist revolution in China all describe conflicts in which winning over the cooperation of the local population is a tactical objective (Clutterbuck 1966, Galula 1964, Kalyvas 2006, Mao 1937, Thompson 1966). Bing West's personal account, *The Village*, from Vietnam, describes this setting in very clear detail (2003). These conflicts would all be *irregular* (or *asymmetric*), by which we mean that the government forces have a clear advantage over rebels in coercive capacity (i.e., munitions, manpower, equipment, or communications) that can be applied to control territory. The U.S. Army field manual designed to guide counterinsurgency strategy in Iraq and Afghanistan shares that "hearts and minds" logic (Kilcullen 2006, U.S. Army 2007). A shared theme in that classic literature is that treating insurgencies as conventional warfare is deeply misguided because it neglects the consequential role that civilians play in sharing information (Mao 1937, Nagl 2002, Popkin 1979). That argument reappears more recently in the cross-national analysis of Lyall and Wilson (2009), who link the replacement of foot patrols with the use of mechanized vehicles to poor information collection and ultimate failure of counterinsurgents.

Before diving into a framework, analysis and data, note that the scenario described above is specific in many ways. Most importantly it describes irregular insurgencies, rather than subnational conflicts in which the balance of capacity between government and rebels is more symmetric. Table 1 provides examples of symmetric conflicts in the right column, and irregular in the left. We follow Kalyvas and Balcells (2010) in arguing for the importance of this distinction.

[Table 1 about here]

Irregular conflict

Irregular tactics allow rebel groups to persist in fighting stronger governments despite their weakness, by blending back into the civilian population after an attack (Arreguín-Toft 2001, Lyall & Wilson 2009). The willingness of civilians to silently accept that reintegration is a critical resource for insurgents. If civilians inform about the rebels' identity and location then the government can bring to bear its advantage in capacity to act decisively.

From a policy perspective, irregular conflict characterizes most civil conflicts in which the U.S. and other Western governments are likely to be involved, even after Afghanistan, if only because Western intervention tends to create asymmetry. Irregular conflict has decreased since the end of the Cold War, as it especially well-documented across African cases (e.g. Reno 2011), but it remains the most common form of subnational conflict, accounting for 54 percent of conflicts and 41 percent of conflict-years (Kalyvas & Balcells 2010). Over the past few years, these have been the conflicts in which the West has intervened: in the NATO operation in Libya in 2011 and in the French-led intervention in Mali in 2013: local information allowed intervening parties to effectively use their asymmetric advantage to target combatants, recalling the logic of our motivating example.

In contrast, in conventional (i.e., symmetric) insurgencies, government and rebel forces have comparable capacities, as in the Liberian civil war in which both sides had low capacity (Lidow 2012). In conventional conflicts, even if governments or rebel groups receive information, they generally cannot use it to create an overwhelming advantage. For instance, knowing who the opposing commander is, or where he is, is of little value if he is in a well-protected bunker too far behind enemy lines to be targeted with available means. In these symmetric subnational conflicts, both sides may still use violence for similar ends as in conventional interstate wars (e.g. Balcells 2010), but information is less useful operationally (Ellis 1999, Reno 1999).

The role of civilians

Among irregular insurgencies, the framework is circumscribed by two additional assumptions that the classic literature is sometimes vague about: (a) the consequential action of noncombatants is information sharing, rather than supplying resources, recruits or perhaps shelter to combatants; (b) information can be shared anonymously, without endangering the civilian who snitches.[2] Those assumptions position us in the set of subnational conflicts in the top left corner of Table 1. Importantly, we also make the strong assumption that neither side actively targets civilians through coercion or intimidation. This may seem an unusual starting

[2] Another clear scope limitation is that civilians are assumed to respond to incentives. If not, in an irregular conflict in which civilians can take consequential actions and are irreconcilably committed to one side, combatants may resort to forced resettlement (e.g. Zhukov 2014), ethnic cleansing or even genocide to gain and maintain control of territory.

point, given the emphasis in the literature on civilian massacres (e.g. Kalyvas 2012); however, the recent literature focuses has less to say about that disturbing phenomenon—perhaps for lack of evidence—so we focus first on the strategies of combatants, and then return to discuss targeting of civilians within that broader context. We also discuss below how the scope of this framework might be expanded by allowing attributable information sharing (with both government and rebels), taxation, extortion, and repeated interactions.

Our objective is to review the recent empirical literature on irregular insurgency, which suggests that a framework built on these assumptions is relevant, discuss its relationship with the literature—both current and classic—speculate on the relevance to future conflicts, and to policy, and suggest directions for future research. We concentrate on conflict at a local level, which will be less compelling if the government decides not to contest that particular location. These political choices are important limitations to the effectiveness of counterinsurgency. We return to that scope limitation and its policy implications below. We emphasize recent subnational empirical results, and focus on quantitative research although qualitative research may be needed to fill some of the gaps we identify in the literature, which Blattman and Miguel (2010) argues is critical to a research agenda that aspires to develop and test theories of subnational conflict.

Insurgency for empiricists: a base framework

Figure 1 provides a schematic description of irregular insurgency under these assumptions. The boxes represent the three types of protagonists involved, government forces, rebels, and noncombatants (the civilian population composed of local community members). Arrows represent actions. Government forces and rebels attack each other, as in conventional models of conflict.[3][4] A defining aspect of this literature is that civilians have a consequential role: they can share information (tips) with government forces. That information, about the identity or location of rebels, or even about local terrain and customs, makes government attacks on rebels much more effective at controlling territory (by capturing, killing, or intimidating rebels).[5] We call this framework *information-centric*.

[Figure 1: *Information-centric* irregular insurgency – about here]

[3] The combatants could be fighting over territory, over some other policy concession, or simply trying to capture economic rents. This analysis is not sensitive to changing our assumptions about combatants' objectives.

[4] We have modeled only the violent interaction government and rebels. While this is a useful simplification that produces important insights, and follows much of the existing literature, governments may pursue other tactics, including offering concessions or allowing political participation (Cunningham et al. 2012, Daly 2014, Matanock 2013, Powell 2013, Staniland 2013), which may change the balance of power or even end the conflict.

