IS THERE AN "EMBOLDENMENT" EFFECT? EVIDENCE FROM THE INSURGENCY
IN IRAQ

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ABSTRACT

Are insurgents affected by new information about the United States' sensitivity to costs? Using data on attacks and variation in access to international news across Iraqi provinces, we identify an "emboldenment" effect by comparing the rate of insurgent attacks in areas with higher and lower access to information about U.S news after public statements critical of the war. We find that in periods after a spike in war-critical statements, insurgent attacks increases by 7-10 percent, but that this effect dissipates within a month. Additionally, we find that insurgents shift attacks from Iraqi civilian to U.S. military targets following new information about the United States' sensitivity to costs, resulting in more U.S. fatalities but fewer deaths overall. These results suggest that there is a small but measurable cost to open public debate in the form of higher attacks in the short-term, and that Iraqi insurgent organizations - even those motivated by religious or ideological goals - are strategic actors that respond rationally to the expected probability of US withdrawal. However, the implied costs of open, public debate must be weighed against the potential gains. We conclude that to the extent insurgent groups respond rationally to the incentives set by the policies of pro-government forces, effective counterinsurgency should prioritize manipulating costs and inducements, rather than focus simply on search and destroy missions.

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1. INTRODUCTION

The claim that information about the United States' sensitivity to costs, as revealed though open debate or shifts in public opinion, can embolden adversaries and reduce the likelihood of achieving military victory has been a common feature in previous U.S. wars, and particularly in U.S. counterinsurgency campaigns. In the Philippines, where the United States successfully suppressed an insurrection from 1899 to 1902, Theodore Roosevelt referred to critics of harsh U.S. tactics - including the use of torture and indiscriminate violence against civilians - as encouraging Filipinos to challenge U.S. authority (Welch 1974). In the Vietnam war, others argue that the United States' "failure to demonstrate resolve" created the belief among North Vietnamese insurgents that they could outlast a militarily superior force, extending the war and contributing to the U.S. defeat (Walton 2002: 40). More recently, the Bush administration and its supporters have generated controversy by suggesting that public criticism of its war policies in the current conflict in Iraq undercuts the United States' reputation for resolve and encourages attacks on the United States and U.S. forces deployed overseas. In Iraq, as in these previous conflicts, opponents claim that this line of argument represents an attempt to brand critics as unpatriotic and shield government decision makers from legitimate public criticism.

Both sides, however, overlook that what we will call the "emboldenment view" represents a set of empirically testable propositions about the relationship between open debate, credibility, and the behavior of insurgent groups. Researchers have identified the general importance of resolve and credible commitments in the initiation and termination of conventional and civil wars, but there has been little empirical research examining this issue in the context of insurgencies.[1] In these types of conflicts, resolve refers to the perceived commitment of the counterinsurgent to bearing the costs of defeating insurgency. The emboldenment perspective might be separated into two distinct sets of arguments about why the perception of low resolve in one period increases insurgent violence in a subsequent period. A "cost sensitivity" argument posits that signals undercutting the perception of U.S. resolve in Iraq are likely to produce greater levels of violence if insurgents perceive that increasing the costs of the U.S. presence will induce withdrawal - that is, if the United States appears to be responsive to the costs imposed by the insurgents in the form of higher attacks. A "fence-sitting" hypothesis suggests that lower resolve may indirectly strengthen the insurgency by reducing support for pro-government forces in the wider population. Individuals, and particularly those uncommitted to either side in a civil conflict, are less likely to collaborate with the government by providing information or withholding support for insurgents if pro-

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[1] The classic work on commitment issues in international politics is Schelling 1966; see also Fearon 1995. Recent work has also addressed how states acquire a reputation for resolve and what influence, if any, previous actions exert on the behavior of adversaries. See Press 2005 and Mercer 1996; in the context of the United States and Islamic extremists, see Fettweis 2008 and Shannon and Dennis 2007. Malkasian 2006 and Race 1973 present some qualitative evidence on the impact of resolve on insurgent violence and recruitment in Iraq and Vietnam, respectively.

government forces cannot credibly protect them from future retribution by insurgent groups. Both mechanisms imply that insurgent groups are strategic actors that respond to incentives created by the policies of the incumbent government and its external supporters.

Is there evidence for an emboldenment effect in Iraq? Using data on insurgent attacks, variation in access to international news across Iraqi provinces, a measure of anti-resolve statements in the U.S. media, and the release of U.S. public opinion polls, we provide one possible picture of whether open public debate exerts a positive effect on the rate of insurgent violence. We identify a possible emboldenment effect by comparing whether the availability of information about U.S. cost-sensitivity via anti-resolve statements or negative poll releases have differential impacts on the rate of insurgent attacks in areas with higher and lower access to information about U.S news. This difference-in-difference approach isolates the effect of information about the level of U.S. resolve from the many other possible sources contributing to variation in insurgent attacks. We find that in periods immediately after a spike in anti-resolve statements, the level of insurgent attacks increases in provinces with greater access to U.S. news, but this effect dissipates in the following weeks. Among provinces matched on a broad set of social and economic indicators, insurgent attacks increase between 7-10%. However, new information about the level of resolve also results in insurgents shifting attacks from Iraqi civilians to U.S. military targets, resulting in more military fatalities but fewer fatalities overall. These results suggest, first, that there is a small but measurable cost to open public debate in the form of higher attacks in the short-term, and, second, that insurgent organizations - even those motivated by religious or ideological goals - are strategic actors that respond to the incentives set by the policies and actions of the counterinsurgent.

An important qualification to this empirical finding is that it does not represent a full account of the costs and benefits of open public debate about military strategy, or address the overall effect of public debate on the likelihood of defeating an insurgency. In the context of counterinsurgency campaigns, an unconditional commitment by an external force may have an unintended effect of reducing the incentive for the host nation to take greater responsibility for its own security (Byman 2006; Posen 2006). Extensive empirical research also suggests that open debate, independent scrutiny of official policy, and transparency improves the quality of decisions in democracies relative to closed political systems, and may at times be necessary to force changes in a flawed war strategy (e.g., Snyder 1991). Public criticism and policy reviews may therefore be net beneficial if the resulting improvements in strategy produce an overall reduction in attacks and fatalities. Without knowing how to weigh the gains from open debate against the cost of revealing information about the US sensitivity to costs, it is not possible to determine if public criticism is on balance bad.

This paper is organized as follows: Section 2 defines insurgency and discusses the development of the insurgency in Iraq. Section 3 presents the theoretical basis for an insurgent response to new

information about cost-sensitivity. Section 4 describes the data and the identification strategy used in this paper. Section 5 presents the results, and section 6 addresses possible concerns with the identification and estimation strategy. Section 7 concludes.

2. INSURGENCY AND COUNTERINSURGENCY IN IRAQ

Following Fearon and Laitin (2003), an insurgency might be defined as a type of armed conflict in which one group uses guerilla tactics to achieve the political goal of overthrowing an incumbent government or seizing and governing a breakaway territory.[2] "Counterinsurgency" refers to the political and military actions taken by either the challenged government or an outside actor to defeat a rebellion. Insurgent groups are generally weaker in conventional military terms; insurgent tactics are therefore designed to avoid directly engaging the counterinsurgent's main strengths by using concealment, small and highly mobile units, and subversion to defeat a militarily stronger power.[3] Insurgent political objectives seek to challenge and delegitimize the existing government through the use of violence, while forming or presenting an alternative that will be accepted by the contested population. Insurgent conflicts tend to be protracted, with both insurgent groups and the existing government competing for the loyalty and support of the wider population and with neither force able to achieve a decisive military victory. The average duration of insurgencies in the twentieth century is approximately nine years, with about half resulting in success (Eisenstadt and White 2005).

An important conceptual distinction is often drawn between insurgent violence and terrorism.[4] Terrorism - or the deliberate targeting of civilians for the purposes of inducing fear - can be motivated by a variety of reasons. Insurgents, by contrast, are motivated by the specific political objective of overthrowing the state, and may adopt terrorist tactics as one possible means to that end. The study of terrorism is focused on how these illegal networks are built and how this relates to the organization's ability to perpetrate attacks; in insurgencies these networks are directed toward the specific goal of delegitimizing and displacing the state.[5] Terrorist tactics are consistent with the need for insurgent forces to remain

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[2] According to Fearon and Laitin (2003: 75), insurgency is a "technology of military conflict characterized by small, lightly armed bands practicing guerilla warfare from rural base areas." The Central Intelligence Agency's *Guide to the Analysis of Insurgency* defines insurgency as a "protracted political-military activity directed toward completely or partially controlling the resources of the country through the use of irregular military forces and illegal political mobilization. Insurgent activity…is designed to weaken government control and legitimacy while increasing insurgent control and legitimacy."

[3] On insurgent military tactics, see Nagl 2002 and Krepenevich 1986.

[4] For a discussion on the distinctions between insurgency and other types of armed action, and particularly terrorism, see Byman 2007. There is considerable debate about the definition of terrorism. For a detailed discussion, see Krueger and Maleckova 2006.

[5] While quantitative research on insurgent actions is limited, there is an extensive line of research in the economics literature on terrorist organizations. Two strands have emerged: one focusing on the social determinants of terrorism (Krueger and Maleckova, 2006; Berrebi, 2003) and one focusing on modeling and testing the rational behavior of

concealed and avoid direct engagement with the frequently superior counterinsurgent military forces. Insurgent groups frequently abandon terrorist tactics as they gain in strength relative to government forces and can fight on conventional military terms (Krepenevich 1986). Thus, the study of insurgent behavior must also consider the broader political landscape in which these groups operate and the way in which that setting interacts with the specific objectives of insurgent groups to generate different incentives for behavior.

By these criteria, the United States has faced a devastating insurgency Iraq since overthrowing the previous regime in mid-2003. In March 2003, United States invaded Iraq with the goal of both disarming the regime of weapons of mass destruction and replacing Saddam Hussein's Ba'athist party dictatorship with a stable, liberal-democratic government that might serve as a broader model in the Middle East. The major conflict phase of military operations lasted until May 1, when President Bush declared "mission accomplished" on the deck of the aircraft carrier Abraham Lincoln. After a brief transition phase, the United States created an occupation government, the Coalition Provisional Authority (CPA), which exercised legal sovereignty until the transfer of power to an interim national government in June 2004. Legislative elections for the national government were held January 30, 2005. Although the United States formally turned over authority to a political leadership in Iraq, the Iraqi government remained completely dependent on the United States for its internal and external security, and the United States continues to play a significant role in political decisions.

The Iraqi insurgency has steadily grown in size and capability since 2003, and has generated a consistent level of violence through shootings, indirect fire (such as mortar attacks), kidnappings, and bombings (ranging from improvised explosive devices to large-scale suicide attacks). Insurgent violence has been directed to varying degrees at U.S. forces, Iraqi civilians, and Iraqi police and security personnel. Violence levels have generally been high nationwide, with the highest rates of attacks in Baghdad and the surrounding areas. Large fatalities and a majority of the attacks occurred in the center of the country including the urban areas of Baghdad, Fallujah, Ramadi, Baqua, and Najaf, with the notable exceptions of Mosul (in the North) and Basrah (in the South). The continued low-level violence concentrated in central Iraq has been punctuated by several major bombings that have resulted in hundreds of civilian casualties or targeted high-profile religious or political sites, for example the January 2006 bombing of the Golden Shrine in Samarra and the 2004 bombing of the U.N. mission in Baghdad, which resulted in the death of the UN's senior envoy in Iraq.

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terrorists (Berman and Laitlin 2005; Kalyvas 2005, 1999; Hoffman and McCormick 2004; Pape 2003; Iannaccone, 2003; Hoffman and McCormick 2004; Iannaccone 2003; Pape 2003; Wintrobe 2003; Berman 2003; and Sprinzak 2000). A large strand of this explicitly focuses on the use of religion as a group commitment device and incentivizing tool (based on Iannaccone, 1992). A controversial exception to this is the extensive literature on the Israeli-Palestinian conflict (Berribi and Klor, 2006). For example, recent work by Klor, Miaari and Paserman (2008) finds behavior effects of poll releases on Palestinian but not Israeli armed attacks.

The insurgency in Iraq stems from several sources, all with a variety of motives, capabilities, and degrees of organization.[6] On the Sunni side, the insurgency is driven by former Baath party elements, particularly from the former military and para-military security services, who seek to return to power and fear oppression under a Shia-dominated state, nationalists who object to the U.S. occupation, and religious extremists. The Sunni insurgency is also driven by foreign volunteers, most notably those linked to al Qaeda. Intelligence analysts disagree on the extent to which "al-Qaeda in Iraq" (AQI) is "home-grown" or has organizational links to the international network led by Osama bin Laden, but the group nonetheless shares al-Qaeda's broader ideological and religious goals of establishing an extreme version of Islamic law and a pan-Arab Caliphate. Although AQI is frequently blamed for a disproportionate number of insurgent attacks, best military estimates place its membership at most at 15% of total insurgent manpower (Tilghman 2007).

