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The Fortification Dilemma: Border Control and Rebel Violence

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Abstract: *Where cross-border sanctuaries enable rebels to marshal external support, classical theories of counterinsurgency extol the strategic value of border fortification. By sealing borders, counterinsurgents can erode transnational militants' resources, degrading the quality of rebellion. Extending resource-centric theories of conflict, I posit a fortification dilemma inherent in this strategy. Externally supplied rebels can afford conventional attacks and civilian victimization. When border fortifications interdict their foreign logistics, insurgents compensate by cultivating greater local support. In turn, rebels prefer more irregular attacks and cooperative relations with civilians. Hence, counterinsurgent border fortification trades off reduced rebel capabilities for greater competition over local hearts and minds. I test this theory using declassified microdata on border fortification and violence in Iraq. Results highlight the central link between border control and cross-border militancy, and show how governments can contest the transnational dimensions of civil wars, such as external rebel sponsorship.*

Verification Materials: The data and materials required to verify the computational reproducibility of the results, procedures, and analyses in this article are available on the *American Journal of Political Science* Dataverse within the Harvard Dataverse Network, at: https://doi.org/10.7910/DVN/F2RDCJ.

In June 2018, 6 months after declaring the defeat of the Islamic State (IS), Iraqi troops began fortifying the border with Syria, installing fences to inhibit cross-border infiltration (Sulaivany 2018). Iraq's aim was to deny IS militants the ability to resupply from bases in Syria and thereby resurge. This strategy, involving the use of barriers to interdict transnational militancy, is known as counterinsurgent border fortification. In the past two decades, similar efforts aimed at disrupting cross-border rebellion have unfolded in Jordan, Kenya, Myanmar, and Pakistan, among others. The proliferation of counterinsurgent fortifications is part of a broader, global trend toward border hardening (Blair 2022; Carter and Poast 2017; Simmons and Kenwick 2022).

The rationale behind counterinsurgent border fortification is simple: Rebels need resources to survive and fight, and they often secure them from sanctuaries and supporters in neighboring countries. By fortifying borders, counterinsurgents can deny militants the ability to move fighters and material from external sanctuaries—or at least raise the costs of doing so—thereby degrading rebels' capabilities and heightening the prospects of rebel defeat. This logic manifests in classical counterinsurgency theories (Galula 2006; Leites and Wolf 1970) and contemporary military doctrine (United States Army 2006).

Unfortunately, we lack clear evidence that border fortification reduces violence. Though some scholars are sanguine (Avdan and Gelpi 2017; Staniland 2005), others argue barriers are symbolic (Andreas 2000), with only modest impacts on security. Alternatively, fortification may backfire. By dislocating communities, fortifications can spur resentment and humiliation (Gade 2020). In tandem with the disruption of cross-border markets (Getmansky, Grossman, and Wright 2019; Kim and Tajima 2022), these impacts

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may exacerbate criminal and political violence. Mixed evidence warrants closer attention to bridge theoretical divides, unpack mechanisms, and address inferential challenges.

To this end, this article offers the first plausibly causal evidence on how border fortification shapes rebel violence. Extending political economy theories of conflict (Bueno de Mesquita 2013; Qiu 2022; Wright 2020), I argue that border control generates discrete trade-offs for combatants. By raising the price of foreign support, fortification reduces transnational rebels' resources (a negative endowment shock).[1] Well-supplied rebels prefer conventional operations, but as fortification interdicts their foreign logistics, rebels substitute conventional attacks for less costly irregular operations. Simultaneously, rebels move to compensate for fortification-induced resource losses. Militants cut off from external bases seek to recoup resources by cultivating greater support from civilians in the counterinsurgent's populace. These efforts manifest in the form of reduced civilian victimization and increased service provision. This is the *fortification dilemma*: By reducing rebels' access to foreign resources, border fortification trades off reduced rebel capacity for greater competition between rebel and counterinsurgent forces over local civilian loyalties.

This theory emphasizes how border fortification affects the *quality* of rebellion, including the tactical portfolios insurgents employ and the nature of their relations with civilians. By moving beyond macrolevel characterizations of conflict, such as the *onset* (Linebarger and Braithwaite 2020) or *intensity* (Avdan and Gelpi 2017; Nanes and Bachus 2021) of violence, my approach offers new insights into how border fortification shapes microlevel conflict processes. The theory also offers a novel explanation for mixed findings in the empirical record. By altering the quantity and sources of rebel support, fortification causes a composition shift in violence. Only a disaggregated analysis, which distinguishes tactics and anti-government versus one-sided attacks, can detect these shifts. By impeding rebel access to resources from sanctuaries abroad, fortification reduces complex, conventional attacks while incentivizing irregular, harassing operations. Likewise, by increasing rebel reliance on local communities, fortification fosters restraint and reduced civilian victimization.

I test this theory in the context of US-led border fortification efforts during Operation Iraqi Freedom. I draw on declassified microdata from the Iraq Reconstruction Management System (IRMS) maintained by the US Army Corps of Engineers (Berman, Shapiro, and Felter 2011). These data document 73,600 reconstruction projects in Iraq, including 287 border forts. Because the data track the universe of US reconstruction spending, they offer a principled way to study the evolution of border enforcement. For identification, I leverage spatiotemporal variation in the implementation of fortification in a difference-in-differences setting. Plausibly exogenous bureaucratic delays and idiosyncratic reallocation of reconstruction money meant funds devoted to fortification were divorced from conflict trends across district-months. Rich data on construction timelines, violence, and concurrent policy changes allow me to address multiple threats to inference.

In line with the theory, I find that border fortification caused insurgents to substitute conventional, direct fire operations for irregular, indirect fire attacks. This shift is consistent with rebel adoption of less effective tactics under a negative endowment shock. Yet, fortification also prompted reduced civilian victimization, implying rebel efforts to recoup resource losses through community-based mobilization. This latter effect was heightened in areas where rebel forces were coethnic with civilians, and hence, where their efforts to cultivate popular support were more credible. Several extensions provide further support for implications of the theory. Captured financial records documenting the expenditures of al-Qaeda in Iraq (AQI) reveal that fortification caused an increase in militant spending, mostly on smugglers' fees. This spending helped insurgents build support in borderland communities where access to informal, cross-border markets was disrupted. Data on insurgent ratlines reveal that effects attenuated where militants retained smuggling routes, which subverted the interdiction efficacy of fortification.

Overall, this article makes several important contributions. By analyzing how counterinsurgents attempt to degrade transnational rebellion, I problematize an assumption in much existing work about the fixed character of rebel access to foreign support. Prominent models (Leites and Wolf 1970; Weinstein 2007) treat external resources as an exogenous source of rebel capabilities and trace this support to static factors like interstate rivalry and ethnic geography (Lee 2020; Salehyan, Gleditsch, and Cunningham 2011).[2] These accounts do not permit inference about how shifts in transnational resources affect violence within conflicts over time. While some recent work recognizes that

[1] Counterinsurgents need not block all foreign support so long as fortification raises the costs to rebels of accessing transnational resources, for example, by pushing militants to take riskier cross-border routes or raising the fees charged by smugglers.

[2] But see Hazen (2013).

rebel access to foreign sanctuaries may vary, this work focuses on how *gaining access* to external havens affects violence (Stewart and Liou 2017).[3] Owing to border fortification, it is more common that rebels *lose access* to foreign support. Studying counterinsurgents' efforts to interdict rebels' cross-border logistics highlights the underappreciated fact that the transnational dimensions of civil wars are the subject of contestation in themselves.

Further, while existing research considers the pathologies of transnational insurgency, including heightened risks of interstate conflict (Salehyan 2009), this article addresses antecedent questions about how governments can counter transnational insurgencies. Studying how states fight transnational rebels lends nuance to theoretical models showing why it is difficult to deter external support in civil war (Schultz 2010). Border fortification represents an important means to counter militancy unilaterally, given inherent challenges in negotiating or coercing states to terminate rebel sponsorship.

This article also provides new empirical evidence for political economy models of conflict, which emphasize how rebels' resources affect their technologies of rebellion (Bueno de Mesquita 2013; Kalyvas and Balcells 2010; Qiu 2022). Back-end conflict processes, including logistics (Parkinson 2013; Zhukov 2017) and tactics (Biddle 2021; Wright 2020), remain a crucial, understudied field. My analyses contribute on both dimensions and highlight how variation in insurgents' supply networks affects their repertoires of violence. One notable result—that rebels reduce civilian victimization following fortification—suggests an important modification to theoretical accounts predicting a positive association between resource losses and one-sided violence (Hultman 2007; Wood 2014). The fact that interdiction can spur greater rebel forbearance in relations with civilians reinforces accounts that emphasize how combatants anticipate civilian reactions and calibrate behavior accordingly (Polo and González 2020).