[5] Why assume that civilians provide tips only to government and not to rebels? They may well do, but we emphasize the tips provided to government because a key implication of asymmetry is that information flow is far more valuable to government than it is to rebels, as it complements capacity. A more general approach would measure net information-sharing with government; that would not affect testable implications.

Why would civilians share information with government? Because doing so could deliver control of their neighborhood to an entity that advantages them. Civilians might have underlying attitudes and beliefs, formed by norms, grievances, ethnic or religious identity, and available information, which may or may not be pliable. Assuming that these attitudes and beliefs[6] do not commit them irrevocably to supporting one side or another, information-sharing can be influenced by the combatants' actions: services provided by either government or rebels, and the extent to which government and rebel attacks endanger noncombatants. Government and rebels, mindful of the consequential choice that civilians will make in sharing information, will therefore divert resources from conflict with each other in order to provide services to civilians. Services might include personal security, dispute adjudication and justice, education, health, infrastructure or even representation.

Attacks by government forces or rebels may inadvertently harm civilians, as represented by the arrows labeled "civilian casualties." Here again it is in the interest of combatants to expend effort in order to avoid harming civilians, who might in turn punish combatants by modulating their information-sharing.

Civilians can share information through anonymous tips. (We will revisit the anonymity of tips, and how it influences the safety of civilians.) The anonymity of tips is an increasingly relevant assumption as mobile phone networks become more pervasive, as they are already in Afghanistan and Iraq. The greater the flow of information from civilians to government, the higher the probability that a rebel attack will fail, and so the less attacks rebels will attempt.

The framework laid out in the figure can be formally modeled as a three-sided game (Berman, Shapiro and Felter, 2011), which is useful to verify internal consistency and to generate testable implications. Those implications are intuitive. Before laying them out, note that the framework can be usefully generalized in many ways: civilians could share information with rebels, civilians may be irreconcilable with the government or the rebels, information sharing could be attributable—so that combatants (both rebels and government) might punish civilians for sharing information—both sides could tax (or extort) civilians, civilians could share information out of gratitude for past acts, the interaction could be repeated, and so forth. We explore some of these extensions below, and discuss how they change the implications of the base framework.

[6] The literature sometimes distinguishes between attitudes (preferences and feelings), and beliefs (about facts). For example, a citizen could empathize with government but expect it to be a terrible provider of security (especially if it loses), and therefore rationally cooperate with rebels. This survey has little to add on that point, so henceforth we refer to both attitudes and beliefs as "attitudes". We revisit this point in the Suggestions section below.

The framework has five major testable implications, taking the assumptions as given for now:
1. Both government and rebels have an incentive to provide services, an incentive which increases in the value of information shared.

2. Service provision by government will reduce rebel violence, as it increases information sharing with government, which in turn increases the risk of failure for rebels, should they attack, wasting rebel effort.

2a. A related implication is that projects that are (a) created to address the needs of the civilians in the local community, and (b) conditioned on information sharing by the community (i.e. revoked when information is not shared) will be more violence-reducing. In practice, smaller projects are more likely to have these characteristics than larger projects, both because they are likely to be developed in consultation with the local community and because they are more easily revoked.

2b. A further implication is that innovations that increase the value of projects to residents will make them more violence-reducing (e.g., including development professionals or, potentially, community input in design and implementation).

3. Security provided by the government and service provision are complementary activities, for two reasons. First, the greater the security that the government can provide to service providers, the more effective will service provision be. Second, following on the asymmetry assumption, the greater the capacity of government forces to suppress rebels, the more value they obtain from tips that flow as a result of service provision.

4. Civilian casualties reduce civilian support for whichever side caused the casualties, which allows the other side to increase either attacks (for rebels) or attack suppression (for government). The logic is (again) through the effect of anticipated civilian casualties on the calculation of civilians in deciding whether to share tips.

5. Innovations that make anonymous tips to government easier for civilians can reduce rebel violence; these are often technical innovations.

Recent evidence

The conflicts in Afghanistan and Iraq and several other ongoing subnational conflicts have generated unprecedented amounts of data on political violence in asymmetric conflicts like that described by Figure 1. Improvements in data collection, as well as an increased willingness of government agencies to share data, have created an unprecedented opportunity for empirical analysis of multiple conflicts.

We now compare, in turn, the predictions of the base framework, to recent empirical findings.

1. The framework's first prediction is that both government and rebels will provide services in any territory they control, to induce information sharing. Importantly, their motivation need not be due to a concern for the wellbeing of civilians; they could care only about the value of civilians in providing information. A clear example is service provision by US forces in Iraq and Afghanistan under the Commanders Emergency Response Program (CERP). These development funds, which were spent on projects chosen by battalions and brigades, were disproportionately allocated to communities with the highest predicted levels of violence (Adams 2014, Berman et al 2011b), rather than those with the largest population or the greatest economic need. Another example is the implementation of land reform in Colombia, which was concentrated in areas where violence posed the greatest risk to elites (Albertus & Kaplan 2013).

The same is true of rebels: rebel provision of services is apparently widespread, but has not until recently been systematically documented.[7] (The U.S. counterinsurgency manual refers to it only in passing (U.S. Army 2007)). For example, using retrospective surveys, Heger (2010) documents community services provided by the Irish Republican Army; Keister (2010) describes services provided by the Moro Islamic Liberation Front and the Moro National Liberation Front in the southern Philippines; and, Diaz et al. (2014) report on services provided by drug trafficking organizations in Mexico. Flanigan (2008) uses personal interviews to document provision of similar sets of basic municipal services by the Liberation Tigers of Tamil Elam (LTTE) in Sri Lanka and Hezbollah in Lebanon. Berman (2009) describes, using secondary sources, the provision of services by Hamas, Hezbollah, the Mahdi Army, and the Taliban. These sources and anecdotal evidence suggest that when rebels control territory, they *typically* provide at least some form of security and dispute adjudication services to noncombatants, apparently at low cost to themselves. New research on rebel institutions attempts to explain systematic variation in such provision (e.g. Arjona 2014, Arjona et al Forthcoming, Huang 2014).