On the Shia side, anti-government violence is driven primarily by large militia groups. These groups include both nationalists seeking to eject the United States from Iraq, rival factions that oppose the particular Shia coalition represented in the national government, and organized militias responding to heightened violence by the Sunni insurgency. As the violence between the Sunni and Shia groups has escalated, the communities have become more hardened and less trustful, further contributing to violence (Kaufman 2007). A Kurdish minority in the north is relatively stable and has remained largely outside of the insurgency.

3. THEORETICAL BASIS FOR AN "EMBOLDENMENT" EFFECT

Insurgent conflicts are characterized by a competition between government and anti-government forces over the control of the population and the legitimacy of the existing state. We use the term resolve to refer to the perceived willingness of a counterinsurgent to bear the costs of defeating an insurgency. The Bush administration has placed a high premium on issues of resolve, and frequently portrays the conflict in Iraq as a contest of wills between the United States and the Iraqi insurgency: "By attacking coalition forces -- by targeting innocent Iraqis and foreign civilians for murder -- the terrorists are trying to weaken our will. Instead of weakness, they're finding resolve" (Bush 2004).

Variation in the counterinsurgent's - and in this case, the outside actor's - perceived level of resolve might influence insurgents via two mechanisms. First, declining resolve might directly raise the level of anti-government violence initiated by the insurgents. Insurgents may look for information that increasing the costs of engagement for the outside actor affects its level of support. The appearance of

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[6] On the composition of the insurgency, see Tilghman 2007; Hashim 2006; and Eisenstadt and White 2005. On the origins of the insurgency in the initial aftermath of the invasion, see Gordon and Trainor 2006; Ricks 2006; and Diamond 2005.

reduced commitment in response to a higher level of violence produced by insurgents may support the belief that commitment is related to the costs incurred from insurgent actions.[7] This view further implies that if the external actor can credibly commit to unconditional support regardless of the level of violence, then the insurgent group's best option is give up. Malkasian, for example, argues that "signaling resolve - taking actions that indicate that the government or occupying power will bear the costs of suppressing the insurgency - plays a critical role in convincing potential insurgents of the futility of violence" (2006: 423). An additional implication is that any cost-sensitivity effect should be larger in periods when the counterinsurgent's policy in flux. In periods when the level of commitment is settled, heightened violence is less likely to produce a course change; in periods where the counterinsurgent's policy is up for debate, greater violence has the potential to decisively alter the course of action.

Second, perceptions of declining resolve might reduce support among the wider population for the incumbent government. Classic counterinsurgency theory identifies the population as the "center of gravity" in counterinsurgency warfare, and suggests that counterinsurgency campaigns should therefore be thought of as a competition between the government and the insurgents over the loyalty of the population (e.g., Galula 1964; Huntington 1965; Nagl 2002). The key point of contention is security - creating the belief among the population that pro-government forces can offer better protection than anti-government forces. Hence the most recent U.S. Army/Marine Corps Field Manual (FM 3-24) stresses "population security" over "search and destroy" missions, and argues that the military's "primary function in COIN [counterinsurgency] is protecting that populace." A credible commitment to population protection both demonstrates that areas will be safer remaining loyal to the government and signals to potential collaborators that they will not face reprisals if they support or share information about insurgent activity with pro-government forces. The perception of declining resolve can reduce support for the government among the population if it places this protection in doubt - individuals are less likely to collaborate with the government if the counterinsurgent force cannot credibly protect them from future reprisals, or those already loyal to the government might flip their support. According to the U.S. Field Manual (2007, 43):

> "The populace may prefer the HN [Host-Nation] government to the insurgents; however, people
> do not actively support a government unless they are convinced that the counterinsurgents have the
> means, ability, stamina, and will to win. The insurgent's primary battle is against the HN
> government, not the United States; however, U.S. support can be crucial to building public faith in
> that government's viability. The populace must have confidence in the staying power of both the
> counterinsurgents and the HN government."

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[7] For example, the National Strategy for Victory (2005) states that "The enemy seeks to weaken the coalition's resolve and our resolve at home through barbaric mass casualty attacks, public slaughter of Iraqi civilians and hostages, infliction of casualties on coalition forces and use of the media to spread propaganda and intimidate adversaries."

Declining support from the wider population may take several forms. As many counterinsurgency theorists have noted, the ability to gather intelligence is often the critical factor in determining the success of counterinsurgency campaigns, and the population itself is a key source of information for the counterinsurgency force in separating combatants and non-combatants.[8] According to Kahl (2007), "Protecting and developing relationships with the population…allows counterinsurgents to derive 'actionable' intelligence that is vital to efficiently targeting the rebellion." This is particularly true for foreign forces, who suffer from an initial deficiency in their level of, or ability to gather, knowledge about the local environment. Fence-sitters may be less likely to provide critical information if they believe the counterinsurgency force will not be present or capable of assuring the security in the future. The perception of declining resolve may also improve insurgent recruitment, as individuals seek to bandwagon with what appears to be the winning side. Insurgents also rely on the population for passive support in the form of safe houses, transportation, weapons storage, etc. More generally, successful counterinsurgency requires carefully building trust and social capital in local communities. It may be more difficult to build these relationships and networks if communities are uncertain that they will be protected from insurgent violence in the future for collaborating.

One issue raised by this argument is whether low resolve signals can be easily reversed. The costs to emboldening statements may not be high if they can be easily mitigated by subsequent statements and actions. In the context of counterinsurgency, uncertainty in the form of conflicting signals may have the same effect as low resolve in inducing fence-sitters to side with the insurgency over the United States. If the likelihood of U.S. withdrawal or a future reduction support for the national government is perceived to have increased, unallied groups may opt for the local forces (such as the insurgency), who are certain to remain even after foreign forces have left. Thus, the insurgents offer more predictability even if their objectives are not the populace's first preference.[9]

A second issue is whether insurgent groups are more likely to pursue an alternative strategy of "playing dead," in which they reduce violence levels to induce the outside actor to commit to withdrawal at some specified future date. The reduced violence would be intended to ensure withdrawal occurs, after which the insurgents could immediately increase violence.[10] This theory again treats insurgent groups as

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[8] See also FM 3-24 2007 and Fearon and Laitin 2003 on the "identification" problem counterinsurgents face in separating combatants from non-combatants. According to Fearon and Laitin (2003: 80), insurgents' natural advantage in information about the local population "allows the active rebels to threaten retribution for denunciation credibly."

[9] In market settings, it has been noted (most recently by Bloom 2007) that there may be a "trade-off between policy 'correctness' and 'decisiveness.' To the extent that there are 'uncertainty effects,' it may be better to act decisively (but occasionally incorrectly) then to deliberate on policy, generating policy-induced uncertainty."

[10] The essential difference between the "emboldenment" and "playing dead" hypotheses was captured in exchange between comedian Jon Stewart and former Press Secretary Tony Snow on the *Daily Show*:

strategic actors seeking to get the largest "bang per buck" of the violence they produce. If the support of an external actor is withdrawn, the destabilizing effect of violence may be substantially greater post-withdrawal and the potential cost of inducing the actor to remain due to maintaining violence will induce insurgents to postpone violence to the post-withdrawal period.[11] However, this strategy is made more difficult by the critical importance of fence-sitters, for whom a continued visible presence by the insurgents is necessary to maintain and increase support for their cause. Ultimately, the strategy adopted by the insurgents is an empirical question based on their own objectives and their perceptions of which strategy is likely to be most effective.

4.   DATA AND EMPIRICAL STRATEGY

4.1 Identification

To identify the effect of political debate on insurgent behavior, we combine variation in potentially emboldening statements reported in the U.S. media with variation in access to U.S. media in Iraq. Specifically, we use differences in the penetration of satellite TV across the 18 Iraqi provinces and the fact that satellite television provides more direct information about the U.S. policy.   Under the intuition that areas with greater exposure to U.S. and international media will more be more responsive to "emboldening" statements by U.S. political figures than areas with lesser exposure, we use measures of access to satellite television as an instrument for the rapidity of information diffusion. This estimation method relies on the importance of these media mentions in providing salient information about U.S. political resolve. Using a difference-in-differences strategy, we look at the effect of media content on insurgent behavior before and after statements related to U.S. cost-sensitivity, in regions with higher versus lower levels of satellite penetration.

Next, we divide the sample into three periods surrounding the 2006 U.S. congressional election. As discussed above, in time periods where declining public support and criticism of the U.S. military

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Stewart: How do [Bush administration officials] know what emboldens the terrorists so well? They seem to always know what emboldens the terrorists. For instance, when we have an argument about his policies, that's very emboldening, apparently, to the terrorists.

Snow: Well, let me put it this way: if you're Al Qaeda, and you think you're going to be able to chase the United States out, when we have clear military superiority, we've got the ability to win on the battlefield, and you end up leaving because of political pressure that in some ways have been fomented by their ability to stick it out, you look at yourself as a winner!

Stewart: But the President says we'll leave when there's an acceptable level of violence. So, if I'm Al Qaeda, and I want the U.S. to leave, don't I just lay low until they leave?

Snow: Yeah, but apparently they're not smart enough to figure that out…

[11] This reverse is also plausible - a surge in military commitment may also lead to a playing dead strategy, as insurgents wait out the expanded military presence.

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policy are unlikely to prompt U.S. withdrawal - and thus U.S. policy is less sensitive to insurgent costs - the responsiveness of a strategic insurgent group to opposition statements should be nearly zero. The first period spans the re-election of George W. Bush in 2004 until after the off-season election in 2005. During this period, opposition statements and the release of polls showing declining support should be relatively uncorrelated with the levels of attacks because the level of U.S. commitment was more settled following the perceived "mandate" afforded to George W. Bush after his re-election. The second period spans the November 2005 until the mid-term election in 2006 in which the Democrats regained control of the U.S. Congress. In this period, media mentions and public opinion are especially important in generating a potential U.S. withdrawal. The third period spans the post-election, lame-duck session, the new Congress, and the Surge. In this period, because of large changes in the U.S. political landscape and counterinsurgency strategy, the insurgent response to media information may be more responsive than in the first period but less responsive than in the second period.

We use satellite television because it is an important source of information in post-Saddam Iraq, and therefore a useful proxy for access to information about the U.S. political debate. Prior to the U.S. invasion in 2003, Iraqis were banned from owning satellite television and had access only to state-run news stations. After the collapse of Baathist-run television stations, Iraqis were "starve[d] for information," and the sale of satellite dishes "skyrocketed in the months following the invasion, leading to one of the highest penetration rates in the world in just two years."[12] Despite high overall penetration levels, there is also great deal of geographic variation in access. According to a media poll by United Kingdom's Department of State, Office of Intelligence and Research, while nearly all (93%) Iraqis report owning a television, only about a third (33%) have access to a satellite dish (either at home, a friend's residence, or at work). The two-thirds (62%) of Iraqis report that they have no access satellite television tend to be less educated and poorer.[13]

In addition, the content of satellite television is dominated by foreign, and in particular U.S., content. This developed for two reasons. First, emerging television networks are heavily regulated by the Iraqi government. For a brief but critical period of time, the CPA banned stations that might incite anti-U.S. violence, resulting in predominantly U.S.-based content.[14] In 2004, the Iraqi Interim Government set up a Higher Media Commission to regulate and license television stations. This Commission increased foreign (and largely U.S.) based content and banned Arab stations deemed to be anti-U.S., such as Al

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[12] As of 2006, Iraqis with satellite television had access to over 300 satellite channels. For details on the emergence of Iraqi satellite television, see Cochrane 2006 and Bahadur 2005.
[13] Significantly, post-college graduates are three times more likely to have access to satellite television than those with a primary education or lower. A summary of results is available at
http://www.stanhopecentre.org/iraqmediapoll.shtml.
[14] Aljazeera.Net, September 23, 2003.

Jazeera and Al Arabiya.[15] Second, one of the most widely available TV stations is the U.S.-sponsored Al Iraqiyah, which began satellite broadcasting in October 2003. In January 2004, the U.S. Defense Department awarded Florida-based Harris Corporation a 12-month contract to manage the Iraqi Media Network, including Al Iraqiyah, which provides access to American programming.[16] Al Iraqiya's detailed content on U.S. issues relative to other sources is also due to the privileged status it was afforded by Coalition forces (Cochrane 2006). One indicator of the dominance of U.S. media content is the opposition of Iraqi religious groups and leaders to greater satellite TV access in Iraq, which they hold has increased the availability of Western and un-Islamic material (Bahadur 2005). The dominance of Western news and entertainment is evident of the availability of shows like ABC's *Extreme Makeover Home Edition* or the British show *Pop Idol* (Cochrane 2006, 13).