Finally, as borders harden globally, a growing literature examines the political economy of border security. To date, most work has focused on the *macrolevel* determinants of enforcement (Carter and Poast 2017; Linebarger and Braithwaite 2022). This article bolsters scholarship on the *microlevel* consequences of fortification, especially the effects of border hardening on conflict (Avdan and Gelpi 2017). The evidence here suggests fortification can reduce rebel capabilities. Still, the costs required to control borders might be better spent on development and governance reforms (Berman, Shapiro, and Felter 2011). Unless states also invest in winning civilian loyalties, the reduction in rebel capacity stemming from border fortification may be compensated by a concomitant increase in rebels' local support. These insights extend strategic interaction models of (counter-) insurgency (Braithwaite and Johnson 2012, 2015; Bueno de Mesquita 2005), which emphasize reciprocity of government enforcement and insurgent adaptation.

[3] Zhukov (2017) studies the interdiction of external support, focusing on resource losses and government violence.

Transnational Resources and Rebellion

Rebel resilience is predicated on a host of factors, including social networks and internal political structures (Parkinson 2013; Wood 2003). But resources are a paramount constraint because it is costly to produce violence and provide services. Both of these outputs require recruits and material (Dube and Vargas 2013; Weinstein 2007). Increasing the production of violence and governance bolsters territorial control, endogenously increasing resources (Galula 2006). Hence, combatants have incentives to seek larger resource endowments.

To secure resources, rebels often turn externally, seeking sanctuaries, cash, recruits, and weapons from coethnics, diasporas, and state sponsors (Byman 2005; Salehyan, Gleditsch, and Cunningham 2011). Roughly 82% of insurgencies receive some form of outside support (Jones 2017, 136). This external dimension of rebellion has become more important over time (Hazen 2013), as globalization enhances militants' ability to operate transnationally (Hastings 2010).

Insurgents' desire for resources induces them to seek control of territory across borderlands (Idler 2019). Safe havens allow rebels to melt from the path of counterinsurgency, regroup, and dictate the terms of engagement (Byman 2005; Salehyan 2009). Recruitment, procurement, and training can all be organized with relative ease from border sanctuaries (Galula 2006). Governing cross-border routes also provides revenue-generating opportunities. For cash-strapped rebels, these resources can help sustain operations even absent sponsorship. The rise of IS, for example, is owed in part to the lucrative tax regime the group imposed at the border (Revkin 2020). Beyond rebels' direct profits, siphoned taxes also represent lost income for state coffers, weakening government fighting capacity.

Border fortification is an appealing strategy for counterinsurgents precisely because resources are integral to rebellion. This strategy aims to interdict rebels'

transnational logistical networks, reducing their material support. Counterinsurgent operations that remove fighters and arms from the battlefield degrade rebel fighting capacity (Braithwaite and Johnson 2012; Weidmann and Salehyan 2013). If fortification raises the cost to rebels of obtaining external support, it should reduce their overall resource base and thereby weaken the rebellion. Crucially, to inflict resource losses, all fortification must do is reduce the quantity of foreign support rebels can obtain at a given cost. For instance, fortification may force rebels to take longer and more dangerous smuggling routes (Chambers et al. 2021) or pay higher smuggling fees and bribes. Efforts that channel cross-border traffic through government-controlled ports of entry can deprive rebels of extortion opportunities while increasing government rents. Fortification may also impose nonmonetary costs, such as sapping insurgent morale.

Resource-centric models imply that successful counterinsurgent border fortification will affect the *quantity* of violence rebels can produce (Leites and Wolf 1970). But resources affect not only how many attacks rebels conduct. Because different technologies of rebellion are priced differently (Kalyvas and Balcells 2010), fortification may also affect the *quality* of rebel violence. The quality of violence hinges on tactics—the ways combatants organize and deploy their forces in battle. Tactical changes made by rebels in response to fortification create a salient trade-off for counterinsurgents.

The Fortification Dilemma

The tactical spectrum ranges from conventional to irregular violence (Biddle 2021). Conventional tactics entail complex, coordinated, high-risk attacks on government forces.[4] Well-resourced rebels with access to external support—whether sanctuary, fighters, or material—can afford to produce more conventional violence (Bueno de Mesquita 2013). Ceteris paribus, rebels prefer conventional operations, despite the greater risks involved, because these tactics are more effective for seizing territory and dealing governments decisive defeats (Biddle 2021; Qiu 2022). Controlling territory and capturing arms yield further opportunities for rent extraction, so conventional tactics endogenously beget conventional tactics.

Irregular tactics are predominantly used by resource-constrained rebels seeking to avoid a forceful state response (Carter 2016). These are cheaper to employ because they typically entail lower risk to and coordination among perpetrating militants (Biddle 2021). Irregular attacks can also be executed by small groups or even individuals. These operations allow rebels to harass government forces at minimal cost. A common irregular tactic in Iraq was the use of mortar and rocket fire against US bases. Called "shoot-and-scoot" operations, these attacks saw insurgents launch long-range projectiles at counterinsurgent sites and then flee the launch area before suppressing fire was returned.

Endowment shocks enhancing rebel capacity increase conventional attacks, whereas those reducing rebel capacity increase irregular attacks (Wright 2020). Border fortifications that interdict rebels' external support negatively shock rebel resources. Consequently, fortification should prompt rebels to substitute conventional for irregular tactics. Two factors are particularly relevant. First, fortification reduces rebel access to fighters and supplies from abroad, precisely the resources needed to perpetrate conventional violence.[5] Second, fortification attenuates access to safe havens, increasing rebels' need to avoid costly suppression.

H1: Border fortification causes insurgents to substitute conventional for irregular attacks.

From a counterinsurgent perspective, rebel substitution from conventional to irregular violence is a desirable consequence since it implies that fortification leads rebels to adopt less effective combat methods.

In addition to tactics, resources also influence rebel behavior vis-à-vis civilians. Different endowments alter the extent to which rebels rely on civilians for extraction. External resources reduce rebel dependence on the local populace (Stewart and Liou 2017; Zhukov 2017), sapping incentives for restraint and governance (Stanton 2016). Recruitment patterns compound this dynamic. Resource-rich rebels attract opportunists, who are more interested in loot than civilian protection (Weinstein 2007), and struggle to embed themselves in local communities (Moore 2019). Civilian victimization is correspondingly responsive to shifts in rebels' assets.

Shifting resources also matter apart from the content of rebels' endowments. Losses trigger predation. Following setbacks, civilian victimization is a cheap means to deter defection and enforce compliance (Wood 2014). Violence also underscores the government's inability to

[4]This conceptualization follows Biddle (2021) and focuses on combat tactics (i.e., the methods of anti-government violence), extending a more general view based on target hardness (Carter 2016).

[5]I am theoretically agnostic about whether fortification has a cost hierarchy, reducing inflows of material or personnel more. This is likely to vary across conflicts depending on the nature of fortification and sponsorship dynamics, and it represents an important avenue for future research.

protect the populace (Wood 2010) and can help coerce concessions (Hultman 2007). However, predation is counterproductive in the long term (Kalyvas 2006). Because civilians have agency, strategies of victimization to meet resource needs create incentives for civilians to collaborate with the government (Braithwaite and Johnson 2012; Condra and Shapiro 2012), exposing rebels to suppression.

These dynamics imply competing expectations about how fortification will affect insurgent–civilian relations. On one hand, if fortification interdicts rebels' *transnational* logistics, it should increase reliance on *local* civilians, incentivizing restraint. On the other hand, resource losses resulting from fortification threaten rebel capacity, incentivizing predation. I argue the former effect—rebel forbearance—predominates for three reasons.

First, because predatory strategies are counterproductive in the long run, what matters is how losses affect rebels' time horizons. If they are not so hard-pressed by fortification that their immediate survival is at risk, rebels should forgo victimization in favor of contractual bargaining with civilians, since the latter is optimal for resilience absent external support (Arjona 2016). How resource losses affect time horizons is a function of the magnitude of the loss. Unlike major battlefield defeats, fortification is a more modest setback. No border controls are impermeable, and rebels will inevitably retain some access to foreign support through smuggling. Further, while imperfect, fortifications are durable. Fortifying rugged borderlands entails significant costs, making it a long-term investment.[6] The imperfect but durable nature of the setback imposed by fortification increases rebels' incentives to adapt. This means compensating for lost resources by cultivating new bases of support among civilians.

Second, while interdiction of their transnational networks increases militants' *need* to cultivate local support, it also shifts their recruitment patterns in a way that bolsters their *capacity* to do so. Without ample resources, groups attract fewer income-motivated opportunists (Weinstein 2007) and more intrinsically motivated locals, who are better equipped to cultivate civilian ties (Moore 2019). Fortification also directly reduces inflows of foreign fighters, forcing increased reliance on local recruits (Tyson 2006).[7] The impacts of fortification on civilian livelihoods compound these effects. Borderland civilians depend on cross-border markets (Idler 2019). Fortifications impede market access, reducing trade and wages (Kim and Tajima 2022). As US military advisors feared in Iraq, economic disruption resulting from fortification could empower "a [militant] financier who comes through and builds a cell in an impoverished border village" (Tyson 2006).