2. Second, the framework implies that service provision by government will reduce rebel violence, if it in fact makes civilians better off.[89] Direct evidence for that implication again

[7] An exception is a careful study of land redistribution and other service provision by Maoist rebels in China (Hinton 1966).

[8] Recent work theorizes that different types of group structures, organizations, and constellations produce variation in violence against the government, and explores how effective counterinsurgency campaigns are against that violence (an entire review could be written, but, for example, see Cunningham et al. 2012, Metternich et al. 2013, Shapiro 2013, Staniland 2014). This research suggests that some rebels may be less susceptible to disruption of their leadership structure, even if attacks are foiled.

[9] As with rebel groups, government structures, organizations, and constellations also produce variation in how effective counterinsurgency campaigns (again, an entire review could be written on this topic, but, for example, on

comes from the CERP programs in Iraq and Afghanistan. Since CERP projects were typically conducted in consultation with local communities, we think that they generally did improve welfare of civilians. Projects in both countries were remarkably cost-effective in reducing violence: in Iraq, Berman, Shapiro and Felter (2011b) find that a dollar of CERP spending per capita is estimated to have reduced violence by 1.6 incidents per 100,000 residents over a half year. During the period of highest violence during U.S. involvement in Iraq, incidents averaged 59 per 100,000, which would have cost $37 per capita to remediate at this rate. Adams (2014) replicates a qualitatively similar result for CERP spending in Afghanistan for the 2011-2013 period. Albertus and Kaplan (2013) show that where implemented, land reform did reduce violence.

2a. The related implication that small projects are most effective at reducing violence also find support in the data. In Iraq the violence reduction associated with a dollar of CERP spending per capita is about five times larger for projects budgeted at less than $50,000, than those with larger budgets (Berman et al 2011b). In Afghanistan, Adams (2014) finds that small CERP projects are significantly more violence reducing as well.

2b. Assuming that development expertise make projects more valuable to residents, we can test indirectly whether more valuable projects are more violence-reducing. Berman et al (2013b) interact spending in three development programs (small CERP, large CERP and one USAID program) with the presence of a Provisional Reconstruction team in the same district. Those teams include 9-15 development experts from USAID and other agencies living locally and advising on projects. In all three cases, expertise increases the violence-reducing effect of a dollar of spending, that increase being large and statistically significant for small CERP projects. (e.g. Long 2010) Although experts in Iraq improved outcomes, international interveners do not always increase effectiveness, perhaps because their expertise is not effectively developed or deployed (e.g., recently, Autesserre 2014).

Not all programs or economic activity would be violence-reducing in this framework, as we will see in the discussion of extortion, predation and taxation below. That general question is related to the complementarity between security and economic activity, which we turn to now.

3. The framework's third prediction is that security and development spending are complementary in reducing violence. Evidence from the CERP data in Iraq, as well as another USAID program, support that prediction: the violence-reducing effects of the programs are enhanced by troop strength in the same district (Berman et al., 2013b). In fact, in the absence

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military culture and practice, see Long 2010, Lyall and Wilson 2009). Much of this existing work simply suggests that deviation from implementing the strategy of using conditional incentives to produce information undermines the counterinsurgency campaign; these factors, however, could also have other effects, of course.

of troops in the district, none of these three programs (which are quite cost-effective on average) were statistically violence-reducing at all (regardless of size). We revisit the question of insecure development projects below.

4. Given the evidence that civilians reward combatants for service provision, it should not be surprising that they would punish combatants for generating civilian casualties, the fourth prediction of the theory. That implication is tested in several recent research papers. Condra and Shapiro (2012) find that in Iraq both coalition (allied and Iraqi) and rebel forces suffer increased attacks in the weeks following civilian casualties that they generate. Condra et al (2010) finds the same for civilian casualties caused by international forces in Afghanistan, though not for Taliban forces. That pattern is consistent with survey evidence on civilian attitudes toward combatants in Afghanistan, which finds that in Taliban dominated areas international forces are blamed for civilian casualties, while Taliban forces are less so (Blair et al 2014, Lyall 2013).

5. The evidence so far can be interpreted as consistent with a framework in which civilians reward or punish combatants through a variety of mechanisms. An implication specific to the information-sharing mechanism is the fifth prediction: innovations that make anonymous tips easier to provide will increase their provision. That prediction is directly tested with data on the introduction of cellular coverage in an area. Cellular coverage explicitly enables tip sharing with government forces, which then favors those forces by reducing rebel violence, as demonstrated during the conflict in Iraq, where the expansion of cellular coverage into peripheral areas had the predicted violence-reducing effect (Shapiro & Weidmann forthcoming).

Overall, the information-centric framework described in Figure 1 performs well in testing, using data from a small set of recent conflicts. We turn now to exploring how limiting its assumptions might be, when compared to the full literature on subnational conflicts.

Scope of the framework

With an empirically tested framework in hand, it is natural to ask what scope of subnational conflicts it can help us understand, within the vast literature on insurgencies and civil wars.[10] In this section we interrogate the assumptions of that base framework, use them to create a taxonomy of subnational conflicts, then see if the insights carry over into other categories when we relax assumptions. Table 1 (above) illustrates our approach. The framework we describe assumes that the role of civilians is in choosing whether or not to provide information, as opposed to providing some other support, and that information sharing is anonymous, situating the base framework in the top row of the "irregular" conflict column. Taking this approach to scope, our interest is in knowing whether the insights still apply if we stray out of the top left

[10] For recent reviews, see Blattman and Miguel 2010, and Kalyvas 2012.

box—for instance when information sharing is attributable (as in the Greek civil war), rather than anonymous (as in Afghanistan or Iraq)?

Attributable information and targeting civilians

We begin with two assumptions best relaxed simultaneously: unattributable tips and no targeting of civilians. If information shared is attributable rather than anonymous, the civilian doing so faces the risk of retaliatory violence. Anonymous information sharing was assumed above in order to provide a simple, fairly realistic description of the setting in Iraq and Afghanistan, where a civilian could call a tip line without attribution[11] (and measures of retaliatory violence were not available). Though empirical evidence on anonymous tips is by its nature hard to come by, recall that empirical support for the information-centric theory comes from the suppressive effect of the availability of cellphone coverage on violence in Iraq (Shapiro & Weidmann forthcoming).