An obvious concern with using satellite television variation is the underlying reason why satellite access may vary by province. While some variation is related to the underlying wealth of the population, much of the variation is due to the existing technology and infrastructure. Blue Iraq, the company responsible for the satellite network in Iraq, provides several reasons why different regions may lack satellite access.[17] Performance problems on satellite networks have to do with several factors unrelated to either violence or socioeconomic characteristics. The first reason relates to the efficiency of the technology under use. Due to the high capital costs of deploying a satellite network, and relatively limited size of the satellite market, vendors often do not update their systems as new technology becomes available. Comparing a satellite network using early 1990s-era technology (Hughes DirecWay) to modern, efficient systems (such as iDirect), the modern system will provide much better performance for the same cost. This is due to more efficient encoding and traffic management technologies which are constantly being developed. The second issue relates to subscription management by carrier. The structure of satellite broadcast is such that all consumer/business satellite links are shared. As such, the satellite capacity must be sized for a given capacity with most sites transmitting at less than full speed most of the times. To avoid service interruptions, many network carriers limit the number of customers they add to their networks.

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[15] Cochrane (2006). For a discussion of popular Arab media, see *Los Angeles Times* (2003). For a sample of media content, see http://www.publicagenda.com/press/clips/cfpi4_clips_ais.pdf, http://alsumaria.com/en/iraq-files/us-iraq.php

[16] Although Al Iraqiyah has seen a steady improvement in the quality of its programming since early 2004, the network still offers few hours of original content. Among the original programs are daily news hour shows with detailed information on U.S. media watched by many, despite skepticism about its objectivity due to it close ties with the United States.

[17] Blue Iraq is a company focused on satellite, wireless, and network technologies. They currently operate a satellite network with reach throughout Iraq, and provide customer support and installation assistance from Iraq and Dubai (UAE). Their primary market is supporting Western military and commercial reconstruction efforts throughout the country. They also provide infrastructure to support rebuilt Iraqi domestic communications, as well as IT and communications to support NGOs, Iraqi organizations, and businesses to conduct their own operations. Information obtained from: http://www.blueiraq.com/

Third, satellite networks are designed around specific parameters, including coverage area and customer traffic profiles. Because there were many mismatched systems, that is systems were sold for purposes for which they were not designed, many areas have difficulty accessing satellite television, which deters take-up.[18] A fourth, problem relates to the interaction between the technology used and environmental factors. Satellite links are designed around a specific "link budget" to provide reliable communications in a variety of environmental conditions. These links require the correct interactive technology which is often not available in Iraq. Because of these "tight margins" on satellite links and the use of inferior equipment, undersized antennas, or insufficient error correction on such links, access in some regions will be problematic in suboptimal conditions (e.g. environmental or other extreme conditions). Finally, there is the inherent problem of satellite television: latency due to inherent limitations of the speed of light. Due to the extreme distance from the surface of the earth to geostationary earth orbit and back down to the satellite hub, there is an approximately 240 millisecond delay in each direction on a satellite link. While this is a fundamental limitation, there are several ways to minimize the practical effect of this delay. However, if not addressed, this latency can hinder reception, reliability, and other link characteristics as well. In regions without the preexisting infrastructure or subject to environmental hazards, access will be severely limited. The implication of these technology constraints is that individuals with similar tastes and characteristics, who may have same desire to adopt satellite television, will do so differentially in different regions due to the implied costs due to technological limitations. Thus, even if it could be demonstrated that the access of any given individual may be affected by income or desire for information, the variation in the province level measure nonetheless reflects the relative ease of access.

A second possible criticism of these measures is that insurgent groups pay little attention to media sources. However, reports indicate that insurgents in Iraq are particularly watchful of the media, and that the tactics used by al Qaeda in particular heavily rely on the propaganda potential of large media sources. According to Bruce Hoffman, "What I think has made the insurgency in Iraq so different from previous ones is the insurgents' enormous media savvy" (Ross 2006). Others have documented, based on insurgent-generated media such as websites, the extent to which Iraqi insurgent groups are detailed consumers of news on U.S. politics and policy (Kimmage and Ridolfo 2007, 88).

An additional assumption for this identification is that insurgent groups are decentralized and get information based largely on where they live, and not through a national network structure. This assumption also seems to be in line with the general intelligence information available.[19] While the

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[18] Blue Iraq describes this problem in more detail: "[T]he transponder chosen on a satellite will provide optimum coverage within a specific footprint, and the bandwidth, sharing ratio, and technology used for the system will best support certain types of customers."

[19] In January 2005 Iraqi intelligence service director General Mohamed Abdullah Shahwani estimated that Iraq's insurgency consisted of at least 40,000 hardcore fighters, out of a total of more than 200,000 part-time fighters and

assumption that insurgent access to information is decentralized appears reasonable given the information known about the insurgency, if a central coordinating body with better access to information determines violence levels, then this identification will fail to capture exogenous differences in attack behavior because the insurgency may be determining the allocation of violence simultaneous to the television programming. To the extent that insurgents are small in scale and news takers, as opposed to only news makers, any differential changes in attack behavior across high- and low-access areas might reasonably be interpreted as a response to information about the United States' policies and actions. Moreover, this criticism does not apply to the response of fence-sitters in the Iraqi civilian population - even if information is shared or distributed between insurgent groups, this is less likely to be true for the civilian fence-sitters who are also receiving information about the United States' level of commitment.

4.2 Data Sources

The data used in the estimation represents the most complete compilation of data available on the topic. It was compiled from a variety of sources in part by ourselves and in part by Greenstone (2007). Insurgency-initiated attacks and fatalities are among the best measured data related to the U.S. war in Iraq. To measure U.S. military casualties, we use counts obtained directly from the Department of Defense, which releases information on the date, location, and type of attack of each fatal casualty.[20] Data on Iraqi Security Force casualties are obtained from the *Brookings Iraq Index*, which is available monthly from 2003 to 2005. After 2005, weekly data is available from the Iraq Coalition Casualty Count.[21] To measure Iraqi civilian casualties, we aggregate attacks reported on the *Iraq Body Count* (IBC) website, which maintains an ongoing database of attacks with estimated numbers of fatalities from a variety of media sources (with the source of each attack documented), and provides a minimum and maximum estimated number of deaths when sources conflict.[22] For the purposes of this paper we use the estimated minimum number of deaths for any given attack.

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volunteers who provide intelligence, logistics and shelter. The former Ba'ath party-based insurgency has split into three factions and there are a wide range of Islamist factions from Abu Musab al-Zarqawi's al-Qaeda affiliate to Ansar al-Sunna and Ansar al-Islam. "THE INSURGENCY," at http://www.globalsecurity.org/military/ops/iraq_insurgency.htm. On the decentralized character of the Iraqi insurgency, see also Hashim (2006).

[20] This data excludes non-fatal casualties, which the DOD does not make public on privacy grounds. It also excludes "non-hostile" fatalities, which comprise about 19 % of all U.S. military deaths in Iraq. See http://icasualties.org/oif/HNH.aspx.

[21] Available at www.icasualties.org/oif/IraqiDeaths.aspx.

[22] There has been substantial controversy over attempts to measure excess violent civilian deaths in Iraq since the 2003 invasion. Most disagreement, for example over a 2006 study reported in the medical journal *The Lancet* which placed this figure around 601,000, concerns attempts to estimate this number through samples of household surveys administered directly in Iraq. We avoid these problems by using a direct count of military and civilian deaths compiled by the IBC and the Department of Defense.

We use two counts of the number of attacks and cross-check for consistency. First, we aggregate the number of incidents in any given week from the combined Iraqi civilian data. Second, we use monthly data on insurgent-initiated attacks on U.S. and Iraq security forces from the *Brookings Iraq Index.*

Quantifying media content that might bear on the perceived resolve of U.S. policy is obtained through two distinct measures. First, we construct an automated mentions count of potentially "emboldening" statements reported in major U.S. news outlets, which we define as the number of times top Bush administration officials—the President, Vice-President, Secretary of Defense, Secretary of State, Press Secretary, and the U.S. commander Iraq—refer to statements or actions by other U.S. political figures that might encourage violent extremist groups in Iraq.[23] This strategy provides an objective mechanism to classify what constitutes an emboldening or resolve-undermining statement or action.[24] We define "high mention" weeks as those weeks with at least 10 mentions.[25] We also compare these high mention weeks to high local media mention weeks as measured by statements in Al Jazeera.

Relying on a count of media mentions alone raises several problems, most importantly that U.S. political discourse may be driven by attacks, creating a possible bias related to reverse-causation. We thus use a second measure of resolve: the release of major polls regarding American attitudes towards the war in Iraq. Like the media mentions count, the content of public opinion polls contains information about the level of U.S. resolve. However, unlike statements by political officials, the timing of the release of polls is plausibly unrelated to the conditions on the ground in Iraq, even if broad changes in public support for the war are to some degree affected by the level of violence.[26] This is because media organizations want to produce regular series of polls to track public opinion, regardless of the status of the war, and as a result conduct such polls in regular intervals. Financial pressures and the desire to retain credibility in a competitive media market drive media organizations to report polls as soon as they have been vetted by in-house checkers.[27] In fact, most polls are released within 1 week of being conducted but the set-up prior to

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[23] We acknowledge that the U.S. commander in Iraq is not a member of the political leadership. We also acknowledge that the Press Secretary is not a top policy-maker, but include them because this person is often responsible for stating the administration's policy line in public. See data appendix for the individuals included in these categories for the time period under analysis.

[24] A full description of search terms and included newspapers is available in the data appendix. We distinguish between references to statements that are said by Bush officials to embolden attacks against U.S. forces in Iraq, and statements that are said by Bush officials to embolden attacks against the U.S. homeland. While this second claim is also an empirically testable proposition, for the purposes of this paper we focus only on the first.

[25] Specifications using a continuous measure of media mentions are presented in the supplementary results appendix.

[26] For a debate over whether U.S. public support is driven by solely by casualties or the perception of the likelihood of victory, see Feaver, Gelpi, and Reifler 2005/06; and Mueller 2005.

[27] In fact, recent work suggests that the financial pressures were previously generating premature releases (Mann, Orren, Shorenstein 1992). After the 2004 US Presidential Election, increased methodological concerns have forced many large media organizations to establish in-house standards (Daves and Newport, 2005). See for example, ABC News' Polling and Methodology Standards, available at http://abcnews.go.com/sections/us/DailyNews/poll_methodology.html.

the launch takes several weeks.[28] This timeline makes releasing polls immediately prior to high attack period highly unlikely. We track the release of major media-sponsored polls and treat the week of releases as "high information" weeks. We also verify that information about these polls was discussed on networks broadcast via satellite television using online transcripts from Al-Iraqiya.

Finally, in order to compare regions with different levels of satellite access in other characteristics that might plausibly affect violence levels, we use a broad set of social and economic variables collected in the Iraq Living Conditions Survey 2004 by the UN Development Programme and the Central Organization for Statistics and Information Technology, Ministry of Planning and Development Cooperation in Iraq.[29] Control variables used are population density, household size, average number of displaced persons, median household income, access to safe and stable drinking water, malnutrition rate, literacy rate, net primary school attendance, unemployment rate, and median hourly wage. We use estimates collected and constructed by the CIA on the dominant ethno-religious groups by province. These estimates label each region as predominantly Sunni, predominantly Shia, predominantly Kurd, or mixed.

4.3 Framework for Estimation

The effect of political debate on insurgent behavior is based on the premise that politicians in the United States will be less willing to maintain military support if it is sufficiently costly. Insurgents thus wish to know at what point in time their attacks will produce the greatest returns. Using this theory, we use statements of resolve by Bush officials and the release of polls regarding public opinion about the ongoing war in Iraq as an information shock to insurgents regarding the sensitivity of U.S. policy to casualties.

To begin, consider the following structural model of violence production by an insurgent organization:

$$V_t = f(A_t, L_t, K_t) \qquad\qquad (1)$$

In equation (1), *V* represents the number of violent attacks produced in period *t*. *A* represents the technology/productivity of the insurgents in creating attacks and fatalities. *L* represents the number of insurgent participants at a given time available to participate in attacks, and *K* represents the set of resources and materials needed to produce the attack (e.g. the raw materials for bombs, weapons, etc.).