Third, perpetrating civilian victimization requires fighters and material, so victimization reduces rebels' ability to produce anti-government violence. Because anti-government attacks are more effective at demonstrating rebel capacity and building civilian confidence in militant challengers (Wood 2010), groups facing resource deficits should privilege these operations. In sum, border fortification should prompt rebels to reduce civilian victimization in order to cultivate civilian support, improve local extractive capacity, and recoup lost resources.[8]

H2: Border fortification causes insurgents to reduce civilian victimization.

From a counterinsurgent perspective, rebel efforts to cultivate local support are a troubling consequence of border fortification since they imply that fortification increases competition over civilian hearts and minds. The fact that fortification disrupts civilian livelihoods in impacted communities also means the strategy may bolster insurgent recruitment in the long run.

Broader societal cleavages impact insurgent–civilian relations apart from insurgents' resources (Wood 2003). In particular, many civil wars have an identity-based dimension. In divided societies like Iraq, where society is cleaved along sectarian lines, rebel groups typically draw support from one primary community. In these settings, victimization dynamics are complicated by combatant identities (Lyall, Blair, and Imai 2013). Rebels exercise restraint toward their core constituencies while targeting outgroups (Fjelde and Hultman 2014; Stanton 2016).

Considerations about intergroup dynamics are especially pressing after resource losses. As Polo and González (2020, 2032) note, "when rebels expect a backlash they will not resort to terrorism, despite having suffered major military losses." This dynamic is most likely where rebels share identity ties with the civilian populace. In

[6]Figure D-3 in the supporting information (SI) considers whether terrain ruggedness conditions effects.

[7]Militants recognized that enforcement reduced recruitment and morale by "funneling" (Chambers et al. 2021) inflows to harder crossings. Worsening crossing conditions contributed to "struggling and suffering" among fighters (Harmony Program: NMEC-2007-612449). Lower morale is an important nonmonetary cost of fortification.

[8]Insurgents may also build civilian support through governance (Arjona 2016; Stanton 2016). I bracket this expectation because I lack data on rebel governance in Iraq.

these areas, rebels' constituents will sanction predation, and their outreach efforts will be more credible (Moore 2019). These factors reduce the costliness of community-based strategies predicated on forbearance. In contrast, rebels hold a higher threshold for cultivating support in outgroup areas, making restraint less efficient. If outgroup antagonism is high, rebels' prospective civilian supporters may even favor outgroup victimization (Polo and González 2020). This discussion suggests a conditional effect of fortification on insurgent–civilian relations. Insurgents' efforts to build support following interdiction should manifest most acutely in areas populated by prospective supporters.

H3: Border fortification causes insurgents to reduce victimization of ingroup civilians.

In tandem, these arguments highlight the *fortification dilemma*. Counterinsurgent border control reduces rebel capabilities, inducing shifts from conventional to irregular combat. However, efforts counterinsurgents take to interdict rebels' transnational resources perversely incentivize them to invest in building civilian support. Hence, border fortification trades off reduced rebel capabilities for greater competition over local hearts and minds. How governments manage this trade-off hinges on their abilities to capitalize on reduced rebel capacity on the battlefield and to contest insurgent overtures to civilians in borderland communities.

Border Fortification in Iraq

To test my theory, I study border fortification during the Iraq War. When the United States invaded in 2003, the primary focus was on Baghdad. However, as the insurgency evolved, the United States quickly moved to reduce the flow of fighters, arms, and illicit goods across Iraq's historically porous borders. Saddam Hussein's regime had maintained outposts along Iraq's frontiers and paid tribal militias to patrol them (Demarest and Grau 2005). However, the pre-invasion Iraqi border security apparatus was dismantled under de-Baathification.

Following de-Baathification, Iraq's borders went unsecured, and, as the insurgency matured, many militant groups leveraged cross-border lines of communication, drawing on contacts in established smuggling networks, overt support from Iran, and tacit support from other neighboring states like Syria. In response to the transnationalization of the insurgency, the US-led coalition fortified the border. On August 24, 2003, the Iraqi Directorate of Border Enforcement (DBE) was created, and between May 2004 and December 2009, US forces funded and built 287 border forts to deny insurgents' external support.[9] Figure 1 depicts the construction timeline and the total number of forts built along Iraqi borders. Approximately 90% of all forts were built between May 2004 and March 2006, when the sectarian insurgency peaked.

Figure 2 maps variation in the implementation of US-led border fortification. Geographically, efforts were widespread, occurring in all 11 governorates contiguous to Iraq's borders and in 25 of 29 Iraqi border districts.[10] Fortification was predominately concentrated in four districts: Al-Rutba, bordering Syria, Jordan, and Saudi Arabia (37 forts); Khanaqin and Sulaymaniya, near Iran (21 and 18 forts, respectively); and Sinjar, bordering Syria (18 forts). On average, forts in border districts were spaced every 16 km, with patrols, sensors, and aerial surveillance employed in monitoring.

Forts took an average of 286 days to construct, with a median of 263 days. These projects began 9 days earlier and ended 1 day later than forecasted on average.

Between March 2003 and December 2009, US forces also constructed 46 non-fort border security facilities, including academies for training DBE troops, and wells and roads for DBE use. In total, border projects in Iraq cost $237,820,943, not including sums paid to train DBE guards. Adding estimated training costs, the total cost of American border initiatives in Iraq exceeds $1 billion. Still, individual forts were a relatively modest investment, costing just $571,969 to construct on average.

Research Design

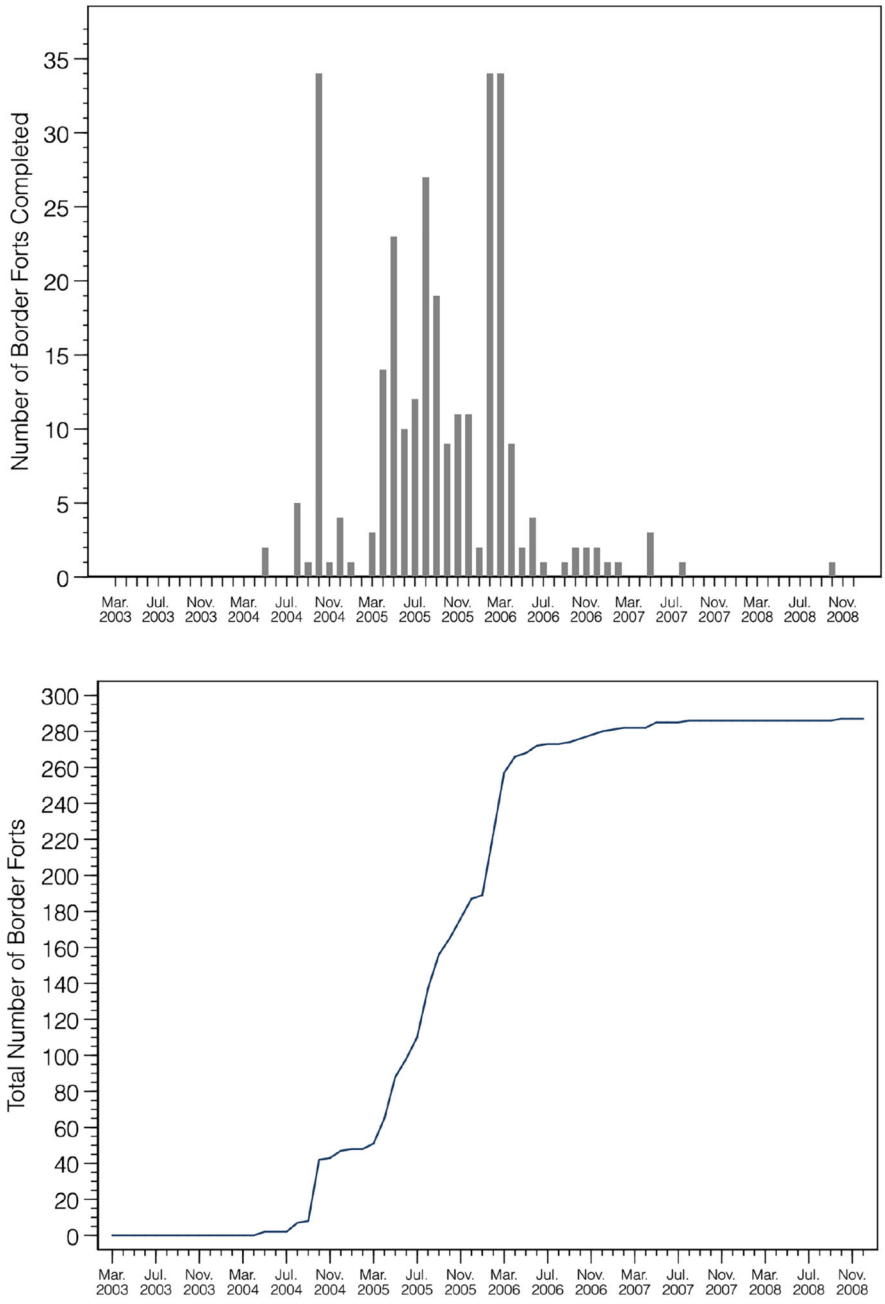
Iraq is an ideal setting for identifying microlevel effects of border fortification on insurgent violence.[11] First, most rebel groups in Iraq were organized along lines matching Iraq's district borders and managed finances locally (Bahney et al. 2010). These features make it is possible to identify how fortification affected insurgent tactics in discrete areas. Second, variation across Iraq's neighbors

[9]US-led fortification focused on interdicting insurgent resources (Skirlo 2007). Yet, barriers may also bolster regime support or shape population movements (Linebarger and Braithwaite 2022). Walls in Baghdad and Fallujah aimed at controlling internal displacement. Iraqi leaders also deployed infrastructural investment to reward political allies (Demarest and Grau 2005).