Yet attribution and retaliation play a critical role in the literature on irregular conflicts,[12] most importantly in the *control-collaboration* model which originated to explain spatial variation in the use of indiscriminate (as opposed to selective) violence (Kalyvas 2006).[13] In that model, selective violence provides more effective incentives, and so it is preferred by combatants, and used in higher proportion in areas in which they have better control –and hence more tools to motivate collaboration. That prediction is validated by data from both the Greek civil war and in analysis of violence perpetrated by both the Vietcong and US forces during the Vietnam War (Kalyvas & Kocher 2009). More recently, (Lyall 2009) finds that Russian troops in Chechnya fired artillery indiscriminately on civilians in local communities, and that this gruesome tactic successfully suppressed attacks on Russian forces. Recent research also suggests that collective punishment is most effective when the potential support populations and the geographic combat areas are small (Downes 2007). Interestingly, in analyzing the more recent case of Israeli suppression of Palestinian rebel groups during the Intifada, Bhavnani et al (2011) find that Israeli counterinsurgents use a higher proportion of selective violence than the model predicts, even in areas that it does not control.[14] The authors attribute that deviation to

[11] Anonymous tip lines do present the problem of separating signal from noise. Anecdotal evidence suggests that Insurgents will use tip lines to generate misinformation and noise, given a chance.

[12] Alternatively, communities could protect themselves from retribution (by both government and rebel forces) through dispute resolution and brokered agreements, as documented in Colombia (Kaplan 2013).

[13] Note that targeting civilians to influence their cooperation, in this context, is still distinct from a models of terrorism, in which civilians are targeted in order to induce some political change (e.g. Crenshaw & Pimlott 1997, de Figueiredo and Weingast 2001, Shapiro 2013). Pape et al. (2014) seeks to integrate logics of control and coercion to build a general model of civilian targeting by militant groups.

an overwhelming asymmetric advantage in the capacity of Israeli counterinsurgents to gather information and act on it.

What happens in the information-centric framework if a civilian must flag down a soldier to share information, exposing himself to possible attribution? The probability of being identified and punished introduces a cost of information-sharing. That cost would reduce civilians' incentives to share tips, but not eliminate them, since the benefits of supplying tips might be quite large when information is scarce. In that expanded framework combatants still have incentives to compete in service provision, and to avoid civilian casualties, in order to incentivize tips, and those efforts are rewarded in the sense that they suffer fewer attacks. The main implications of the base framework are not qualitatively changed by allowing attributable information sharing, though civilians are less likely to share tips if they can be identified and punished.

While the information-centric framework and the control-collaboration model both revolve around information-sharing by civilians, they former emphasizes the benign policy implications for service provision by combatants, while the latter draws out the coercive implications for intimidation and violence (both indiscriminate and selective). An omnibus framework allows both, and it appears that nothing in either approach precludes combatants simultaneously using both service provision and violence on civilians. While we know of no systematic study, survey evidence indicates that the Irish Republican Army, for instance, did both simultaneously (Heger 2010), and anecdotes suggest that the same is true of all service-providing rebel groups. We return to the question of targeting civilians below, in our discussion of rule of law.

Attribution has tactical implications. When civilians can provide support anonymously, government (or rebels) might prefer to reward them with local public goods, rather than providing individual payments that would identify the supporter, in effect choosing indiscriminate over selective rewards. If government has an advantage over rebels in the cost of public good provision, it will then better be able to suppress rebel violence in the case of anonymous support. On the other hand, should government have a cost advantage in protecting civilian supporters, it will be advantaged in the case of attributable support. Elections provide a form of attribution at the polling station level, as Steele (2011) demonstrates with evidence of post-election displacement in neighborhoods supporting a rebel affiliated party in northwest Colombia, and Balcells and Steele (2012) show more broadly in Colombia and Spain.

[14] Empirical research on Colombia and Vietnam is generally supportive of the control-collaboration model, though with caveats: most notably, Colombian paramilitaries gain information from rebel defectors rather than civilians in Vargas (2009); while government selective violence in Vietnam may have been complemented by the threat of indiscriminate violence in Douglass (2012).

Allowing for attribution and targeted retribution implies cascade dynamics. If support is attributable, civilians may well keep their preferences private, publicly favoring one side or another only when the act is collective enough to depress the probability of individual punishment. That logic leads to tipping points and cascade dynamics in collective action and preference revelation (Kuran 1991, Kuran 1995, Kuran 1997, Lohmann 1994). In contrast, in unattributable contexts, those with private preferences for one side or the other can act on them with or without collective expression.

What if civilians provide resources?

So far we have assumed that the role of civilians is to provide information (or to refuse). Yet much of the theoretical literature on subnational conflict, and the classic empirical literature, assumes alternatively that the consequential action of civilians is to provide recruits and other material support (Blattman and Miguel 2010), a resource-centric approach. Still other parts of the literature remain vague about what the role of civilians is, such as the counterinsurgency manual (U.S. Army 2007), which can be understood as both information-centric and resource-centric.

The key aspect of information in the base framework is the strong complementarity it has with government capacity, as illustrated in the introductory narrative. If civilians provide recruits or other resources that are not strong complements for government capacity, then the predictions of the information-centric framework will generally not follow. For instance, government service-provision may provoke rather than reduce rebel violence in a resource-centric model, since it may increase the marginal returns to violence by more than it increases the marginal costs.[15]

Opportunity costs, predation and taxation

Evidence on the primary role civilians might play in irregular conflict is elusive. Certainly rebels were not born combatants, so recruitment must have occurred, but those recruits might not be local and the recruitment of local civilians might not be as important in generating violence as is information. So evidence on the role of civilians is indirect, and requires extending the base framework with specific mechanisms.