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[28] For example, CBS Polls often are released within days of data collection. For CBS/NY Times polling methodology see: http://www.cbsnews.com/stories/2001/07/02/opinion/main299401.shtml
[29] This survey took place in April and May 2004, except for data collected in Erbil and Dahouk, which was collected in August 2004. To the extent possible, the indicators in the tables are constructed using the standard definitions in the international community. Details on data collection, definitions and the full set of variables measured are available in the Summary Report, http://www.iq.undp.org/ILCS/PDF/Tabulation%20Report%20-%20Englilsh.pdf.

At the same time, the U.S. probability of remaining in period *t+1* is governed by the following relationship:

$$US_t = 1 - \pi_1(dems_t) - \pi_2(PO(V_t, X_t)) + \varepsilon_t \tag{2}$$

In equation (2), *dems* is an indicator for the Democratic party's control of Congress.[30] *PO*(.) is a function that represents the public opinion on the war in Iraq, which is a function of the previous period's violence and other time specific characteristics. US_t represents the probability that the U.S. will remain in Iraq at *t+1* and illustrates that the decision to remain at *t+1* is actually made after the choice of violence level. The error term is distributed normally and is independent between periods. It is meant to represent a random, exogenous shock to the U.S. probability of remaining.

In a standard model of organized crime,[31] the criminal entity would maximize a profit function that balances the expected revenues, the expected penalties, and the costs of input.[32] Since insurgent groups are in many ways organizationally similar to criminal enterprises but with politically motives (e.g., Fearon 2007 and Iyengar and Monten 2008), define the probability distribution function *H*(.) which maps the profit of the insurgency into their objective of Iraqi National Government (ING) failure. *H* is increasing in *Π* with *H* = 1 if $\Pi \geq \overline{\Pi}$. Define the probability that the ING fails as follows:

$$\Pr(ING\ fails_t) = aH(\Pi_t) + bUS_{t-1} \tag{3}$$

Equation (3) illustrates that in a given period *t*, the insurgency can increase the probability of ING failure in *t* through V_t and the probability of ING failure in *t+1* through the effect of V_t on US_t (i.e. the probability of withdrawal in *t+1*). Now let us consider the intertemporal decision. In any given period *t*, the insurgents choose maximize Pr(*ING fails*) in *t* and all period after *t*. In practice that means maximizing Pr(*ING fails*) in *t* and in *t+1*,

$$\max_{A_t, L_t, K_t} aH(\varphi_t \cdot f(A_t, L_t, K_t)(1 - p(USAF_t, IPS_t)) - c(f(A_t, L_t, K_t)) \cdot$$
$$p(USAF_t, IPS_t) - wL_t - rK) + b(1 - \pi_1(dems_t) - \pi_2(PO(f(A_t, L_t, K_t), X_t)) + \varepsilon) \tag{4}$$

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[30] We treat the control of Congress by the Democrats as increasing opposition to remaining Iraq.

[31] We adopt a model of organized crime because while rational models of terrorists and insurgents are not widely considered in most settings, there has been a large literature modeling criminal decisions as rational and subject to economic analyses of marginal costs and benefits. This literature, beginning with Becker (1968), Stigler (1970) and Ehrlich (1973), stressed the relevance of the cost for offenses relative to outside options and between crimes themselves. Indeed, there has been consistent evidence that criminals respond to incentives about whether to participate in crime (e.g. Levitt, 1997; or for a literature review, Cameron, 1998) and if they participate, how to substitution between types of crime (Levitt and Kessler, 1999; Iyengar, 2008).

[32] A standard definition for such a profit function is:

$\Pi = \varphi V_t (1 - p(USAF_t, IPS)) - c(V_t)p(USAF_t, IPS) - wL_t - rK_t$. In this equation, p(.)—the probability of detection—is a function of the total security forces—US Armed Forces (USAF) and Iraqi Security forces. The gain from successful completed violence is φ for each attack. The cost of an unsuccessful attack is c(.) and is an increasing function of violence. The cost of labor is w and the cost of capital is r; both assumed to be fixed over time.

Thus, the optimal choice of violence level V will be a function of input costs, probability of detection, and US public opinion (as well as the democratic control of Congress). Given this, we assume a linear specification for the optimal level of violence in any given period and thus the structural equation governing violence levels is:

$$V_t = \delta_0 + \delta_1(USAF_t) + \delta_2(PO_t) + \delta_3(dems_t) + \delta_4(input\ prices_t) + \delta_5 X_t + \xi_t \qquad (5)$$

Identifying the causal relationship between any of these effects and the level of violence will be biased in practice by two issues. First, because of underlying changes in the return to violence (i.e. the φ in equation (4)) may be changing over time with contemporaneous changes in the public opinion, input prices, and US Armed Forces levels. Second, the above relationship is in some sense a partial equilibrium. To the extent that some third factors (such changes in US military strategy) change both the left hand side (violence) and the right hand side (*USAF, PO*, etc.), the straightforward linear estimate of equation (5) will be biased.

Using this analysis, we implement our difference-in-differences approach to determining if imperfect information about U.S. sensitivity to costs affects insurgent behavior. Based on the structural equation (5) governing violence, suppose that violence is produced at the level:

$$V_{pt} = \begin{cases} d_0 + d_1(USAF_t) + d_2(resolve)_t + d_3(dems_t) + d_4(input\ prices_t) + d_5 X_{pt} + \varepsilon_{pt} & if\ access = 1 \\ d_0 + d_1(USAF_t) + \hat{d}_3(dems_t) + d_4(input\ prices_t) + d_5 X_{pt} + \varepsilon_{pt} & if\ access = 0 \end{cases} \qquad (6)$$

In equation (6), *access* is an indicator for whether an area has access to satellite television. Assuming that *resolve* levels (or measures of *resolve*) are independent of the time effect, a simple difference between areas with access to and access to areas without satellite will yield an estimate of the effect of resolve on violence.

$$V_{pt} = \hat{d}_0 + \hat{d}_2(resolve*access\ to\ satellite)_{pt} + \hat{d}_3 N_{pt} + \lambda_p + \tau_t + \varepsilon_{pt} \qquad (7)$$

In equation (7), *resolve*access to satellite* is a variable that is equal to the fraction of the population with access to satellite television in weeks with high resolve statements but zero in other weeks. Note two issues with an estimate of d_2 from equation (7). First, identification is related to the decision of when to commit attacks relative to perception of resolve. To the extent that resolve statements themselves are driven by levels of violence in the previous period, either reverse causation or mean reversion would bias the estimate of d_2. Second, the level of attacks may be conditional on a certain total number of feasible attacks. Because we are relying on a relatively short window, which may be related to inter-temporal substitution of violence than the overall level of violence, the level effect from any previous period and the substitution effect of perceived U.S. commitment changes in this period will both be captured by the same coefficient.

To address the timing issue, we estimate all specifications with both a lag and lead interactions. The cross-province differences in satellite access identify the effect of U.S. political speech on violence

levels, and the week-before-resolve statement variable captures some of the reverse causation/mean reversion effect. Thus, we estimate the following specification:

$$V_{pt} = \hat{d}_0 + \hat{d}_1 (resolve)_t * (access\ to\ satellite_p) + \hat{d}_2 (one\ week\ before\ resolve)_t * (access\ to\ satellite_p)$$
$$\hat{d}_3 (one\ week\ after\ resolve)_t * (access\ to\ satellite_p) + \lambda_p + \tau_t + \varepsilon_{pt}$$

(8)

In equation (8), the effect of media mentions on violence is likely to show up in coefficients d_3 and d_1. We focus on the results from the point estimate on d_3 (coefficient on the week after resolve-satellite interaction) because it seems unlikely that changes in violence levels in the next week could cause higher number resolve statements in the previous week except for the causal effect of resolve perceptions on violence production. We control and test for potential reverse causation in d_2 (coefficient on the one week before-satellite interaction). We do not discuss the d_1, which is the week of statement-resolve interaction, because it may conflate both the reverse causation and the direct causation effects.

5. RESULTS

We begin our analysis with a set of descriptive statistics about trends in violence levels. Figure 1A shows the number of attacks over time and figure 1B shows the number of U.S. military, Iraqi Security Force (ISF), and Iraqi civilian casualties over time. In figure 1, the increase in attacks and fatalities is largely driven by an increase in the use of explosive weapons (e.g., bombs) and an increased number of individuals being tortured and executed.[33] A full exploration of the structure of the insurgency in Iraq is beyond the scope of this paper, but these figures provide some contextual information on trends in violence in Iraq. There was a large increase in the number of attacks and fatalities beginning in the middle of 2005. This increased dramatically until the winter of 2006-2007, when it began declining. While we do not discuss the strategic reasons for this increase, we can describe the associated changes in technology related to this increase. The bimodal distribution (as shown in the noticeably higher disjointed set of scatter points in figure 1B) in fatalities is likely due to the increase in use of bombs and indirect fire. This also results in greater variance in attacks, which is correlated with the increase in the level of attacks (rather than simply a time-related dynamic). Higher variance periods and periods which generate a bimodality in fatalities are both associated with a higher fraction of attacks using bombs, and so may in part be technology-driven. However, higher variance may also be a strategic choice by the insurgents, under the belief that clusters of attacks are more destabilizing than spread out attacks.

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[33] These graphs exclude a large numbers of unidentified bodies at morgues in Bagdad, Kirkuk, Mosul, and Tikrit. These bodies could not be linked to any specific number of attacks or causes but media accounts suggest these may be the result of Shia militia responses to Sunni groups. On the improved ability of insurgent groups to conceal killings from Iraqi authorities, see Dehghanpisheh 2007.

Figures 2 and 3 plot counts over time of our two measures of U.S. resolve: media mentions about U.S. "resolve" to remain in Iraq and the release of U.S. public opinion polls. The series in figure 2 is the number of media mentions about "resolve" in a week, with 10 or more mentions being labeled as a "high mention" week. We chose 10 because it is one standard deviation greater than the mean.[34] Looking at the plot in figure 2 and comparing it to figure 1 provides a simple time-series comparison, which suggests that there is a concurrent increase in anti-resolve statements and attack levels. The series in figure 3 tracks the release of public opinion polls containing questions about attitudes towards the war in Iraq. As discussed, public opinion polls are arguably released at times independent of the amount of violence in the preceding weeks. While the content of the polls may be affected by violence, we measure the actual release date and observe how the change in information about the existing public support for maintaining troops in Iraq affects future levels of violence. Comparing figure 3 to figure 1, there appears a much less clear correlation between poll release timing and the level of attacks overall.

The diffusion of information occurs across regions based on satellite TV access. Table 1 presents descriptive statistics about regions with "high" satellite access (those regions where more than 50 percent of the population has access to satellite television at home, at a friend's home or at work) and low satellite access. There do appear to be differences between high and low satellite regions. In particular, high satellite regions tend to have more attacks and fatalities, denser population centers, and are slightly richer. They also have larger number of displaced persons due to the war. While the regions are similar in other characteristics, such as nutrition and literacy rates, these differences are somewhat concerning. As a result, we construct a second test using only a subset of provinces which are better matched on a set of observables such as population density, literacy, unemployment rates, and malnutrition rates. In this matched province sample, provinces in the high satellite category are Anbar, Babil, Ninawa, and Tamim. Provinces in the low satellite category are Diyala, Karbala, Najaf, and Salah ad Din. The provinces with high satellite access have on average 10.88 attacks per week and the low satellite access provinces have on average 11.49 attacks, with no significant difference between the two groups. The provinces are also not significantly different in terms of the observables listed in Table 1.

From column (3) in table 1, it is apparent that Baghdad is an extreme outlier on a host of characteristics, including population density, frequency of attacks, and various socioeconomic indicators. As such, we exclude Baghdad from subsequent analysis. While necessary on methodological grounds, excluding Baghdad might raise other concerns about the applicability of the subsequent analysis. Baghdad does represent a substantial fraction - approximately 35 percent - of overall violence in Iraq. However, there remains a large amount of violence (65%, or about 5 people killed per day) in the rest of the country.

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[34] We conduct a sensitivity analysis varying the high mention variable between 10 and 15. The magnitude of the effect changes, but qualitatively the results are similar.

In terms of casualties confirmed by the Department of Defense, the non-Baghdad areas of Iraq account for 2,778 U.S. military deaths, still a substantial number.[35] In addition, although Baghdad represents a major population center and a strategic target, our analysis does include other major population centers such as Mosul, Basrah, Kirkuk, and Najaf, and areas that were or continue to be at the center of the Sunni insurgency such as Tikrit, Ramadi, Samarra, and Fallujah. Our analysis also includes other strategically valuable areas such as the oil-producing regions in the South.