[10]The four never-fortified border districts were Amedi, Mergasur, Soran, and Zakho in Kurdistan.

[11]This design is optimized for identifying local, within-district shifts in response to fortification. Whether these effects translate into broader challenges for impacted groups is an avenue for future work.

FIGURE 1 Border Fortification over Time



Notes: The figure indicates the number of forts completed each month (top) and the cumulative number of forts built (bottom).

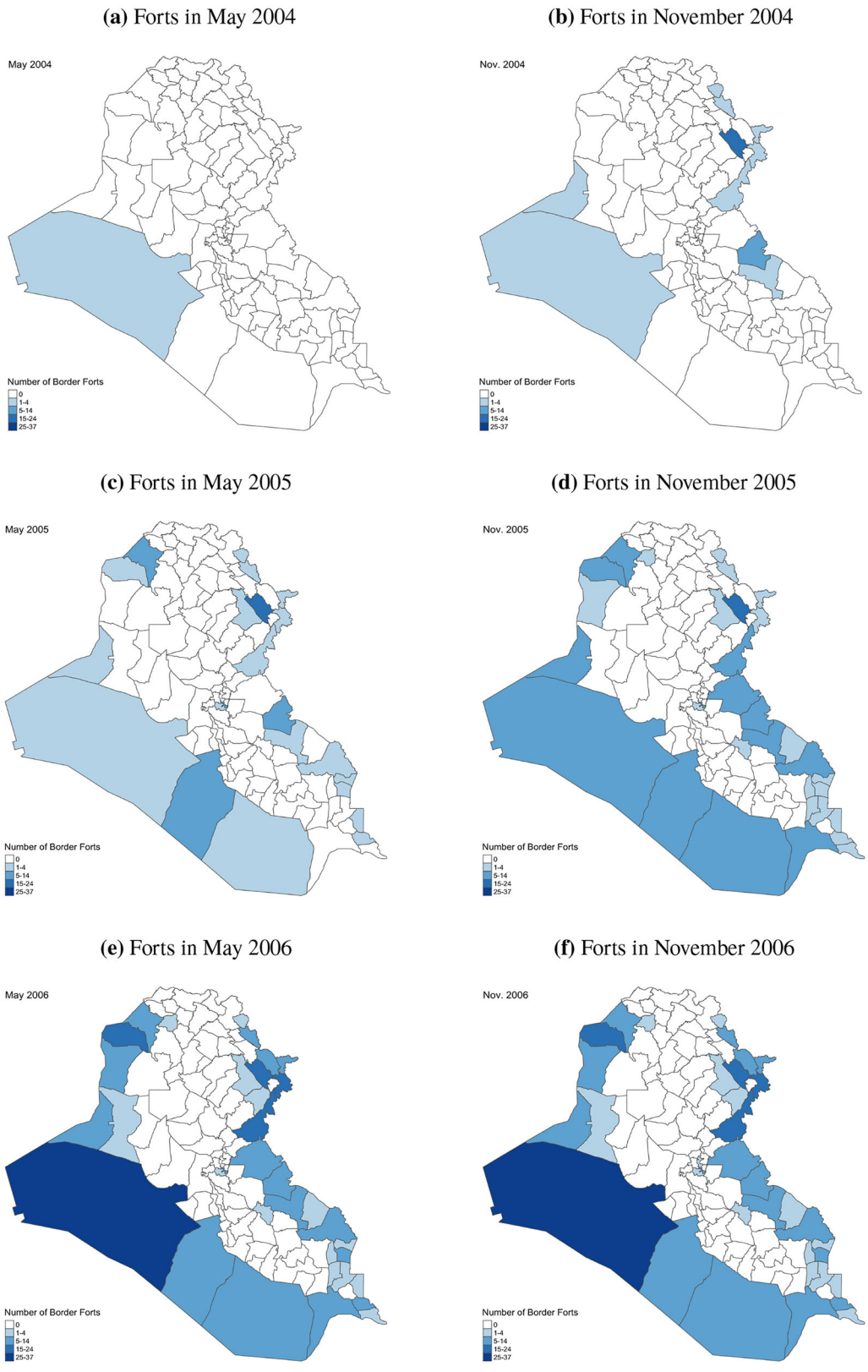
in the extent of support to insurgents presents a unique opportunity to compare the efficacy of border control when insurgents enjoy varying degrees of sponsorship (SI Tables D2–D4).[12] Moreover, the porous nature of Iraq's borders meant all militant groups relied to some degree on foreign resources.

Across Iraq, insurgents tended to move material and fighters through the same ports of entry (Tyson 2006).[13] To the east, Iran supported Shi'a militias, providing weapons and training, and engaging in active subversion of border enforcement through bribery (Felter and

[12]Iraq's neighbors also varied in the extent of their own border enforcement—Kuwait had walled its border from 1991.

[13]This makes it challenging to test cost hierarchy since fortifying known crossings impacted resource and fighter flows similarly (CJSOTF–AP 2007).

FIGURE 2 District-Level Border Fortification, May 2004–November 2006



Notes: Darker shades indicate more forts.

Fishman 2008). Occasionally, Iranian troops maneuvered directly against border security operations. On Iraq's western border, Syria, Jordan, and Saudi Arabia were tacit conduits for insurgent support, used by fighters transiting into Iraq. Additionally, Syrian intelligence bribed border guards and facilitated arms transfers to AQI. Tribal smuggling in western Iraq was also integrated with militant logistical networks through ex-Baathist contraband networks (Malkasian 2017). Along Iraq's northern border, Turkey cooperated with US-led efforts but allowed some smuggling. In the south, Kuwait maintained a comprehensive border regime, denying transnational support.

Data

Border Fortification. I leverage project-level data on border fortification from the Iraq Reconstruction Management System (IRMS; Berman, Shapiro, and Felter 2011). These data represent a complete record of US reconstruction projects during Operation Iraqi Freedom. Specifically, the IRMS data describe the construction timelines, costs, and project details for 73,600 US-led aid projects.

These unique data allow me to chart the construction and completion of border fortifications in Iraq at the district-month level from 2003 to 2009. From the project data I construct the independent variable, border fortification, which takes a value of 1 in all district-months with a completed border fort, and 0 otherwise.[14] Because treatment never reverts, this approach is equivalent to an intent-to-treat design, mitigating concerns about endogeneity of the intensity of fortification to security conditions.[15]

Violence. To assess the effect of border control on insurgent tactics, I use geocoded event data on the incidence of violence. Measures of insurgent-initiated attacks are drawn from the MNF-I SIGACT III database (Condra and Shapiro 2012). These data are collated from reports filed by coalition and Iraqi forces and provide a rich set of information about the location, date, and type of insurgent violence. An advantage of using SIGACT data is that they approximate the universe of anti-government conflict.[16]

To capture conventional tactics, I study direct fire attacks, where rebels engaged counterinsurgent forces within the line of sight. Most direct fire incidents are close-range firefights, which entail high levels of coordination and risk. To measure irregular violence, I study indirect fire attacks. Indirect fire incidents are those in which rebels engaged counterinsurgents beyond the line of sight (e.g., mortars, rockets). These are a good proxy for irregular tactics because they require less coordination and physical risk than direct engagements against coalition forces (Berman, Felter, and Shapiro 2018, 202). Combining these measures gives the primary dependent variable, irregular share, which represents the proportion of projectile-fire SIGACTs that are indirect fires. This variable takes a value of 0 in all months with no projectile-fire SIGACTs, and otherwise equals[17]

$$\frac{\text{Indirect Fires}}{(\text{Indirect Fires} + \text{Direct Fires})}. \quad (1)$$

Civilian victimization outcomes are sourced from Iraq Body Count and the World Incidents Tracking System (Condra and Shapiro 2012). The former compiles records of lethal incidents from local media and hospital reports provided by the Iraqi Ministry of Health. The latter is produced by the National Counterterrorism Center and documents politically motivated violence against civilians. A range of supplementary tests builds confidence in the quality of these sources (SI Figure A1, SI Table A1).