The "opportunity cost" mechanism posits that the primary means by which civilians influence violence is by voluntarily providing recruits to rebels. If so, increases in employment rates should be associated with declines in violence, and if economic activity increases employment, it should decrease violence as well. This approach operates by bidding up the

[15] An exception would be if recruits were to provide local knowledge, as Felter (2005) documents among counterinsurgents in the Philippines and Lyall (2009) suggests for Chechnya. In that case the implications of the base framework are retained.

wages of potential recruits to insurgency, raising the opportunity cost of their time as insurgents, as in Becker's theory of crime (Becker 1968).

This variant is conceptually important for policy design because it has motivated "quick intervention" job creation programs, which were widely administered in Iraq and Afghanistan, the idea being that they suppressed insurgency by reducing the flow of civilian recruits into rebel forces (U.S. Army 2007). Observationally equivalent is the idea that unemployment creates a grievance which generates support for insurgents (Brainard 2007).[16] Alternatively, resources provided by the government, rather than influencing the civilian population to not provide recruits, might actually pay off the active rebels to stop fighting (e.g. Nielsen et al 2011). Or, increased economic activity may have an ambiguous effect on conflict because while increasing the opportunity cost of fighting—thus reducing the likelihood of conflict—it also increases the resources that may be contested through violence (Fearon 2008).

Before turning to evidence on economic activity and violence, it's useful to extend the framework in a way that symmetrically generates that opposite prediction, by considering extortion and taxation (Fearon 2008). The idea is that economic activity will trigger increased violence, as combatants fight to capture economic rents (Collier 2000, Grossman 1999); it is most developed in contest models that consider multiple sectors with different effects (Besley & Persson 2010, Dal Bó & Dal Bó 2011, Dube & Vargas 2013). If we generalize the base framework, extending the role of government and rebels by allowing them to tax or extort economic rents, then economic activity (be it increased income, aid flows, or private investment, for example) can have a violence-increasing effect: combatants might use violence to generate revenue either by fighting to control territory where they can tax or extort, or through taxation or extortion in contested spaces (Berman et al 2013).

The link between economic activity and violence has been studied extensively. Across countries income per capita is negatively correlated with subnational violence (Collier & Hoeffler 2004, Fearon & Laitin 2003) and investment predicts stability (Kapstein & Converse 2008), though the causal direction of that relationship is debatable. Within countries the evidence is mixed: Humphreys and Weinstein (2008) find that low wages and poverty predict rebel recruitment in Sierra Leone (and government recruitment as well), and Verwimp (2005) shows that poverty predicts perpetration of genocide in Rwanda; using cross-sectional evidence across subnational regions of Africa, however, Condra (2010) concludes that rebellion is associated with groups emanating from relatively *higher* income areas, while, broadening this sample to all states and focusing on geocoded subnational data, Cederman et al (2011) find that

[16] Cross-nationally, some related results, like lower rates of male secondary schooling correlating with increased civil war (Collier and Hoeffler 2004), suggest that this could be the mechanism, but, across studies, the evidence is not consistent.

both rich and poor groups, compared to the national average, fight more often. To deal with causal concerns one can turn to instrumental variation in income, in which a recent survey yields mixed results (Blattman & Miguel 2010): for instance, variation in agricultural production due to rainfall shocks is negatively correlated with violence (Miguel et al 2004),[17] whereas variation in natural resource income due to international price shocks is positively correlated with violence (Dube & Vargas 2013).[18] The explanation for these mixed results may be that the type of conflict matters: evidence of a negative correlation of income with violence comes from mostly symmetric conflicts in Africa, whereas flooding in Pakistan (including in areas with irregular conflict) is associated with increased support for government (Fair et al 2014). Survey evidence from Pakistan (again including regions with irregular conflict) indicates a positive correlation between economic well-being and support for militants, with especially low support among the urban poor who live in proximity to militants (Blair et al 2013, Shapiro & Fair 2010).

Subnational evidence from three irregular conflicts in the last decade, in Iraq, Afghanistan, and the Philippines, reveals that increased employment rates in each of those conflicts are *positively* correlated with violence (Berman et al 2011a). Extortion is one possible explanation. Other possibilities include a causal path from violence suppression to employment, where the means by which violence is reduced (roadblocks, curfews, barriers) reduce labor demand. Alternatively, higher incomes might make tips more expensive for government forces to obtain. Philippine data are particularly useful because they indicate the initiator of attacks: geospatial data on investments in the Philippines reveal that increases in investment are associated with increases in violent attacks, predominantly government initiated attacks on rebels—as predicted by an extension in which government is motivated to control territory by potential tax revenue (or by denying that revenue to rebels) (Berman et al 2013a).

Extortion and taxation have implications for program design. Their logic predicts that aid and other government programs can increase violence, if those programs are insufficiently secure. Crost et al (2014a) find that on learning that a World Bank development project will arrive, violence increases in Philippine villages. Nunn and Qian (2012) find that increases in food aid due to exogenous variation in U.S. wheat production cause increased political violence within countries already suffering civil conflict. In contrast, Beath et al. (2012) report experimental evidence that service provision improved perceived security without apparent deployment of extra forces, i.e., providing no evidence of extortionary violence. Böhnke and Zürcher (2013) report correlational evidence that aid in Afghanistan is not associated with

[17] Ciccone (2011) critiques this estimation of the relationship between rainfall and conflict on methodological grounds, while Miguel and Satyanath (2010, 2011) respond by claiming that an effect holds even in the suggested specifications.

[18] Besley and Persson (2011) and Bruckner and Ciccone (2010) also follow in this vein using cross-national data; however, both mainly use more endogenous measures of income and only use instruments, either as secondary or robustness checks.

increased (or decreased) security. Since the outcome measures in both studies are perceptions, rather than incidents, and both samples were from relatively safe parts of Afghanistan, we see this evidence as neutral on a violence-reducing mechanism and mildly contradicting the extortion mechanism. Finally, Crost et al (2014b) report experimental evidence that conditional cash transfers in Philippine villages reduce both violent incidents and insurgent influence. They posit that, in contrast to the same authors' results on development projects increasing violence, cash transfers to individuals are hard to extort, and that they are perceived as conditional on cooperation (implication 2a above).