Table 2 presents differences in attack rates in high and low mention weeks and poll release and no poll-release weeks. High mention weeks are relatively infrequent. In the election and post-election period, high mention weeks represent between 15 and 20 percent of the total weeks in the period. Poll releases are more consistent, with 12 poll high mention weeks in the pre-election period, 11 in the election period, and 8 in the post-election period. On average, high mention weeks have more attacks and fatalities than low mention weeks in all periods. The weeks surrounding high mention weeks also have more attacks in all periods. However, comparing high satellite to low satellite regions in the week after high mentions, there appears to be a sizeable increase in the number of attacks in high satellite regions relative to low satellite regions.

The summary statistics in Tables 1 and 2 contain several important facts that bear consideration in interpreting the results. First, there is a higher level of variance in insurgent activity in higher satellite areas. This makes the issue of mean reversion of particular concern. The rate of insurgent violence may spike in one week and revert to the mean level in the next. If a short-term increase in insurgent activity results in more "resolve"-related mentions in the U.S., then in the period immediately after the "high" resolve weeks it may appear to as if attacks are declining due to some change in U.S. political discourse when in fact there is simply negative serial correlation between high resolve mention weeks and subsequent mentions. However, if it appears that we observe an increase in violence, the mean reversion problem would only downward bias the results - that is, bias against finding an emboldenment effect. We discuss this issue in more detail below.

A related concern is the response of the U.S. military to insurgent attacks. If there is a short-term clamp down in response to high resolve statements (perhaps precipitated by high levels of attacks), this might also produce a decline in attacks immediately after a week with high resolve statements. If there is a relaxation of military responses after high resolve mentions, then we might observe an increase in insurgent actions. The former scenario seems more likely, but again would likely only bias against finding any effect. With these issues in mind, we turn to our causal estimates of U.S. political speech and insurgent activity.

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[35] Confirmed by the DOD as of January 2008.

Table 3 panel A provides estimates of the main specification in equation (8). Because there is variation in the relevance of information for insurgent strategy, we divide our analysis into time periods where declining public support and criticism of the U.S. military policy are unlikely to prompt U.S. withdrawal - and thus U.S. policy is less sensitive to insurgent costs - and the responsiveness of a strategic insurgent group to opposition statements should be closer to zero. The first period spans the re-election of George W. Bush in 2004 until after the off-season election in 2005. During this period, opposition statements and the release of polls showing declining support should be relatively uncorrelated with the levels of attacks because the level of U.S. commitment was more settled following the perceived "mandate" afforded to George W. Bush after his re-election. The second period spans the November 2005 until the mid-term election in 2006 in which the Democrats regained control of the U.S. Congress. In this period, media mentions and public opinion are especially important in generating a potential U.S. withdrawal. The third period spans the post-election, lame-duck session, the new Congress, and the Surge.

Columns (1)-(3) present estimates of attacks on a continuous variable for satellite television, an indicator for "high mention" weeks, and indicators for the week before and the week after "high mention" week. These indicators are all interacted with the satellite variable. The province-level control variables are included in the specification without province fixed effects. Including these variables explains very little of the total variation, as indicated by the relatively low R-squared statistics presented in the last row of each column. The main effect of greater access to satellite TV is positive, consistent with the expectation that higher satellite regions will experience more attacks. There is no significant difference following high and low mention weeks across regions in the pre-election season, but there is a significant difference in the election and post-election season, with the coefficients implying once again a relatively large increase of 30-40 percent. Columns (4)-(6) include province fixed effects which shrink these estimates substantially. The coefficients change only slightly with the inclusion of week fixed effects in columns (7)-(9). The comparable set of estimates using the poll release variable is presented in panel B. The effect sizes in columns (7), (8), and (9) are consistent with the estimates from the resolve statement analysis. These last coefficients are our preferred specification, and imply an 18-25 percent increase. Note, however, these coefficients are not precisely estimated and the effect size could be as small as 5-10 percent. [36]

The results in Tables 3 are consistent with strategic action by insurgents to increase attacks after the U.S. produces greater information about the likelihood of withdrawal and when polls are released regarding U.S. public opinion on the war in Iraq. The results in Table 3 and most of the results in Table 4 are only weakly significant in many cases. This is not surprising given the many other issues related to the

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[36] Specifications using different scalings of attacks (logs and per capita) are qualitatively similar but vary in the degree of significance. Results of these tests are reported in Appendix Table 1.

production of violence, none of which are directly addressed here. However, there does appear relatively convincing evidence against a simple mean reversion story. Table 3, especially columns (5) and (6), show that high violence today results in high resolve statements today. This effect is not present in the poll release regressions, which confirms that poll release dates are likely independent of the violence during that time period (although the content of the polls surely are not). This effect is also consistent with a reverse-causation story rather than a mean reversion story: unless insurgent groups are able to instantaneously adjust, violence is inducing resolve statements rather than reverting to the mean after relatively low violence weeks.[37]

Table 4 presents the effect of media mentions and poll releases on fatalities. There appears to be an increase in the number of fatalities of U.S. military forces and a decrease in the number of non-U.S. fatalities following high mention and poll release weeks. The effect sizes seem implausibly large, but the reasonably large standard errors make the magnitude of the effects more difficult to interpret. Notably, the post-poll results for fatalities are smaller than the resolve mentions, which was not the case with the attack levels. The change in fatalities also provides some insight into the increased attacks. After the release of a poll or an increase in "resolve" mentions, there is an increase in attacks but a decrease in the total number of fatalities and an increase in U.S. military fatalities. Because U.S. targets are "hardened" and thus more difficult to kill, insurgents may not invest in doing so unless the returns are sufficiently high. The perceived increase in returns after poll releases or media mentions may increase the willingness of insurgents to try to target U.S. military personnel. One possible interpretation of the decrease in fatalities is that insurgent groups are shifting to increased attacks on U.S. military targets - which are harder and may necessitate more attacks - and thus the additional attacks produce less total fatalities. The trade-off in fatalities is not one-to-one, which is also consistent with the idea that U.S. targets are harder to successfully attack.[38]

Finally, to address concerns that regions with high and low satellite access are different in other characteristics that might plausibly be related to insurgent activity, we compare a sub-set of the provinces that are more closely matched on a set of observables. We restrict our sample to provinces with similar characteristics, including household size, average number of displaced persons, median household income,

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[37] More flexible specifications of the media mentions count are consistent with the results reported. The marginal effect of an addition mention is about 3-7 percent, but the result appears discontinuous with most the effect driven by very high mention weeks. Results are reported in Appendix Table 2.

[38] One alternative explanation for why areas with greater access to U.S. media and politics respond differentially to new information is that the new information revealed by the U.S. debate relates to specific U.S. military weaknesses that insurgents translate into greater tactical success, and not the level of U.S. resolve. For example, debate about the vulnerability of unarmored vehicles to IED attacks, and criticism of the inability of the DOD to produce more, gives information about a specific U.S. military vulnerability and thus may increase attacks relative to areas not exposed to the new information as quickly. This is consistent with the expectation that high satellite areas should experience an increase in attacks on U.S. targets relative to other targets in comparison to low satellite areas. We thank Matthew Kroenig for making this point.

malnutrition, literacy, labor force participation, and average hourly wages. Table 5 compares the previous results with results in which we match provinces and districts on observables. Columns (3) and (4) provide estimates using matched provinces. The effect sizes in these estimates are substantially smaller and more precisely estimated. These estimates imply an effect size of about 7-10 percent. The results are consistent in both the poll and media mention results, but results in the election year are only marginally significant in the poll specifications. The coefficients in the fatality results also shrink dramatically but remain large in percent terms.

Overall the evidence from Tables 3 and 4 are consistent with those in Table 5 and present evidence that there is a spike in attacks after new information regarding US sensitivity to insurgent-imposed costs becomes available. This spike is consistent with strategic behavior by insurgent groups: when the returns to insurgent attacks are higher, and in particular when the returns to inflicting U.S. military fatalities are higher, Iraqi insurgent groups increase efforts to attack US targets. This increase lasts for about 2 weeks, after which there is no significant difference between high and low satellite regions.[39] The number of fatalities appears to significantly increase in the week after information on casualty sensitivity is released and is higher but insignificant in future weeks.

6. CONCERNS ABOUT ESTIMATION AND IDENTIFICATION

The strategy used to identify the relationship between antiwar criticism and insurgent violence relies on several assumptions which may appear problematic. In this section we address several possible concerns.

Reverse Causation: Because we assume that "high mention weeks" are independent of the underlying factors that also drive violence, our identification strategy is susceptible to concerns about reverse causation. Our analysis addresses this issue in four ways. First, in all specifications we use a lagged term week indicator interacted with satellite access. If the results are driven by issues in the pre-resolve or pre-poll release week, then the lagged week variable should be significant. Second, although U.S. opinion towards the war probably reflects violence levels in Iraq, the actual release of opinion polls and their promotion in the media are more likely to be independent of week-to-week changes in violence. Tables 3 and 4 show that the results are largely consistent for both the media mentions and poll variables, suggesting that the 7-10% estimated increase following "high mention" weeks is not driven by the prior week's level of violence. Third, there may be an omitted variable that influences when resolve statements are made or polls are released in relation to attacks. This is addressed by dividing the sample into three time periods. The importance of media mentions in explaining insurgent violence (by providing

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[39] The results from an analysis on the dynamics of insurgent response are available in Appendix Table 1.

information about the level of U.S. political resolve) should vary depending on how likely it is that violence will affect the probability of a U.S. withdrawal. The estimate of this effect should be 0 in time periods when the U.S. is unlikely to change policy even with dramatic changes in public criticism or public opinion (i.e., in the period after Bush was re-elected and Republicans maintained control over the Congress). Consistent with this expectation, we in fact find that violence differences between the high and low satellite provinces are greater in periods where U.S. policy is more contested. However, this test will be insufficient if the process generating the media variable is changing in the same periods of analysis. Fourth, to further support the conclusion that the results are not biased by reverse causation, we conduct a Granger causality test of attack levels on total "emboldening" statements. This tests to see how well the level of attacks in previous periods predict the number of emboldening statements above and beyond the forecasted number based on previous weeks statements. The results of this test provide evidence against reverse causation as attacks do not Granger-cause media mentions.[40]

Third Factor Causation—Military Strategic Value: We assume that provinces that vary on the satellite access measure are comparable in terms of violence except for satellite access—that is, we make a parallel trend assumption. To the extent that provinces with high satellite television are associated with other factors, then this strategy will fail to identify the causal relationship. To address concerns about third factor causation, we interact our media mentions and poll release variables with other province level variables that could potentially explain our effect, such as ethnic composition and the strategic importance of different areas (presented in Table 7). These exercises test whether the estimates of the effect of political speech rely on the variation of satellite access and not some other province-level variable. To do this, we require a variable which may be plausibly associated with higher levels of attacks but not collinear with the satellite access variable. Intuitively, areas with some strategic value may have different responses to information about U.S. withdrawal than non-strategic areas. In Iraq, a major indicator of strategic value is the presence of oil. We therefore interact a continuous variable for the fraction of total Iraqi oil produced in the province with the media mentions variable. Oil production varies substantially across Iraq, and the correlation of production level and satellite access is 0.4. There are substantially more attacks in low oil producing regions relative to high oil regions (13.1 versus 5.6), which is consistent with a higher U.S. emphasis on protecting "high oil" regions. To the extent that satellite access is really picking up the effect of strategic value, the oil variable should produce similar results to the satellite variable. The results for the "resolve" high mention count are presented in Panel A of Table 7, Columns (1)-(3). There does not

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[40] Test specifications, using anywhere from 1-4 week lags, result in F-statistic p-values of 0.51 (1 lag), 0.39 (2 lags), 0.36 (3 lags) and 0.42 for 4-lags. The asymptotic Chi-squared statistics (p-value) for these four tests are chi2(1)=0.43 (0.51), chi2(2)=0.79 (0.67), chi2(3)= 3.23 (0.36), and chi2(4)=3.92 (0.42), respectively.

appear to be a significant effect across oil producing regions in part because the standard errors on the estimates are sizeable. Regressions using the "matched" sample, produces point estimates that are substantially smaller (1.14 in pre-election season, 1.62 in the election season, and 0.91 in the post-election season) and insignificant (results not reported).