Sectarianism. In Iraq, militants' constituencies were defined by sectarianism (CJSOTF–AP 2007). Sunni groups like AQI operated in Sunni regions of western and northern Iraq, whereas Shi'a militias like Jaish al-Mahdi (JAM) dominated southern and eastern Iraq. These competing groups clashed in mixed regions. Following Berman, Shapiro, and Felter (2011), I use governorate-level voter returns from the 2005 parliamentary election to measure sectarianism. If a Shi'a, Sunni, or Kurdish party secured at least 66% of the vote share in a district, it is defined as homogeneous and controlled by the respective sect; otherwise, the district is coded as mixed. Consistent results emerge if sectarianism is defined by population (SI Figure C2).

[14]This is a bundled treatment, which includes the presence of a border post and guards, plus sensors and surveillance devices (Skirlo 2007).

[15]Results are similar for the intensive margin of fortification (SI Table D5).

[16]I study SIGACT data against Iraqi/coalition targets since these were comprehensively tracked.

[17]Results are substantively similar taking Indirect Fires (Indirect Fires + Direct Fires + IEDs), which captures the share of all insurgent-initiated SIGACTs that are indirect fires. Like direct fires, improvised explosive devices (IEDs) require more planning and coordination, and they are more susceptible to civilian informing.

This strategy operationalizes insurgents' intergroup ties on the basis of sectarian geography. Because the conflict records do not attribute attacks to a specific group or identify victims' sect, this is a next-best approach. I assume that victimization in homogeneous districts targets ingroup civilians, whereas violence in mixed districts targets outgroups. In the Iraqi context, this approach is reasonable because sectarian identity is not phenotypical. Instead, civilians and militants relied on geography as an identity marker (Haddad 2014; Malkasian 2017). Militants themselves bemoaned the challenge of operating in outgroup strongholds. For instance, AQI leaders lamented the "difficulty of the muhajeer [Sunni fighters] to stay inside the land of Rafidayn [Shi'a], especially within the residential areas."[18] My analyses also include a range of covariates, which vary across specifications but include measures like population, petroleum production, unemployment, and aid spending.[19] SI Table A2 presents descriptive statistics.

Estimation Strategy

My empirical strategy leverages variation in border fortification over district-months, comparing fortified and nonfortified districts in border governorates. This approach requires that in the absence of fortification, fortified (treated) districts would experience the same changes in violence as nonfortified districts in border governorates (control). I present evidence of parallel trends below; however, identification is bolstered by plausibly exogenous monthly variation in the implementation of fortification owing to bureaucratic wrangling. Border enforcement was funded in the context of the broader reconstruction. Within this effort, project funding was subject to numerous idiosyncratic bureaucratic hurdles, rendering the timing of project completion divorced from violence trends across district-months (Sexton 2016).

Border control efforts were first funded under the supplemental appropriation to the Iraq Reconstruction and Relief Fund (IRRF2) in November 2003. The slow initial rollout of fortification from the time of the first appropriation to the time the first fort was completed in May 2004 is attributable to major wrangling between the Coalition Provisional Authority (CPA) and the Office of Management and Budget (OMB) over the spending strategy. As Pentagon comptroller Dov Zakheim noted, "OMB became kind of a black hole, from which funds would emerge on what appeared to be a *whimsical basis*" (SIGIR 2009, 126).

After June 2004, the Defense Department took responsibility for security projects like fortification. Thereafter, the spending process was accelerated drastically, with contracts awarded in 90 days that would normally take 14–18 months to approve (SIGIR 2009, 133). The drastic change in spending strategies fueled further bureaucratic variation in project implementation. Three reprogrammings between 2004 and June 2005, which saw previously allocated funds reallocated on the basis of political priorities, shifted spending further. For instance, money was surged into governance activities before the 2005 election. Changes in the priority border security received during these reprogrammings created additional variation.

Leveraging these features, I estimate a least-squares, difference-in-differences model:

$$Y_{j,t+1} = \alpha_j + \beta_t + \delta(\text{Border Fort}_{j,t}) + \gamma X_{j,t} + \varepsilon_{j,t}, \quad (2)$$

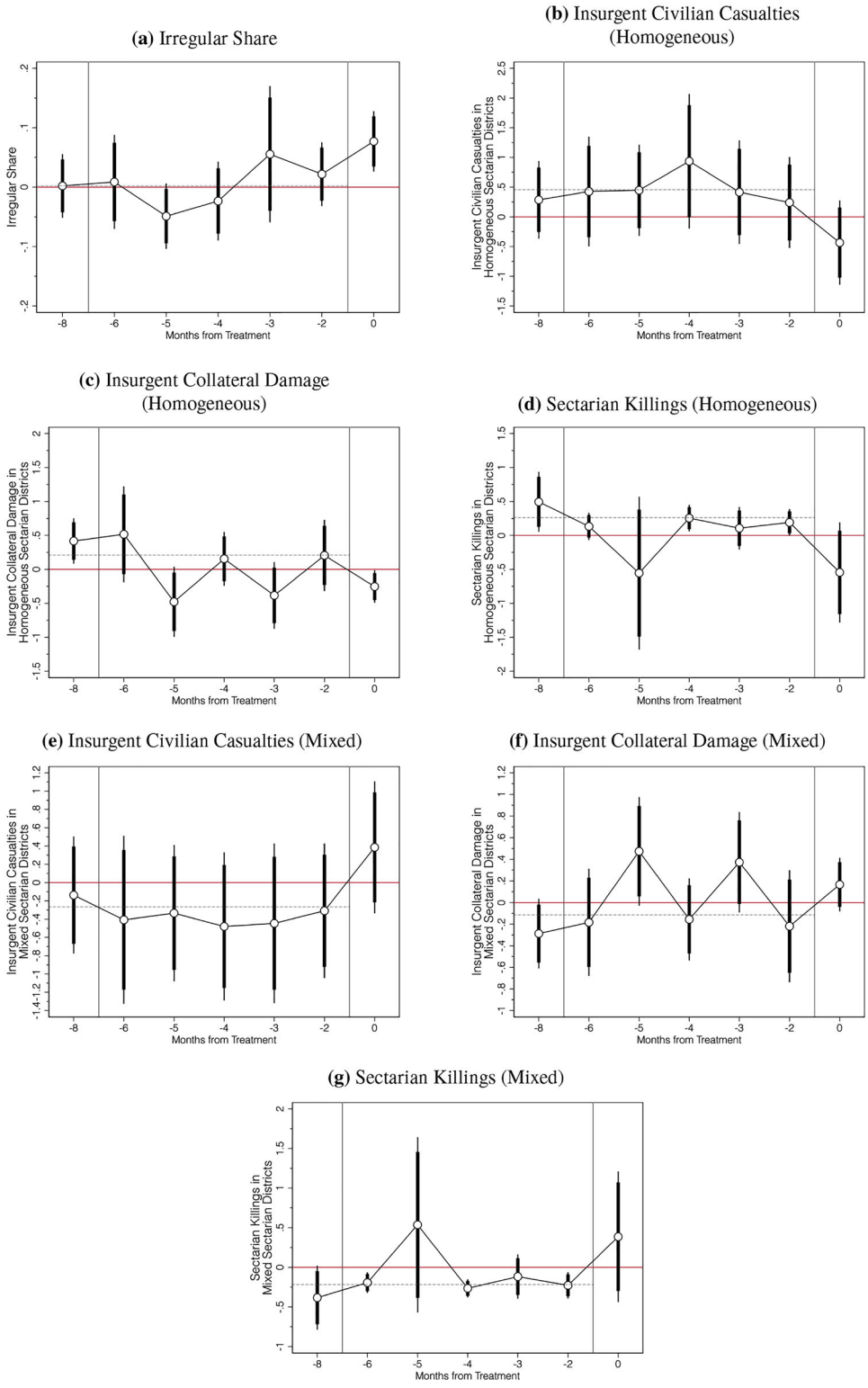
where $Y_{j,t+1}$ are conflict-related outcomes of interest, including the share of irregular insurgent-initiated attacks, and insurgent civilian victimization in district j in month t+1. The term α_j represents district fixed effects; β_t is year-specific month fixed effects; and $X_{j,t}$ is a vector of covariates. $\text{BorderFort}_{j,t}$ is a binary variable that equals 1 if district j has a completed border fort in month t. The coefficient δ recovers the effect of border fortification on insurgent violence. Main analyses compare fortified and nonfortified districts in border governorates, but results are substantively similar if I include all districts in Iraq. The term $\varepsilon_{j,t}$ represents heteroskedasticity-robust, district-clustered standard errors.

Several tests support the proposition that border fortification was unrelated to preexisting conflict trends. In SI Table B1, I show that violence does not predict differences in actual versus forecasted project start or completion dates, suggesting conflict did not have a distinguishable impact on construction. If violence caused frequent construction delays, I would anticipate projects taking longer than forecasted. In SI Table B2, I also show that violence trends do not predict treatment, and in SI Table B3, a temporal placebo check gives no evidence that fortification predicts past violence. In SI Figure B1, I plot adjusted mean differences in pretreatment outcomes between treated and control districts. There are no significant differences in pretreatment means of the focal dependent variables.