Comparing the results regarding these last two implications with those on service provision and complementarity (2, 2a, 2b, 3), recent scholarship yields no general conclusion that economic reconstruction suppresses violence. This is particularly true in irregular conflicts, in which insurgents only require a small force, and only at night –by day they could work on "quick intervention" development projects! In fact, in contrast to the violence-reducing properties of CERP spending mentioned above, the vast majority of the $32B of reconstruction spending by the U.S. military in Iraq tracked by Berman et al (2011b) failed to reduce violence in the district in which it was spent.[19]

A more careful conclusion is this. Reconstruction, humanitarian relief and service provision can reduce violence in asymmetric conflicts, with both theory and evidence suggesting sufficient conditions: small, well-secured projects, informed by development experts, and perceived by civilians to be conditional on cooperation.

More generally, this collection of micro-based evidence suggests that the role of civilians and the balance of forces appear to be linked. As Balcells (2010) points out in studying the Spanish Civil War, when forces are symmetric and fighting takes place along fronts, information from civilians is of less operational value for taking territory. In that setting the sheer number of recruits matters more. That logic provides a possible explanation for the pattern we see in the incidence of cases in Table 1, which shows no studies of symmetric conflicts in which information sharing by civilians is emphasized, and only one of an irregular conflict in which recruiting seems to matter (the Dube and Vargas study from Colombia). Moreover, studies that find a violence reducing-effect of economic activity appear to come from symmetric conflicts. A possible overall explanation is that the primary role of civilians in irregular conflicts is to provide information (which strongly complements the capacities of the

[19] About eleven percent of U.S. casualties in the Iraq war were personnel conducting reconstruction activities (SIGIR 2012).

strong side), while their primary role in symmetric conflicts might be to provide recruits and other resources, which aid both sides in about the same proportion.[20]

Rule of law and restrictions on combatants

We argued above in discussing the coercion-collaboration model that information sharing by civilians provides incentives for both specific retaliation and collective punishment, by both rebels and government. Yet government forces in modern insurgencies are often bound by rules of engagement with combatants and civilians. While the recent set of empirical studies tends to focus on these cases, counterinsurgent are sometimes much less constrained. Examples include well-known conflicts, such as the British in the Second Anglo-Boer War (Downes 2007, Swinton 1904), genocides throughout the African Great Lakes region (Prunier 2009), as well as the recent government actions in Sri Lanka against the Liberation Tigers of Tamil Eelam (LTTE). These strategies range from forced displacement to ethnic cleansing, but we know relatively little about their use (for work exploring this, for example, see Hazelton 2011). They account for 20 to 33 percent of cases, according to different studies (Arreguín-Toft 2001, Downes 2006, Valentino 2004).

How much information is required to implement rules of engagement, or even rule of law? Rule of law requires information sufficient to allow successful prosecution, whereas extrajudicial targeting may require less in the way of proof. In this way, the information-centric approach relates to research on gangs in the U.S., or drug-trafficking organizations in Mexico (for example, see Akerlof & Yellen 1994, Diaz-Cayeros et al 2014). As Table 2 illustrates, informational requirements increase as institutions progress (from right to left) to methods more respectful of human rights. Anonymous information sharing also declines if rule of law does not allow witness anonymity.

[Table 2 about here]

In all of these cases information provision remains a central component, though the ranges in which the civilians' benefits from information sharing outweigh the costs may change. Drawing on cases in this literature, and on economic theory, we suggest that as rule of law is lost so are property rights, and with them economic efficiency. Under these circumstances more suppressive counterinsurgency strategies may become relatively more attractive to government forces. The longer term cost of these strategies is unclear since counterinsurgents may lose their own credibility by shifting to them (Fearon 2008), especially in democracies (Arreguín-Toft 2001, Merom 2003).

[20] This is not to say that recruitment is unimportant, just that material incentives are not the major mechanism for doing so in small insurgent groups. For an analysis of characteristics enabling recruitment see Petersen (2012).

Suggestions

While the empirical insurgency has generated a burst of evidence-based scholarship, it is still hard to overstate our ignorance about irregular conflicts, especially on policy-relevant questions. For instance, theory suggests that project aid should be conditional on cooperation with government in order to be violence reducing, yet the nature of that implicit contract is seldom observed, so evidence for conditionality is indirect—we only know that goods more easily withdrawn tend to be more violence suppressing, and we have survey evidence that CERP in Afghanistan was conditionally implemented.[21] More empirical research on the mechanics of successful project aid in conflict environments would be extremely useful.[22]

Evidence for information sharing as an important mechanism is also indirect, which might be corrected with data from "tip lines," or using retrospective data on the sources of information flows.

The emphasis on attitudes of civilians underlines the importance of measuring them. Recent research has explored experimental methods for measuring attitudes, as well as actions, in these contexts. Expressed preferences differ across different measures, depending on how intrusive they are (Blair et al 2013, Blair et al 2012, Lyall et al 2012, Matanock & García Sanchez 2013, Rosenfeld et al 2014). Questions remain on measurement, especially as to which set of preferences civilians will act on under particular circumstances.

Given these measurement difficulties, we know very little about attitude changes: preferences might be stable, particularly at extremes, so that governance improvements and violence are only able to shift attitudes of moderates. Downes (2007), among others, argues that this is the case, in contrast to other theories that suggest that all attitudes can be influenced by control or, at least, expected control, as in Kalyvas (2006). Some evidence suggests that attribution of blame and credit, beyond attitudes, is affected by existing preferences (for example, on airstrikes in Afghanistan, see Lyall 2013).

The literature sometimes distinguishes between attitudes (preferences and feelings) and beliefs (about facts). CERP spending is anecdotally tied to more tips, and seems to cause fewer attacks on troops. While evidence of CERP success may indicate attitudes changing (winning hearts and minds), the data do not rule out the alternative possibility that CERP spending causes civilians to believe, or expect, that CERP providers are competent and are thus likely to continue governing. That alternative evokes a conditional compliance equilibrium (e.g. Levi 1997). It would be useful in designing programs to know whether their success is due to inducing cooperation, changing attitudes, or signaling competence.