Third Factor Causation—Ethnic Divisions: A similar concern could be raised about the relationship between satellite access in the ethnic composition of regions. We therefore conduct a similar exercise using ethnic identity, as measured by whether a province is "predominantly Sunni." If there are differences in responses to U.S. political discourse by ethnicity (or satellite variation is in some way driven by ethnic differences), then our causal interpretation is false. If the variation in satellite access is identifying supply-side factors for the insurgency then ethnic composition should perform at least as well if not better in generating higher attack rates in the subsequent periods. Most Sunni Arabs reside in central Iraq, including the "Sunni Triangle", an area that stretches northwest of Baghdad and encompasses Tikrit, Ramadi, Samarra, and Fallujah. At least half of Iraq's Sunni community lives in cities, such as Baghdad or Mosul. The Sunni population forms the major base of the insurgency. There are more attacks in "high Sunni" areas, consistent with the Sunni population participating in and aiding insurgent-led attacks. Results from this specification are presented in Panel B of Table 7. There is no significant effect of poll releases or media mentions on attack rates. There does appear to be some relationship in attack rates in the week prior to resolve mentions and poll release dates.[41]

Plausibility of a Week-to-Week Response: We assume a relatively short time-frame for the response to information about U.S. cost-sensitivity, and specifically that a week with 10 or more low resolve statements will produce an insurgent response in the following week. We attempt to minimize concerns about this assumption in several ways. First, we conduct a sensitivity analysis, varying the response time to 2-weeks and 3-weeks. These results are reported in Table 6. We find that after a two week window the effect diminishes over time. By the third week, there appears to be no significant effect. However, these results should be interpreted with caution because of the clustering of high-resolve statement weeks. Thus, few weeks had no association with either mentions or poll releases and these regressions may be over-controlled. Second, as discussed below, the interpretation of the results could be limited to a timing substitution response; insurgent groups may have a greater ability to shift the timing of attacks rather than increase the overall amount of attacks they can produce. This response is more plausible on a week-to-week basis. Another explanation could be that there are a large number of groups in any given region that have the potential to participate in violence. In periods with little motivation, these groups do not mobilize

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[41] Results including oil production, fraction Sunni, and satellite access is available in Appendix Table 2.

frequently and as a result only a fraction of these groups are actually participating. In this scenario, information about U.S. cost-sensitivity serves as a mobilization incentive, motivating a larger fraction of groups to participate. Thus while each group is producing the same amount of violence, the total number of groups has increased, raising the total amount of violence. Third, substitution is limited by input factors and thus may not be the only margin along which insurgents adjusts. There is little doubt that insurgent groups are media savvy, and, to that end, are likely to seek not only the lowest cost means of producing attacks but also the highest return for any given attack or set of attacks. This suggests the media salience of increases in American fatalities makes short-term effects plausible and likely. Finally, the use of a one-week window is a plausible but arbitrary assumption needed to limit the scope of the study. Future research can examine different versions of the emboldenment view over longer or even shorter time frames, or how insurgent groups determine the timing of their response.

Greater Variance in High Satellite Regions: Another possible concern is that high satellite regions on average exhibit both higher levels of attacks and greater variance in attacks (See Table 1). Thus, the observed effect may not be the result of greater access to information about U.S. policy, but might instead be produced by the variability in the overall level of violence, which is larger in regions with satellite access. Our response to this criticism is that very little is known about the underlying mechanism driving increases in the variance of attacks (as opposed to just the levels of attacks). If it is due to the strategic choice of technology or targets then the higher variance may indeed be an outcome of the strategic substitution by insurgents (to cluster attacks to provide maximum impact). We do find an association between violence levels and variance that varies differentially by satellite access. To the extent this is simply due to some inherent aspect of violence rather than the strategic choice of insurgents, it limits the relevance of these results.

Increased sensitivity to other factors in High Satellite Regions: A separate but related concern is that high satellite regions may simply be more sensitive to a variety of issues that might occur at the same time as resolve statements. Immediately before the Iraq elections, the level of violence does not appear to be correlated with violence on a week-to-week basis. A comparable analysis of *Al-Jazeera* media accounts of the Iraqi election (available on a variety of media sources including broadcast television, radio, and satellite) has no significant effects on violence levels by satellite regions.[42]

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[42] Elections in Iraq refer to the legislative elections which took place Jan 30, 2005.

7. CONCLUSION

Overall, the results presented in this paper suggest several important facts. First, the findings suggest that there is an explicit and quantifiable cost to public debate during wartime in the form of increased attacks. Based on these results, it appears that Iraqi insurgent groups believe that when the U.S. political landscape is more uncertain, initiating a higher level of attacks increases the likelihood that the U.S. will reduce the scope of its engagement in the conflict. However, the magnitude of the response by Iraqi insurgent groups is relatively small. To the extent that U.S. political speech does affect insurgent incentives, it changes things only by about 7-10 percent. The estimated effects, while consistent in direction across different specifications, also vary considerably in magnitude. Given the relatively large standard errors and the potential lack of robustness to specification, these coefficients should be interpreted with caution—more dispositive of the cost-sensitivity of insurgents than a precise estimate of their elasticity to increased costs.

Second, the insurgent response to low resolve periods may not represent an overall increase in the total number of attacks, but rather a change in the timing of attacks.[43] Because it may be difficult and costly to increase the frequency of attacks in a particular time period, insurgent groups may only seek to do this when the returns are sufficiently high. New information about U.S. cost-sensitivity increases the perceived return to violence and thus insurgent groups condense the violence they would have committed over several weeks into a shorter time horizon.   To the extent that these additional attacks represent timing decisions designed to manipulate U.S. public opinion, simply recognizing this fact reduces some of the strategic value of that substitution.

Third, regardless of whether the observed effect represents an overall increase or inter-temporal substitution, the evidence in this study indicates that insurgent groups are strategic actors that respond to the incentives created by the policies and actions of the counterinsurgent force, rather than groups driven by purely ideological concerns with little sensitivity to costs. There appears to be a systematic response of Iraqi insurgent groups to information about the U.S. willingness to remain in Iraq and/or public support for the war. U.S. counterinsurgency strategy should recognize that incentives, whether in the form of deterrence or inducements, can be effective in reducing both insurgent recruitment and the willingness of individuals to participate in attacks, and in encouraging individuals to collaborate with the government or withhold passive support to the insurgents. Support for the view that insurgent groups respond in part to incentives set by U.S. politics also provides insight into understanding the strategy and relative importance of different insurgent objectives. Insurgent groups may, for example, be willing to trade off destabilizing

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[43] This substitution effect across both time and type of action has been observed in research on crime. See, for example, Levitt 1995 and Iyengar 2006. For a detailed overview on the relationship between punishment, crime and cost-sensitivity, see Ehrlich 1996.

the Iraqi National Government for imposing increased costs on the United States (in the form of attacks) in order to reduce U.S. participation.

The argument that insurgent groups respond in predictable ways to costs and incentives - in this case, to new information about U.S. cost-sensitivity - has several implications for improving US COIN strategy. To the extent insurgent groups appear to respond rationally, counterinsurgency should place greater weight on deterrence and incapacitation rather than search and destroy missions. Future consideration regarding the production function that dictates the level of violence insurgent groups are able to produce, and the potential costs which may reduce violence, are of important areas for future research.

Finally, it is not possible to determine from these results the overall benefits or costs of public debate, or its net effect on counterinsurgency effectiveness. One issue is how to weigh the difficult trade-off between U.S. and Iraqi casualties. If the goal of U.S. policy is to minimize harm to Iraqi civilians and to shift the costs and risks of the conflict from non-combatants to U.S. forces, more public debate may be better. In addition to the potential social preference for protecting civilians, there are pragmatic reasons why such a shift may be desirable. Because military targets tend to be more difficult to successfully attack, the total number of fatalities (civilian plus military) tends to decline as targeting increases. The targeting also forces insurgents to reveal themselves to the military (more so in certain types of attacks), making detection easier. Third, protecting and reducing civilian fatalities may increase support for the counterinsurgent among the general populace—consistent with the "hearts and minds" approach to counterinsurgency. As mentioned above, there may be additional benefits to a vigorous public debate, from improving the quality of political and military policy choices to reducing the moral hazard effect of unconditional support for the incumbent government. Without analyzing and measuring the additional consequences, it is not possible to determine if antiwar criticism of U.S. policy is on balance bad. The direct consideration of how to adjust political speech to address this issue is therefore beyond the scope of this paper.

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Figure 1. Trend in Attacks and Fatalities After U.S. Invasion of Iraq
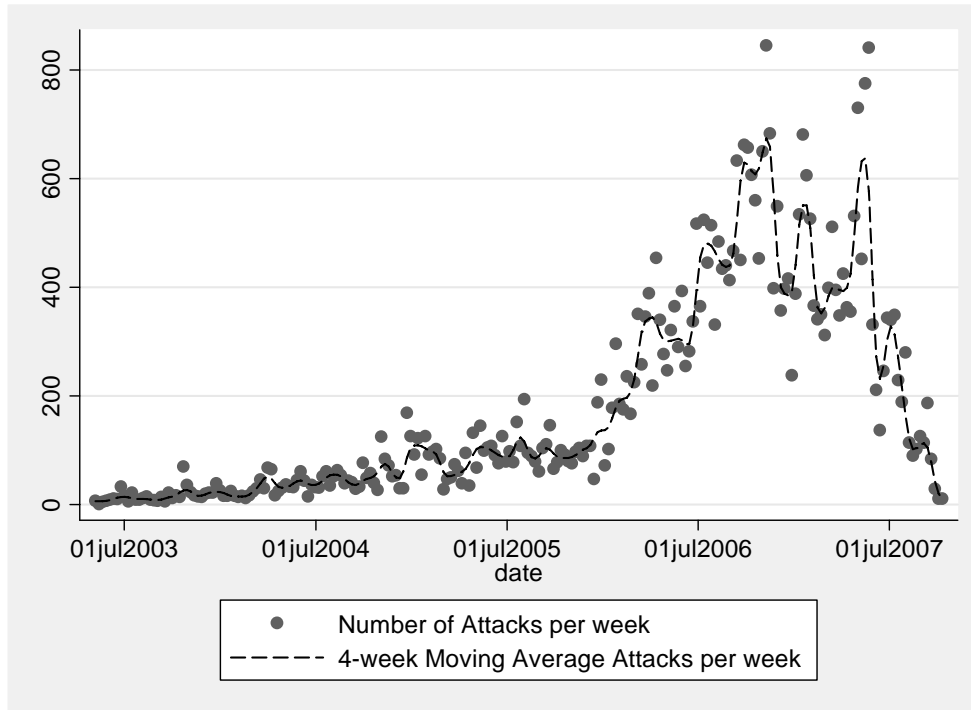
Figure 1A. Number of Attacks in Iraqi Provinces each week
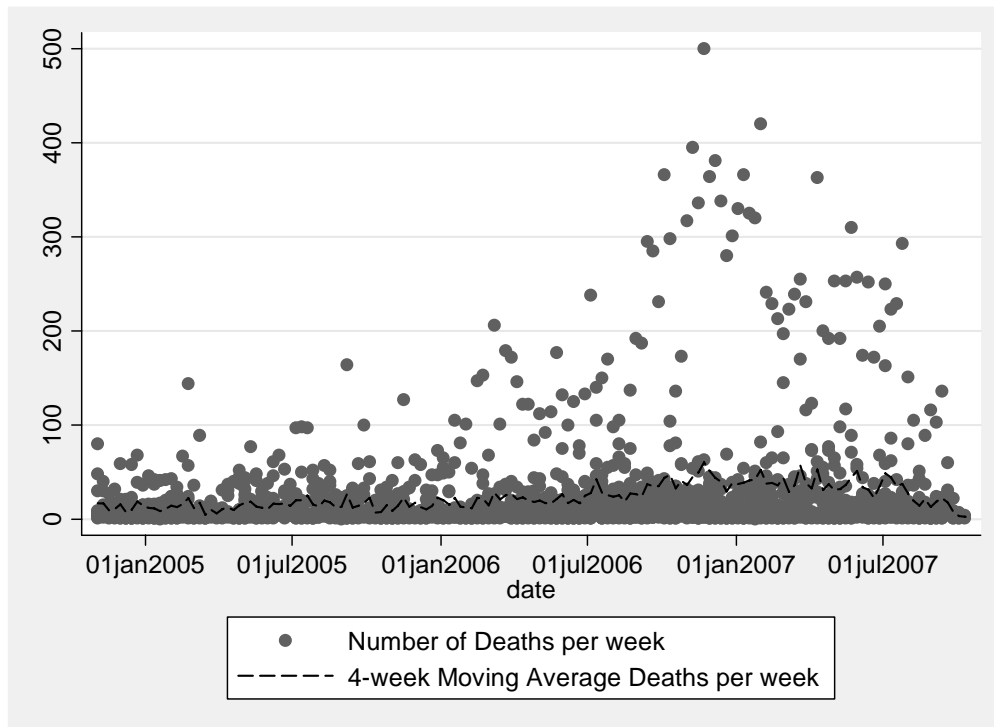
Figure 1B. Number of Fatalities in Iraqi Provinces each week

Notes: The number of attacks per region-week is defined as non-criminal acts which result in the death of one or more persons. The data does not distinguish between Sunni insurgent attacks and Shia militia attacks. Attacks which result in only injuries are not included. Data and methods used to construct weekly attack counts are discussed in appendix A.