[18]Harmony Program: NMEC-2007-612449. In the same document, AQI leadership implored fighters to forego ingroup victimization.

[19]Controlling for petroleum helps address concerns about how other lootable resources shape insurgent violence.

FIGURE 3 Parallel Pre-Trends in Insurgent Violence and Civilian Victimization



Notes: Bars are 90% and 95% confidence intervals. Plots show the effect of treatment leads on the respective outcome. Vertical gray lines denote omitted base periods. Horizontal gray lines denote pre-treatment means. The first lead (−8) accumulates earlier pre-periods, and the first lag (0) accumulates subsequent post-periods (see also SI Figure B2). The red line marks 0.

TABLE 1 Border Fortification and Tactical Substitution in Iraq

	Irregular Share	Irregular Share	Irregular Share	Irregular Share	Irregular Share	Irregular Share	Irregular Share	Irregular Share	Irregular Share	Irregular Share
Border fortification	0.031*	0.049**	0.073**	0.072**	0.067**	0.069*	0.096*	0.086**	0.057*	0.049*
	(0.015)	(0.017)	(0.022)	(0.021)	(0.020)	(0.028)	(0.043)	(0.030)	(0.023)	(0.020)
District FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year-specific month FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Sunni × Year FE		Y	Y	Y	Y	Y	Y	Y	Y	Y
Political/socioeconomic controls		Y	Y	Y	Y	Y	Y	Y	Y	Y
Security controls			Y	Y	Y	Y	Y	Y	Y	Y
Spatial lag				Y	Y	Y	Y	Y	Y	Y
Lagged DV					Y	Y	Y	Y	Y	Y
District-specific linear trend						Y	Y	Y	Y	Y
Sample includes districts in:	Border governorates	Border governorates	Border governorates	Border governorates	Border governorates	Border governorates	AQI areas	Rejectionist areas	All but Baghdad	All of Iraq
Constant	0.027**	0.808**	1.501†	1.487†	1.398†	2.550*	−0.443	0.217	1.408	0.774
	(0.005)	(0.227)	(0.864)	(0.836)	(0.792)	(0.980)	(1.287)	(1.411)	(0.962)	(0.864)
Observations	4,148	3,788	2,109	2,109	2,109	2,109	1,767	2,166	3,078	3,591
R^2	0.139	0.167	0.221	0.223	0.227	0.253	0.342	0.311	0.252	0.274
Log-likelihood	2,426	2,137	1,031	1,034	1,040	1,076	905.2	1,088	1,435	1,769
AIC	−4,848	−4,257	−2,020	−2,025	−2,033	−2,107	−1,764	−2,130	−2,824	−3,492

Notes: Robust, district-clustered standard errors are in parentheses. Political/socioeconomic controls are population, population density, urbanicity, unemployment rate, oil reserves, oil production, and CERP spending. Security controls are nighttime lights, total and new cell phone towers, Sons of Iraq, police station density, coalition maneuver battalions, coalition collateral damage, condolence spending, police spending, provincial reconstruction teams, civil military operations centers, and provincial Iraqi control. The mean of irregular share is 0.056, with a standard deviation of 0.166.

† $p < .1$; * $p < .05$; ** $p < .01$.

Identifying Assumptions

The validity of this strategy hinges on two assumptions. First, I assume parallel trends in violence. Following the method introduced in Sun and Abraham (2021), I provide graphical evidence of parallel pre-trends in Figure 3. I specifically plot treatment leads from an event study estimation, excluding two pretreatment periods. Given my expectation that insurgent civilian victimization also varies by the sectarian composition of a district, I plot pre-trends for these outcomes across homogeneous and mixed sectarian regions. SI Figure B2 introduces comparable event studies with dynamic post-intervention effects.

Second, to recover the causal effect of border fortification, the design requires fortification not to coincide with other relevant policy changes. In SI Table B4, I show that border control did not drive changes in the number of battalions deployed, cellular network expansion, counterinsurgent spending on governance, petroleum production, or coalition-caused civilian casualties, among others. Given my expectation that insurgents substitute into irregular attacks, another policy change that could confound the results would be shifts in the deployment of counter-indirect fire systems. Qualitative evidence (SI Section B.7) does not indicate that deployments of these systems shifted with fortification. In sum, the identifying assumptions are met, supporting a causal interpretation of the results.

Results

Tactical Substitution

Table 1 offers a direct test of Hypothesis 1, which predicts that border fortification induces rebel shifts into irregular tactics. Column 1 represents the most basic difference-in-differences specification with district- and year-specific month fixed effects. Column 2 adds political and socioeconomic controls, and Sunni vote share by year fixed effects, which absorb broad sectarian shifts over the conflict. Column 3 introduces additional security-related controls, column 4 introduces a spatial lag of the dependent variable to account for spatial autocorrelation, and column 5 adds a one-period lag of the outcome. Column 6 adds district-specific linear trends. Finally, columns 7–10 shift the focal sample from districts in border governorates. Columns 7 and 8 restrict the analysis to areas where two insurgent movements—AQI and Sunni Rejectionist groups—held influence. These groups relied heavily on cross-border sanctuaries, so fortification focused largely on interdicting their transnational resources. Finally, in column 9, I

TABLE 2 Robustness of Tactical Results in Iraq

	Irregular Share	Irregular Share	Irregular Share	Irregular Share	Irregular Share	Irregular Share	Irregular Share	Irregular Share	Indirect Fires per Capita	Direct Fires per Capita
Border fortification	0.067*	0.067†	0.047*	0.101**	0.118**	0.038*	0.064**	0.250*	0.003†	−0.006†
	(0.020)	(0.022)	(0.018)	(0.025)	(0.035)	(0.016)	(0.021)	(0.100)	(0.001)	(0.003)
District FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year-specific month FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Sunni × Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Political/socioeconomic controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Security controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Spatial lag	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Lagged DV	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Governorate clustered SEs	Y									
DBE region clustered SEs		Y								
Population weights			Y							
Violence weights				Y						
Excluding district-months without SIGACTs					Y					
Including IEDs in denominator						Y				
Additional border controls							Y			
Two-limit tobit								Y		
Constant	1.398†	1.398	1.864†	−1.193	6.614*	1.266†	1.496†	9.818†	0.018	0.023
	(0.583)	(0.639)	(1.066)	(2.090)	(3.096)	(0.698)	(0.791)	(5.673)	(0.047)	(0.055)
Observations	2,109	2,109	2,109	1,312	852	2,109	2,109	2,109	2,109	2,109
R^2	0.227	0.227	0.260	0.422	0.370	0.219	0.227	0.383	0.325	0.760
Log-likelihood	1,040	1,040	1,169	976.8	352.4	1,831	1,040	−605.3	6,215	3,339
AIC	−2,033	−2,033	−2,291	−1,908	−658.8	−3,615	−2,031	1,285	−12,385	−6,631

Notes: Robust, district-clustered standard errors are in parentheses unless otherwise noted. Models except column 8 are estimated with OLS. The sample includes all districts in border governorates. Column 8 reports pseudo-R^2. Controls are described in Table 1. The mean of irregular share is 0.056, with a standard deviation of 0.166. The mean of indirect fires per capita is 0.004, with a standard deviation of 0.016. The mean of direct fires per capita is 0.033, with a standard deviation of 0.102.
† $p < .1$; * $p < .05$; ** $p < .01$.

expand the analysis to all governorates except Baghdad, and in column 10, I study all districts in Iraq.

Across specifications, I find that militants responded to fortification by substituting conventional for irregular attacks. Taking estimates from the fully saturated specification in column 6 reveals border fortification caused a 6.9 percentage point increase in the proportion of irregular insurgent attacks, amounting to nearly a one-half standard deviation increase. The estimated effect size across models ranges from 3.1 to 9.6 percentage points.

To probe the robustness of these results, in Table 2, I conduct a number of additional tests, all of which corroborate the large, positive effect of border fortification on tactical substitution. Columns 1 and 2 adjust for spatial dependence by allowing for clustering across districts within governorates and DBE regions.[20] In column 3, estimates are scaled using population weights, which identify heterogeneous treatment effects by district population. In column 4, I scale estimates by the intensive margin of violence. Column 5 excludes district-months in which no projectile-fired SIGACTs occurred, and column 6 includes IEDs in the denominator of the dependent variable. I verify the results are robust to controlling for spending on non-fort border security projects and the number of border forts in a district-month in column 7.

Because the dependent variable is a proportion, OLS estimates could fall outside the unit interval. In column 8, I reestimate the core specification using a two-limit tobit estimator. Tobit estimates are substantively larger, suggesting the main results are conservative. Finally, in columns 9 and 10, I estimate the effect of border fortification on per capita levels of indirect and direct fire attacks, disaggregating the proportion variable into its constituent terms. All tests confirm that border fortification causes rebel shifts from conventional to irregular violence.