[21] Berman et al 2011b.

[22] Specifically, the framework and empirics suggest sufficient conditions, as small, conditional, secure and well informed projects are effective. Whether all those conditions are necessary has not been demonstrated.

Experimental evidence now indicates that exposure to violence induces an extreme preference for certainty in economic choices of residents of conflict zones (Callen et al 2014c). Implications for political choices made by civilians, including information sharing, remain unexplored.

Information technology provides new opportunities for surveys and interventions in conflict environments. For example, Driscoll and Lidow (2014) managed to conduct a representative survey of civilians in the dangerous chaos of Mogadishu in 2012 in the midst of high levels of violence. They used satellite imaging to generate a sampling frame and a combination of passive GPS and real time surveying over the mobile network to validate enumerator locations while protecting the safety of their enumerators. Blumenstock et al (2014) investigate whether mobile money (cellphone based transactions) provide an alternative to ATMs and carrying cash in insecure environments, revealing that access to currency (i.e., cashing out) remains the vulnerable part of the mechanism. Callen et al (2014b) demonstrated the effectiveness of mobile phones in governance improvement, to monitor medical employee absence in clinics and communicate absences in real time to administrators. The new pervasiveness of mobile networks, even in irregular conflict environments, could revolutionize the nature of information sharing, institutional innovations, and "big data" based research.

More broadly, the base framework, and the literature generally, treats combatants and their foreign allies as a unitary entity, despite frequent evidence of disagreement about preferences, strategy and methods—between NATO Afghanistan and the Karzai government, for instance.[23] In fact, a disproportionate amount of recent existing evidence comes from two conflicts–Iraq and Afghanistan—featuring external counterinsurgents, an imbalance that future empirical studies will hopefully correct. Returning to Figure 1, imagine a box labeled "Allies" sitting above each of "Government" and "Rebels", allowing an analysis of those relationships. When threatening to withdraw assistance, foreign allies trade off the stability of the local combatant against its compliance in counterterrorism, control of ungoverned spaces, and quality of governance. We know very little about the responsiveness of combatants to incentives provided by foreign allies, or why foreign allies sometimes abandon conditionality in those relationships. Research along those lines is well motivated by current policy concerns.

The relationship between allies and combatants is a macro level question, so it is worth emphasizing that the base framework is limited in scope to the micro level of a village or district. Reducing violence locally may be necessary but cannot be sufficient to decide a larger insurgency. Broader expectations about the future quality of government, support by allies, and

[23] For exceptions, see Barnett & Zürcher 2008, Ghani 2009, Lake 2010, on statebuilding, and Padro et al 2012, on agency among allies practicing counterinsurgency.

the resilience of power sharing deals and truces might be equally important (Fearon 2004, Leites & Wolf 1970, Walter 2002). The local success of counterinsurgency against Sunni rebels in the "Anbar Awakening" in 2006/7 (Biddle et al 2012), and its' dramatic unraveling in 2014 provide an example of the dangers of partnership with a local ally with weak motivation to control parts of its own territory.[24]

These "macro" level questions lend themselves less to analysis by empiricists, for lack of large subnational samples, yet individual expectations of macro variables are still consequential, and measurable. For instance, in a dynamic setting, it is not clear that a forward looking civilian, knowing that the foreign ally will eventually depart—along with its support for the local ally, does not largely discount any temporary development assistance. (Practitioners call this "renting hearts and minds.") How the campaign is going may also influence expectations (e.g. Gelpi et al 2005/06). In that context the challenge for interveners would be how to signal a long term commitment to a local ally. How that signal is perceived locally is an empirically tractable question.

To expand that example, past research indicates that the level of commitment of international interveners has important implications for efficacy (Matsuzaki 2012), but is this driven by expectations about future control or about what (conditional) resources they provide while on the ground? Those questions will likely become even more important as the U.S. and its allies withdraw from Afghanistan and focus on smaller, more cooperative missions, like the recent French military assistance in Mali, or interventions to guarantee election-based power sharing bargains (Matanock 2014). Those critical research questions, which have been developed carefully through case studies and comparative analysis, have micro-level implications that could be empirically investigated using the new tools for measuring attitudes.

Can a temporary intervention in conflict environments induce the type of persistent improvements in governance that would change civilian expectations? That is a motivation for Community Driven Development (CDD) programs in more secure environments (Mansuri & Rao 2004), and for several dozen ambitious democracy and governance enhancement experiments in conflict and post-conflict environments (Moehler 2010). For instance, experimental evidence on a CDD in post-conflict Liberia shows improvements in measures of local social cohesion (Fearon et al 2009). On the other hand, Casey et al (2012) and Humphreys et al (2014) find no effect of CDD interventions on local institutions in post-conflict Sierra Leone and Congo,

[24] Governments may have incentives not to attempt to control all of their territory, and foreign interveners even more so. Some studies provide evidence on micro-level support in both domestic and foreign interventions (for example, see Blair et al. 2013, Blair et al. 2014, Lyall et al. 2013, Matanock & Garcia-Sanchez 2014, Shapiro & Fair 2010, but also studies on U.S. opinion during these conflicts, such as Gelpi, et al. 2005/06). New theories need to be developed regarding how local support implies sustained and successful COIN. Domestic politics of potential interveners, including perceptions by different actors of the stakes, are important (e.g. Sanaei, 2014).

respectively, and an anti-corruption experiment in Pakistan indicates that public employee absence is a symptom of political rents accruing to entrenched patronage networks (Callen et al 2014a). Experimental evidence from Afghanistan suggests that electoral corruption can be reduced using a mobile phone based intervention (Callen & Long forthcoming), and that doing so improves both attitudes toward government and willingness to share information with it about rebel activities (Berman et al 2014), when measured a few months later. In general, this literature shows mixed results for CDD interventions, though more hopeful results for anti-corruption and dispute resolution treatments, while evidence of longer term treatment effects on outcomes or even on expectations remains absent, at least for now (Moehler 2010).