Figure 2. Number of "resolve" mentions per week in major media outlets

	Pre-Democrats	Election Season	Post-Democrats
	November 2, 2004-	November 9, 2005-	November 8, 2006-
	November 8, 2005	November 7, 2006	November 1, 2007
	Mean (sd)	Mean (sd)	Mean (sd)
	4.22 (3.41)	6.29 (4.42)	6.42 (4.40)
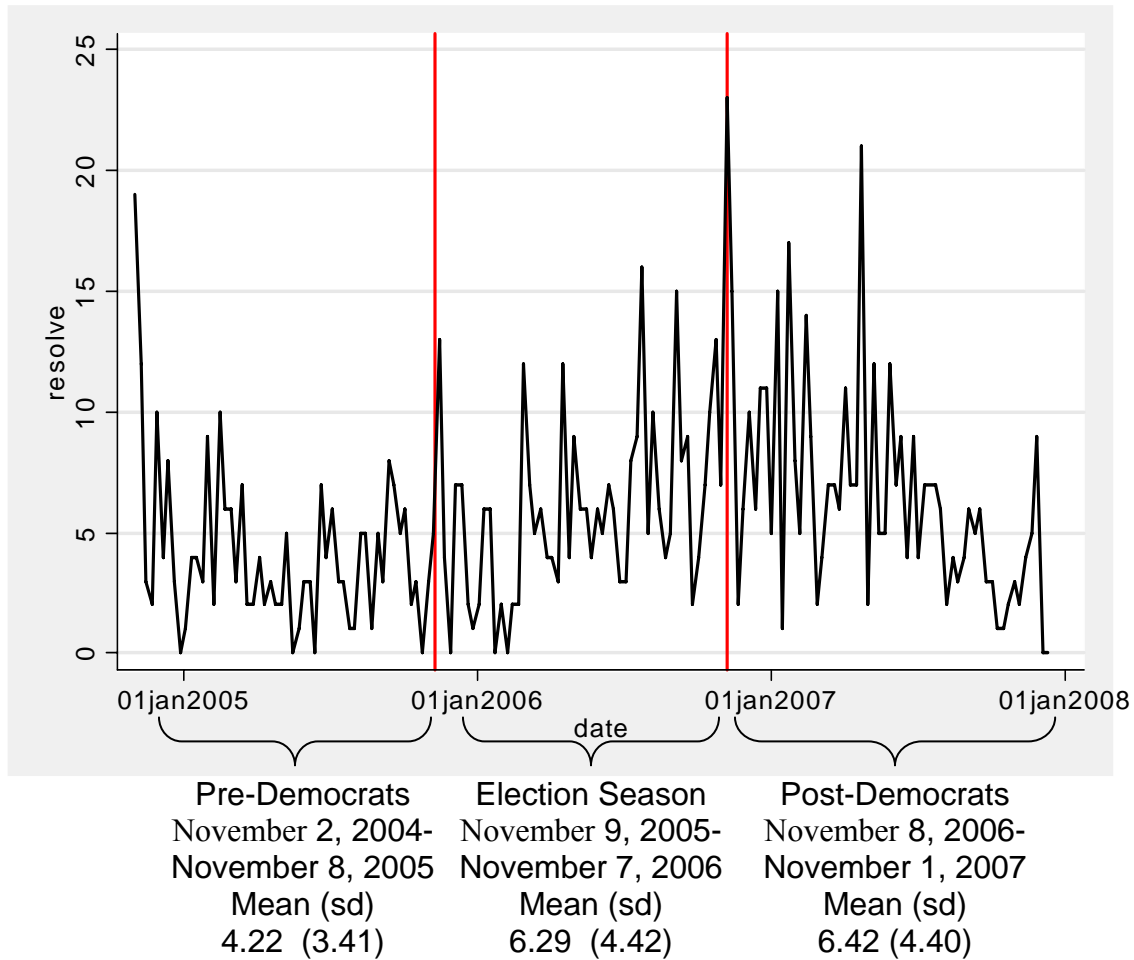
Notes: Mentions are any article in a major media outlet which meets the search criteria. Details on the counting procedure are available in Appendix A. High mention resolve weeks are: Nov 1, 2004; Nov 8, 2004; Nov 29, 2004; Feb 14, 2005, Nov 14, 2005; Feb 27, 2006; Apr 17, 2006; Jul 24, 2006; Aug 7, 2006; Sep 4, 2006; Oct 16, 2006; Oct 23, 2006; Nov 6, 2006; Nov 13, 2006; Dec 4, 2006; Dec 18, 2006; Dec 25, 2006; Jan 8, 2007; Jan 22, 2007; Feb 12, 2007; Apr 2, 2007; Apr 23, 2007; May 7, 2007; May 28, 2007.

Figure 3. Number of Public Opinion Polls released per week in major media outlets
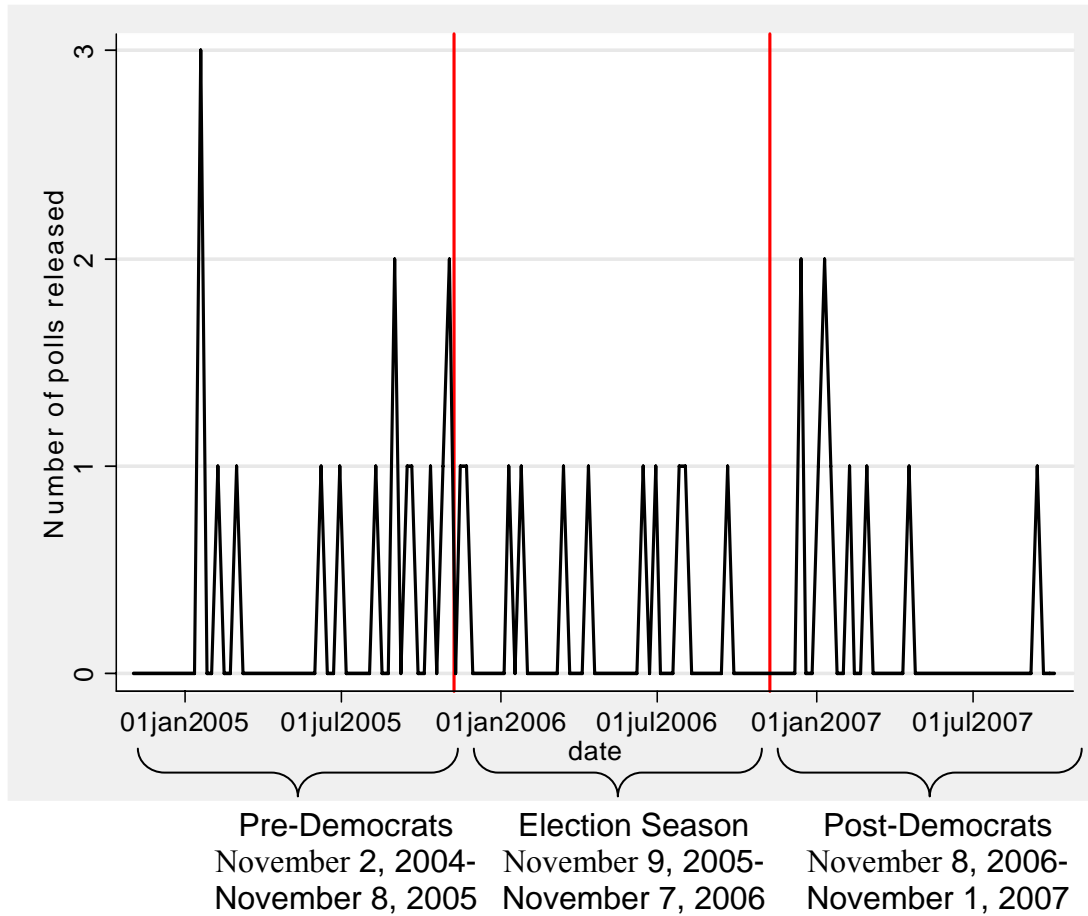
Notes: Polls included are polls available in major media outlets after release. Polls included are CNN/Gallup/USA Today polls, Fox, and CBS polls. Details on the relevant questions included are available in Appendix A. High mention poll weeks are: Jan 19, 2005; Feb 9, 2005, Mar 2, 200, Jun 8, 2005; Jun 29, 2005; Aug 10, 2005; Aug 31, 2005; Sep 14, 2005; Sep 21, 2005; Oct 12, 2005; Oct 26, 2005; Nov 2, 2005 ; Nov 16, 2005; Nov 23, 2005; Jan 11, 2006; Jan 25, 2006; Mar 15, 2006; Apr 12, 2006; Jun 14, 2006; Jun 28, 2006; Jul 26, 2006; Aug 2, 2006; Sep 20, 2006; Dec 13, 2006 ; Jan 3, 2007; Jan 10, 2007; Jan 17, 2007; Feb 7, 2007; Feb 28, 2007; Apr 28, 2007; Sep 12 2007

Table 1. Descriptive Statistics about Regions by Satellite Access

Regions Included	(1) High Satellite Access Anbar, Babil, Erbil, Ninawa, Sulamaniya, Tamim	(2) Low Satellite Access Basrah, Diyala Karbala, Maysan, Najaf, Salah ad Din, Wasit	(3) Baghdad -
Avg. Regional Access	0.59	0.25	0.33
(Std Dev)	(0.07)	(0.09)	(-)
Avg Number of Attacks	16.52	11.39	213.26
(per week)	(17.44)	(24.69)	(134.59)
Avg. Weekly Non-U.S.	17.37	12.82	131.94
Fatalities	(20.13)	(18.36)	(109.53)
Avg. Weekly U.S.	1.24	1.39	3.45
Fatalities	(2.13)	(0.73)	(2.39)
Regional Demographics			
Avg. Population Density	98.16	82.11	8929
(population per sq miles)			
Pre-War Fraction Sunni	0.58	0.41	0.42
Household Persons and Infrastructure Characteristics			
Household Size			
% of Population	0.077	0.019	0.30
Displaced Due to War			
Median Household	116,341	101,661	100,000
Income (in Iraqi Dinars)			
Safe, Stable Drinking	60.5	62	78
water			
Malnutrition Rate	0.12	0.13	0.11
Education and Labor Market			
Literacy Rate	0.605	0.62	0.78
Net Primary School	0.77	0.70	0.79
Attendance			
Unemployment Rate	0.084	0.096	0.014
Median Hourly wage	931.3	913.3	833
(Iraqi Dinar)			
% of Households with	0.24	0.32	0.26
Firearms			

Notes: The number of attacks per region-week is defined as non-criminal acts which result in the death of one or more persons. The data does not distinguish between Sunni insurgent attacks and Shia militia attacks. Attacks which result in only injuries are not included. Household characteristics are from UNDP Life Survey.

Table 2. Descriptive Statistics on Media Mentions and Poll Release weeks (Excluding Baghdad)

	Pre-Election Season November 2, 2004- November 8, 2005		Election Season November 9, 2005- November 7, 2006		Post-Election November 8, 2006- November 1, 2007	
Panel A: "Resolve" Media Mentions						
	High Mention Weeks	Low Mention Weeks	High Mention Weeks	Low Mention Weeks	High Mention Weeks	Low Mention Weeks
# of Resolve Weeks	4	49	8	44	12	40
Avg. Number of Resolve Mentions	12.93	3.59	12.67	4.88	14.46	5.27
Avg. Number of Attacks	7.41	5.91	16.24	13.68	15.62	10.50
Avg. Number of Attacks in Previous Week	6.55	5.98	17.31	13.29	16.82	9.91
Avg. Number of Attacks in Subsequent Week	8.76	5.79	17.43	13.45	14.97	10.87
Avg. Number of Fatalities (total)	14.10	11.73	16.59	15.18	21.22	16.12
Avg. Number of attacks in high satellite provinces in the week after	6.19	6.48	20.24	14.84	21.57	14.22
Avg. Number of attacks in low satellite provinces in the week after	8.92	5.30	12.92	12.86	11.69	9.94
Panel B: Poll Release						
	Poll Release Weeks	No Poll Weeks	Poll Release Weeks	No Poll Weeks	Poll Release Weeks	No Poll Weeks
# of Poll Weeks	12	41	11	42	8	44
Avg. Number of Attacks	6.22	5.92	15.77	13.32	13.83	14.27
Avg. Number of Attacks in Previous Week	5.54	6.26	14.63	14.03	13.44	12.62
Avg. Number of Attacks in Subsequent Week	5.71	6.15	14.97	13.77	15.92	13.13
Avg. Number of Fatalities (total)	11	11.04	14.53	14.95	17.87	16.81
Avg. Number of attacks in high satellite provinces in the week after	6.43	6.67	14.99	17.33	13.73	15.89
Avg. Number of attacks in low satellite provinces in the week after	6.01	5.11	14.64	12.21	13.89	12.81

Notes: The number of attacks per region-week is defined as non-criminal acts which result in the death of one or more persons. The data does not distinguish between Sunni insurgent attacks and Shia militia attacks. Attacks which result in only injuries are not included. Satellite television access estimates from UK State Department Survey.