The logic of the fortification dilemma implies that rebels shift into irregular tactics as fortification reduces their external resources. An alternative mechanism, information sharing, potentially operates in parallel. Civilian informing is a key constraint on insurgent violence (Kalyvas 2006). Direct fire and IED attacks are susceptible to exposure if civilians alert counterinsurgent forces. Indirect fires are less vulnerable to informing because they can be set up at long range (Berman, Felter, and Shapiro 2018). As such, insurgent substitution from direct into indirect fires is consistent with a shift into cheaper tactics (the resource mechanism) and a shift

[20] DBE units were organized into five areas of responsibility.

TABLE 3 Border Fortification and Civilian Victimization in Iraq

	Hypothesis 2			Hypothesis 3		
	Insurgent Civilian Casualties	Insurgent Collateral Damage	Sectarian Killings	Insurgent Civilian Casualties	Insurgent Collateral Damage	Sectarian Killings
Border Fortification × Ingroup				−0.531*	−0.398**	−0.265†
				(0.221)	(0.095)	(0.132)
Border Fortification	−0.044	−0.099	−0.052	0.439†	0.265*	0.189
	(0.080)	(0.077)	(0.064)	(0.243)	(0.118)	(0.152)
District FE	Y	Y	Y	Y	Y	Y
Year-specific month FE	Y	Y	Y	Y	Y	Y
Sunni × Year FE	Y	Y	Y	Y	Y	Y
Political/socioeconomic controls	Y	Y	Y	Y	Y	Y
Security controls	Y	Y	Y	Y	Y	Y
Spatial lag	Y	Y	Y	Y	Y	Y
Lagged DV	Y	Y	Y	Y	Y	Y
Constant	1.190	−0.017	2.959	2.085	0.622	3.438
	(2.664)	(1.457)	(2.720)	(2.474)	(1.294)	(2.643)
Observations	2,109	2,109	2,109	2,109	2,109	2,109
R^2	0.496	0.487	0.667	0.498	0.488	0.667
Log-likelihood	−2,097	−1,990	−2,457	−2,092	−1,987	−2,456
AIC	4,240	4,026	4,961	4,232	4,022	4,961

Notes: Robust, district-clustered standard errors are in parentheses. The sample includes all districts in border governorates. Ingroup is an indicator for homogeneous sectarian districts; the constituent term is absorbed by district fixed effects. Controls are described in Table 1. Outcomes are z-standardized.
† $p < .1$; * $p < .05$; ** $p < .01$.

into less collaboration-sensitive tactics (the information mechanism).

I investigate the information-sharing mechanism in SI Table C1, where I study suicide attacks. Suicide bombings are highly resistant to exposure and so should increase in fortification if the information-sharing mechanism predominates. Instead, results show that border fortification has a precise null effect on suicide attacks. While relatively cheap, these attacks were primarily perpetrated by foreign fighters in Iraq, whose travel into the country was impeded by fortification. This finding is more consistent with the resource mechanism. Still, the information mechanism may complement the resource-centric logic of the fortification dilemma.

Insurgent–Civilian Relations

Hypotheses 2 and 3 anticipate that rebels respond to border fortification by reducing civilian victimization, particularly of ingroup civilians. Table 3 tests these expectations, studying three per capita outcomes: insurgent civilian casualties, insurgent collateral damage, and sectarian killings.[21] Parameters follow the main specification from column 5 of Table 1. Columns 1–3 test the main effect of fortification on victimization. Estimates are negatively signed but small and imprecise, offering weak support for Hypothesis 2.

Hypothesis 3 anticipates that the reduction in civilian victimization following interdiction of rebels' transnational logistics should manifest most acutely in areas where rebels' prospective civilian supporters are concentrated. In these areas, shared identity ties create affinity and render rebels' overtures more credible. Ethnic geography provides a heuristic for rebels and potential civilian supporters. Insurgent predation in homogeneous districts dominated by ingroup civilians is likely to target co-sectarians, alienating (prospective)

[21] Outcomes are z-standardized for interpretability.

supporters. Victimization in mixed areas is more likely to target outgroups, against whom ingroup civilians may tolerate violence.

To test this proposition, in columns 4–6 of Table 3, I interact fortification with an indicator for homogeneous districts, defined as districts where a Sunni, Shi'a, or Kurdish party won at least 66% of the vote share in the 2005 election. Insurgents operating in homogeneous districts are likely to share ingroup identity ties with the dominant sect (Haddad 2014). Correspondingly, fortification in homogeneous districts is associated with a 0.53 standard deviation (s.d.) reduction in insurgent civilian casualties, a 0.40 s.d. reduction in insurgent collateral damage, and a 0.27 s.d. reduction in sectarian killings. These effects reverse in mixed districts, where rebel violence can more easily target outgroup civilians. Fortification causes a 0.44 s.d. increase in insurgent civilian casualties, a 0.27 s.d. increase in insurgent collateral damage, and a 0.19 s.d. increase in sectarian killings in mixed areas.

One possible concern is that fortification caused a reduction in insurgent civilian victimization because it impeded rebel production of violence, not because insurgents adapted by cultivating civilian support. Sectarian heterogeneity in the effect of fortification is inconsistent with this view. I would not observe increasing victimization in mixed sectarian districts if border fortification simply reduced militants' ability to produce violence generally. SI Figure C1 also yields no evidence of an overall decline in violence in response to fortification. The insurgents' ability to reduce collateral damage in homogeneous areas, despite adopting less precise tactics (indirect fires), is strongly suggestive of conscious effort to minimize civilian harm.

Several additional tests confirm the robustness of these results. To address concerns about underreporting, I reestimate results focusing on the extensive margin of one-sided violence (SI Table C2) and find similar effects. In SI Figure C2, I disaggregate the results by sect. The negative effect of fortification on victimization is largest in Sunni districts. By contrast, fortification had little distinguishable effect in Shi'a districts, and it had a positive effect in mixed districts.[22] As noted above, fortification efforts chiefly focused on interdicting external support to AQI and Rejectionist groups, which operated mostly in Sunni areas. SI Figure C2 also confirms that results are robust to operationalizing districts' sectarian composition using population rather than vote shares. In SI Table C3, I show results are robust to alternate specifications and estimators.

[22]I also find consistent evidence studying sectarian transborder settlements (SI Figure C3).

These findings bolster extant models of the sectarian war in Iraq. As Weidmann and Salehyan (2013) show, insurgent groups deliberately targeted civilians in mixed areas, driving segregation into homogeneous sectarian enclaves. By using violence in mixed regions, insurgents polarized the population along ethnic lines. In turn, this effort enhanced insurgents' ability to obtain succor from ingroup civilians. Sectarian violence forced civilians to turn to ingroup rebels for security. Particularly in mixed areas around Baghdad, Sunni civilians relied on Sunni insurgents for protection against Shi'a militias. Security is a key resource insurgents can provide to cultivate civilian support (Wood 2010). From this perspective, insurgents' response to fortification was about creating a problem only they could solve. Border fortification contributed to increasing civilian victimization in mixed sectarian areas, bolstering ingroup civilian support for insurgents in homogeneous areas, where civilians turned to rebels for protection.

Robustness and Extensions

Rich data from Iraq permit a variety of additional tests, which illustrate further implications of the fortification dilemma.

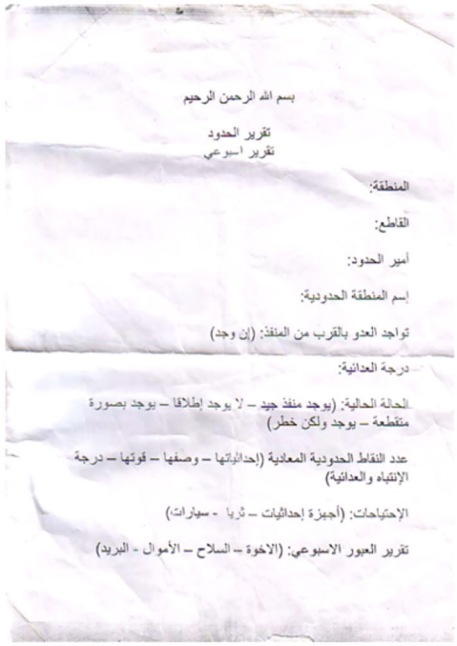
Rebel Surveillance

Insurgents concerned about border fortification should focus intelligence-gathering efforts on counterinsurgent enforcement. For example, by spying on border infrastructure, insurgents could identify safer crossings. Captured AQI documents (Figure 4) reveal militants did just that. AQI established a "border emirate" to manage its foreign logistics, and it compiled weekly reports about enforcement, including documenting the ease of crossing in various locations.

Rebel Finances

The fortification dilemma should emerge whenever fortification increases the price of external support. Unique data from captured insurgent financial records (Bahney et al. 2010) permit an exploratory test. The records detail fiscal transfers from AQI's provincial administration to Anbar sectors from June 2005 to October 2006. Results in SI Table D1 suggest that fortification increased province-to-sector transfers by 0.23 s.d. This implies about $31,353 per month in spending by the average cell.