Finally, while it is intuitive to imagine extending the base framework to a repeated interaction, with government, rebels and civilians maximizing their long term wellbeing, that model has not yet been solved technically. In that respect much of our intuition about how expectations are formed, how signals might matter, and how capacity building affects current choices, for instance, has not been checked for internal validity.

Conclusions

Newly available data and methods have enabled a wave of new research activity. We have surveyed only the highlights. (The Empirical Studies of Conflict (ESOC) project—which both authors participate in—provides links to some of this research.)[25] That research, a small insurgency in itself, has led to a firmer understanding of irregular (asymmetric) conflicts, organized around a framework that seems to describe most cases. In particular, the role civilians play, and the kinds of policies that influence their behavior are now much better understood. The framework that emerges suggests fruitful avenues for further research on governance, rule of law, attitudes, dynamics and agency between allies.

Over the last decade, while Western militaries were slow to shift from conventional approaches to a model that recognized the consequential actions of civilians, aid organizations were also slow to recognize that development program designs, however effective they may be in secure environments, might be wasteful or even violence-inducing in insecure locations. In particular, evidence-based analysis prescribes a shift away from designs based on an opportunity-cost model towards those based on an information-centric approach in asymmetric conflict environments, which emphasizes governance and service provision. These conclusions may be particularly salient in non-coercive “boots off the ground” interventions in future conflicts.

The inferential power of these empirical studies, enabled by access to high-quality administratively collected data, invites a reconsideration of the data infrastructure available to

[25] For a more complete list of recent papers, see esoc.princeton.edu.

researchers on subnational conflict --especially in light of the controversial outcomes of costly multinational interventions in Iraq and Afghanistan. Had better data been available faster for research, we believe that better informed decisions could have been made, at the tactical, strategic, and public policy levels. NGOs such as Iraq Body Count, Shahuda and the South Asia Terrorism Portal now provide high quality data. Initiatives such as AidData and ESOC have the potential to provide a valuable public service by aggregating information from many newly available sources in a single user-friendly site, enabling advances in research and policy analysis. The academic community and funders of academic research might consider ways of building out those initiatives.

Table 1: Types of Subnational Conflict

Civilians Provide	**Balance of forces**	
	Irregular (rebel < govt.)	Symmetric (rebel ≈ govt.)
Information, anonymous	Afghanistan, Iraq, and Philippines (Berman et al 2011), Algeria (Galula 1964), China (Mao 1937), Guatemala (Stoll 1993), Malaya (Clutterbuck 1966, Thompson 1966), Vietnam (Popkin 1979, Kalyvas & Kocher 2009, West 2013)	
Information, attributable	Greek civil war (Kalyvas 2006)	
Recruits or other resources	Colombia (Dube & Vargas 2013)	Syria [current], Azerbaijan (Kalyvas &Balcells 2010), Bosnia (Kalyvas &Balcells 2010), Congo (Kalyvas &Balcells 2010), Georgia (Kalyvas &Balcells 2010), Liberia (Ellis 1999, Lidow 2012), Rwanda [1994] (Kalyvas &Balcells 2010), Somalia [1991] (Kalyvas & Balcells 2010)

Note: The classification of conflicts comes from Kalyvas and Balcells (2010), who graciously shared their data.

Table 2: Suppression across Different Rule Scenarios

Opponent	***Gangs in U.S.***	***Taliban in Afghanistan***	***Boers in South Africa***
Legal Basis	Rule of Law	Rules of Engagement	No Rules
Information requirement	Prosecute	Target	Target/Coerce
Government seeks	Welfare	Security	Security

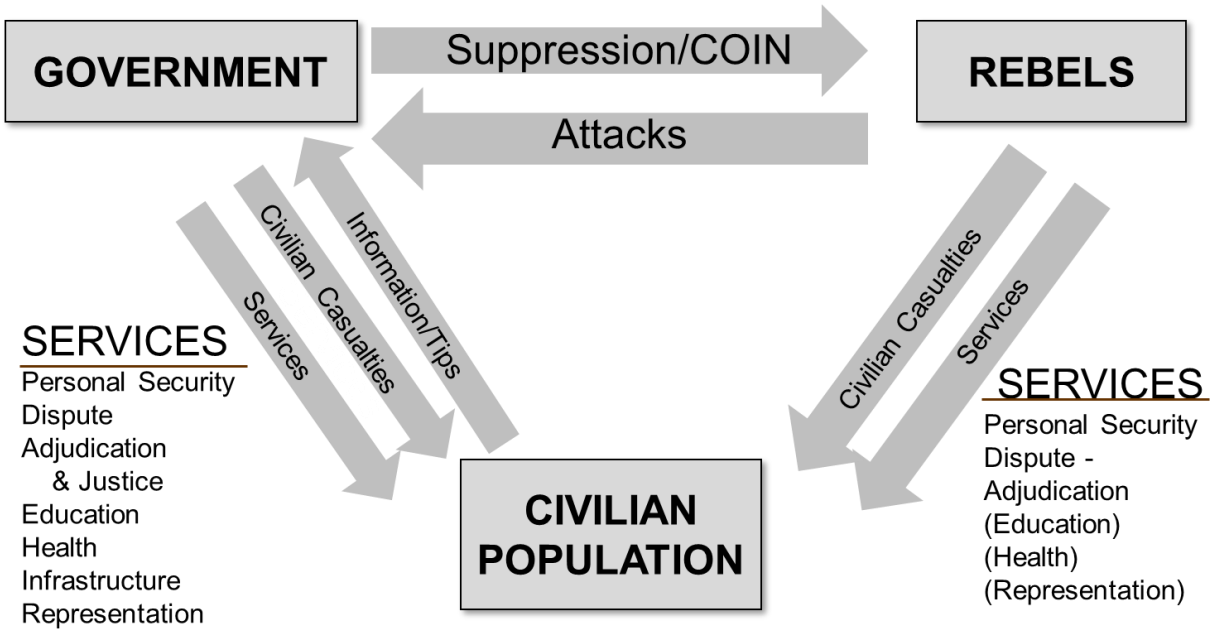

Figure 1: Information-centric insurgency

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