FIGURE 4 Insurgents Surveilled Border Fortification



بسم الله الرحمن الرحيم

تقرير الحدود
تقرير اسبوعي

المنطقة:

القاطع:

أمير الحدود:

إسم المنطقة الحدودية:

تواجد العدو بالقرب من المنفذ: (إن وجد)

درجة العدائية:

الحالة الحالية: (يوجد منفذ جيد – لا يوجد إطلاقا – يوجد بصورة متقطعة – يوجد ولكن خطر)

عدد النقاط الحدودية المعادية (إحداثياتها – وصفها – قوتها – درجة الإنتباه والعدائية)

الإحتياجات: (أجهزة إحداثيات – ثريا - سيارات)

تقرير العبور الاسبوعي: (الاخوة – السلاح – الأموال - البريد)

In the name of God the most Merciful, the most Compassionate

Borders Report
Weekly Report

Area:
Sector:
Borders' Emir:
Name of the border area:
Enemy locations near the port of entry: (if any)

Level of hostility:
Current situation: (there is a good port of entry – there is none at all – there is an intermittent port of entry – there is a port of entry but it's dangerous.)

Number of enemy border checkpoints (coordinates – description – strength – level of attention and hostility.)

Equipments required: (coordinates systems – cell phones – vehicles.)

The weekly crossing report: (the brothers – weapons – funds – mail.)

End of document / translation

Notes: The document (left) is a template of border reports compiled by AQI spies and captured by US forces in 2007. The translation (right) is provided by the Combating Terrorism Center. Harmony Program: NMEC-2007-658008.

Other records reveal why enforcement increased militant expenditures—fortification raised smugglers' fees. AQI financial ledgers indicate cells were paying up to $4,985 to smugglers biweekly, with an average expenditure of $3,425 per month.[23]

Military officials recognized that insurgent spending in communities where fortification disrupted local livelihoods facilitated militants' efforts to build support. Troops in Anbar noted that "the geographically remote villages and tribes assist in smuggling weapons and Foreign Fighters (FF) because it provides basic life sustainment for these villages that have little or no local industry or commercial potential" (CJSOTF–AP 2007). This effort was facilitated by many militant commanders' prior experience in Baathist smuggling networks.[24] These results also underscore synergy between territorial control and smuggling (Asal, Rethemeyer, and Schoon 2019). Fortification degraded insurgents' foreign control, constraining trafficking. Consequently, insurgents sought greater local control in receptive borderland communities, which afforded new smuggling opportunities.

Rebel Smuggling

Iraqi militants leveraged historical trafficking networks, through which they could continue accessing foreign support. Tactical shifts along smuggling routes could cause conflict spillovers, biasing estimates. Spatial lags in the analyses account for spillovers, but to further probe smuggling dynamics, I study ratlines geotraced from a declassified map (SI Figure D1). If tactics hinge on insurgents' abilities to sustain external resources, the effect of fortification should attenuate where insurgents maintain alternate lines of communication.

I test this implication in SI Figure D2. Consistent with the main logic of the fortification dilemma, fortification caused insurgent shifts into irregular tactics and reduced civilian victimization where insurgents did not have access to ratlines that could facilitate external resupply. Fortification caused precisely the opposite effects—more conventional attacks and civilian victimization—where insurgents maintained hard-to-interdict ratlines. Along high-density trafficking nodes where insurgents could access multiple routes but

[23]Harmony Program: NMEC-2007-657731; NMEC-2007-657777; NMEC-2007-657860.

[24]Prior experience was an advantage for coordinating logistics; however, leaders feared ex-Baathists were vulnerable to foreign influence by virtue of past contacts with regional intelligence services (Harmony Program: NMEC-2007-612449).

counterinsurgent surveillance was concentrated, fortification had no distinguishable effect on violence.

Sponsorship and Subversion

Subversion by hostile neighbors frequently undermines state capacity (Lee 2020). In Iraq, Iran actively countered border enforcement, using bribes and incursions to ensure resources reached their militant surrogates (Felter and Fishman 2008). An implication is that fortification should have weaker effects in areas dominated by Iranian proxy groups, which could rely on Iranian subversion to sustain external resources. SI Table D2 explores this implication, focusing on Jaish al-Mahdi (JAM)-dominated areas contiguous to Iran. In these regions, the effect of border fortification was substantively small and indistinguishable.

SI Tables D3 and D4 study other neighboring countries—Saudi Arabia, Syria, Jordan, and Kuwait. The former three tacitly sponsored militants but did not engage in overt subversion. Effects of fortification are large and precise in districts adjacent to these states. In contrast, Kuwait was not an important conduit for insurgent support because it sealed its border with Iraq after 1991. Negligible effects of fortification in areas near Kuwait reflect this dynamic. Together, these findings suggest the effect of fortification is conditional on interstate dynamics between target and sanctuary countries (Gavrilis 2008). Overt (versus tacit) sponsorship attenuates the efficacy of fortification. The interaction of border security regimes is also relevant. Iraq's 2007 national border strategy emphasized the value of "regional engagement… to synchronize border efforts" (Multi-National Corps-Iraq 2007).

Temporal Dynamism

The effect of border fortification could decay over time as insurgents find new bases of support. On the other hand, without alternate smuggling routes or overt support from a state sponsor, insurgents may be unable to recoup external resources. This would imply durable tactical shifts. I take several approaches to understand temporality in the effect of fortification. First, SI Figure B2 plots event study estimates. Second, in SI Figure D4, I reestimate a series of regressions of progressively longer leads of outcomes on border fortification. The results suggest that tactical shifts emerge quickly and persist for roughly a year. Effects on civilian victimization emerge somewhat more slowly and attenuate in the longer run (12–22 months post-treatment). That tactical substitution attenuates before victimization effects may indicate that insurgents' efforts to build support succeed in mobilizing civilians, relaxing constraints on production of conventional violence (Bueno de Mesquita 2005, 2013).

The prospect of temporal heterogeneity in the effect of fortification raises questions about the constant effect assumption. With staggered treatment, difference-in-differences estimators based on two-way fixed effects yield a variance-weighted average treatment effect. When already treated units act as controls, changes in treatment effects over time may bias the overall estimate (Goodman-Bacon 2021). SI Figure D5 depicts results based on new classes of difference-in-differences estimators. The findings are unchanged.

Placebo Tests

I argue that border fortification affects violence by interdicting insurgents' external resources. One concern is that tactical substitution could owe to a composition shift in government targets (Braithwaite and Johnson 2015) rather than insurgent resources. Border forts are fixed installations that pose a convenient target for indirect fires. Another concern is that the observed effects are generic to all Iraqi counterinsurgent presence. Placebo tests using the construction of non-fort security infrastructure—such as military bases and police facilities—help rule out these possibilities. If substitution into indirect fires occurred solely because forts are opportune targets, I would anticipate similar effects of other fixed infrastructure. Likewise, while other security facilities afforded a greater Iraqi role in counterinsurgency, they were not used to interdict borders and so should not affect insurgents' endowments. Encouragingly, results in SI Figure D6 confirm that the effects are unique to border forts, bolstering the resource-centric logic I posit.

Conclusion

While the conventional wisdom on counterinsurgency strategy suggests border fortification is critical for defeating transnational insurgents, I argue that this unqualified prescription neglects important tactical dynamics. To the extent fortification efforts degrade transnational rebels' external resources, rebels are likely to adapt by seeking to cultivate better relations with the civilian population in the target state. As a result, border fortifications, while reducing the fighting capacity of insurgents,

can also induce greater competition between rebels and counterinsurgents for the loyalties of the civilian populace. Counterinsurgents contemplating pursuing border control must weigh whether the good consequences—reduced insurgent capabilities—outweigh the bad—increased competition over hearts and minds.

The relationship between resources and military power is a first-order question for political economy theories of conflict. Results presented in this article extend important theories linking rebel resources and tactics, and offer some of the first plausibly causal evidence about how resources impact combat capacity. The results also challenge prevailing accounts about how resource losses spur rebel predation. If civilians are central to rebel recovery, rebels may engage in greater forbearance, not victimization, after losses. Perhaps most critically, this article highlights the importance of viewing transnational dimensions of civil war as a subject of contestation in themselves. External sanctuaries and resources are not exogenous or incontestable characteristics of rebellion, and efforts to reduce rebels' transnational support bear crucial consequences for the microdynamics of conflict.

The policy implications are clear. Although border fortification can help degrade transnational insurgents' capabilities, counterinsurgents must be prepared to endure irregular campaigns and to invest in hearts-and-minds initiatives designed to raise living standards and civilian livelihoods. Otherwise, fortification-induced competition from insurgents over civilians' loyalties may ultimately make counterinsurgents' tasks more difficult. Population-centric programs should be employed in tandem with counterinsurgent border fortification.

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Supporting Information

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Appendix A: Data and Measurement
Appendix B: Identification Strategy
Appendix C: Robustness of Main Results
Appendix D: Empirical Extensions