Table 3. Estimate of the Relationship between Attack Levels and "Resolve" Media mentions in Various Time Periods (Excluding Baghdad)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variable					Attacks				
Mean	10.04	28.99	32.24	10.04	28.99	32.24	10.04	28.99	32.24
	Pre-Election Season	Election Season	Post-Election	Pre-Election Season	Election Season	Post-Election	Pre-Election Season	Election Season	Post-Election
Panel A: "Resolve Mentions"									
(satellite access)*(high mention week)	0.92	8.76	4.88	1.24	7.49**	6.87*	-1.12	6.16	2.69
	(2.42)	(6.54)	(3.19)	(2.47)	(3.07)	(3.25)	(2.25)	(6.44)	(5.50)
(satellite access)*(one week before the high mention week)	-1.43	9.92	4.50	-0.68	5.18	4.21	-7.22*	3.74	-0.16
	(2.55)	(4.37)	(4.93)	(2.69)	(4.83)	(4.99)	(4.06)	(5.83)	(4.00)
(satellite access)*(one week after the high mention week)	1.65	9.82**	12.53*	3.48	5.62*	10.08*	3.58	5.32*	8.79*
	(3.39)	(4.79)	(6.17)	(3.06)	(3.63)	(5.58)	(5.14)	(3.32)	(4.95)
R-squared	0.0152	0.0237	0.1233	0.2048	0.3078	0.4356	0.2539	0.4263	0.4978
Panel B: Poll Release									
(satellite access)*(release week)	-4.24	1.60	19.34	-4.74	4.40	9.12	-4.21	3.30	2.73
	(2.95)	(6.81)	(14.13)	(2.87)	(7.10)	(13.79)	(2.40)	(7.49)	(4.04)
(satellite access)*(one week before release)	1.40	-4.94	2.89	0.22	-3.93	2.79	-1.62	-4.62	3.05
	(2.93)	(5.43)	(7.94)	(2.22)	(4.78)	(7.79)	(2.40)	(4.08)	(8.29)
(satellite access)*(one week after release)	-0.09	7.12*	9.95**	-0.90	4.68**	10.34**	-1.02	4.19*	9.50**
	(2.15)	(3.52)	(4.42)	(1.65)	(2.15)	(4.41)	(1.60)	(2.65)	(4.08)
R-squared	0.0080	0.0131	0.0910	0.1975	0.2929	0.3986	0.2931	0.4266	0.5124
Province FE	N	N	N	Y	Y	Y	Y	Y	Y
Week FE	N	N	N	N	N	N	Y	Y	Y
Observations	392	507	473	392	507	473	392	507	473

Notes: Standard errors clustered at the province levels are reported in parentheses. Coefficients which are significant at the 0.05 (0.10, 0.01) level are marked with a **(*, ***). Dependent Variable is number of attacks per region-week. Attacks are defined as non-criminal acts which result in the death of one or more persons. Data and methods used to construct weekly attack counts are discussed in appendix A. Also included in the regression but not reported are lag and lead indicator variables for high mention weeks which are 1 if it is one week before and one week after a high mention week respectively. Control variables in specification with out province fixed effects include household size, avg. number of displaced persons, median household income, malnutrition rate, literacy rate labor force participation rate, and avg. hourly wage. Pre-Election Season is November 2, 2004-November 8, 2005. Election Season is November 9, 2005-November 7, 2006. Post-Election is November 8, 2006-November 1, 2007

Table 4. Estimate of the Relationship between Fatalities and Media Variables in Matched Regions (Excluding Baghdad)

Dependent Variable	(1) Pre-Election Season	(2) Election Season	(3) Post-Election	(4) Pre-Election Season	(5) Election Season	(6) Post-Election
	Number of Non-U.S. Fatalities			Number of U.S. Military Fatalities		
Mean	11.02	14.79	16.92	0.88	0.69	0.73
Panel A: "Resolve Mentions"						
(satellite access)*(high mention week)	-1.45	-0.66	7.79	0.09	0.33	-0.16
	(5.78)	(6.20)	(9.2873)	(0.89)	(0.27)	(0.35)
(satellite access)*(one week before the high mention week)	0.45	-2.01	-4.42	-0.07	-0.06	0.65
	(3.97)	(4.62)	(4.2)	(0.39)	(0.44)	(0.71)
(satellite access)*(one week after the high mention week)	-2.50*	-3.23*	-11.88	0.01	1.04*	1.27*
	(1.60)	(1.91)	(7.07)	(0.63)	(0.62)	(0.75)
R-squared	0.200	0.4136	0.3620	0.5320	0.7162	0.5051
Panel B: Poll Release Date						
(satellite access)*(release week)	-1.25**	3.32	2.89	-1.31**	-0.50	-0.15
	(4.90)	(2.85)	(9.09)	(0.46)	(0.37)	(0.36)
(satellite access)*(one week before release)	1.67	-5.76	3.16	-0.70**	0.29	0.07
	(5.94)	(4.23)	(6.81)	(0.28)	(0.63)	(0.22)
(satellite access)*(one week after release)	-1.07	-3.68**	-12.50**	-0.001	1.06***	0.68*
	(8.42)	(1.51)	(5.79)	(0.36)	(0.23)	(0.41)
R-squared	0.1850	0.4157	0.3619	0.5412	0.7172	0.5036
Province FE	Y	Y	Y	Y	Y	Y
Week FE	Y	Y	Y	Y	Y	Y
Observations	392	507	473	392	507	473

Notes: Standard errors clustered at the province level are reported in parentheses. Coefficients which are significant at the 0.05 (0.10, 0.01) level are marked with a ** (*, ***). Dependent Variable is number of non-U.S. (including Iraqi Security forces and Civilians) and number of U.S. Military fatalities. Pre-Election Season is November 2, 2004-November 8, 2005. Election Season is November 9, 2005-November 7, 2006. Post-Election is November 8, 2006-November 1, 2007

Table 5. Estimate of the Relationship between Attack Levels and Media Variables in Matched Regions (Excluding Baghdad)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable			Attacks			US Fatalities		
Mean	28.99	32.24	16.21	18.07	0.69	0.73	0.96	0.98
	Election Season	Post-Election	Election Season	Post-Election	Election Season	Post-Election	Election Season	Post-Election
Panel A: Resolve Mention Variable								
(satellite access)*(high mention week)	6.16	2.69	0.79	0.55	0.33	-0.16	1.08	0.29
	(6.44)	(5.50)	(0.61)	(0.59)	(0.27)	(0.35)	(0.80)	(0.99)
(satellite access)*(one week before the high mention week)	3.74	-0.16	-0.20	0.98	-0.06	0.65	-0.12	0.18
	(5.83)	(9.00)	(0.64)	(0.64)	(0.44)	(0.71)	(0.58)	(0.77)
(satellite access)*(one week after the high mention week)	5.32*	8.79*	1.60**	1.29**	1.04*	1.27*	0.04	1.27*
	(3.32)	(4.95)	(0.64)	(0.64)	(0.62)	(0.75)	(0.63)	(0.74)
Panel B: Poll Mention Variable								
(satellite access)*(release week)	3.30	2.73	1.44	4.43	-0.50	-0.15	0.52	-0.01
	(7.49)	(4.04)	(1.25)	(4.75)	(0.37)	(0.36)	(0.79)	(0.24)
(satellite access)*(one week before release)	-4.62	3.05	4.80	4.82	0.29	0.07	0.84	0.46
	(4.08)	(8.29)	(2.32)	(7.16)	(0.63)	(0.22)	(0.57)	(0.95)
(satellite access)*(one week after release)	4.19*	9.50**	1.75*	2.55**	1.06***	0.68*	0.49**	0.55**
	(2.65)	(4.08)	(1.01)	(1.12)	(0.23)	(0.41)	(0.24)	(0.25)
Province & Week FE	Y	Y	Y	Y	Y	Y	Y	Y
Sample	All	All	Matched Province	Matched Province	All	All	Matched Province	Matched Province
Observations	507	473	292	262	507	473	292	262

Notes: Standard errors clustered at the province level are reported in parentheses. Coefficients which are significant at the 0.05 (0.10, 0.01) level are marked with a ** (*, ***). Dependent Variable is number of attacks per region-week. Attacks are defined as non-criminal acts which result in the death of one or more persons. The data does not distinguish between Sunni insurgent attacks and Shia militia attacks. Attacks which result in only injuries are not included. Data and methods used to construct weekly attack counts are discussed in appendix A. Also included in the regression but not reported are lag and lead indicator variables for high mention weeks which are 1 if it is one week before and one week after a high mention week respectively. Matching characteristics include household size, avg. number of displaced persons, median household income, malnutrition rate, literacy rate labor force participation rate, and avg. hourly wage. Pre-Election Season is November 2, 2004-November 8, 2005. Election Season is November 9, 2005-November 7, 2006. Post-Election is November 8, 2006-November 1, 2007

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Table 6. Dynamics of Insurgent Response to Resolve Statements and Poll Releases

Dependent Variable	(1) Pre-Election Season	(2) Election Season	(3) Post-Election	(4) Pre-Election Season	(5) Election Season	(6) Post-Election
		Number of Attacks			US Fatalities	
Mean	10.04	28.99	32.24	0.88	0.69	0.73
Panel A: "Resolve Mentions"						
(satellite access)*(high mention/poll release week)	7.81	0.33	1.48	0.11	0.51	0.28
	(6.08)	(7.04)	(5.69)	(0.96)	(0.37)	(0.31)
(satellite access)*(one week after the high mention/ poll release week)	3.90***	5.53***	3.85***	0.01	0.63***	0.62*
	(0.99)	(1.53)	(1.26)	(0.67)	(0.23)	(0.34)
(satellite access)*(two weeks after the high mention/poll release week)	1.44	3.66**	3.37**	0.10	0.40	0.56**
	(2.07)	(1.60)	(1.16)	(0.24)	(0.31)	(0.22)
(satellite access)*(three weeks after the high mention/poll release week)	1.52	2.98	1.37	0.16	0.51*	0.23
	(2.25)	(2.12)	(2.22)	(0.18)	(0.29)	(0.43)
(satellite access)*(four weeks after the high mention/poll release week)	0.67	1.06	0.94	0.29	0.16	0.45
	(4.65)	(3.50)	(3.81)	(0.26)	(0.14)	(0.45)
Panel B: Poll Mention Variable						
(satellite access)*(high mention/poll release week)	1.04	2.66	18.14	-1.29**	-0.58	-0.22
	(4.15)	(7.34)	(13.84)	(0.52)	(0.37)	(0.32)
(satellite access)*(one week after the high mention/ poll release week)	4.58***	5.88***	5.60***	-0.03	0.35	0.68*
	(1.19)	(1.70)	(1.51)	(0.39)	(0.24)	(0.40)
(satellite access)*(two weeks after the high mention/poll release week)	1.72	3.81	3.17**	0.15	0.43	0.49
	(1.64)	(3.76)	(1.23)	(0.23)	(0.29)	(0.53)
(satellite access)*(three weeks after the high mention/poll release week)	0.25	2.56	2.57	-0.01	0.45	0.14
	(2.05)	(4.51)	(3.66)	(0.27)	(0.29)	(0.29)
(satellite access)*(four weeks after the high mention/poll release week)	0.24	1.76	1.83	-0.34	0.18	0.06
	(2.44)	(5.21)	(4.20)	(0.34)	(0.13)	(0.40)
Province & Week FE	Y	Y	Y	Y	Y	Y
Observations	392	507	473	392	507	473

Notes: Standard errors clustered at the province level are reported in parentheses. Coefficients which are significant at the 0.05 (0.10, 0.01) level are marked with ** (*, ***). Dependent Variable is number of attacks per region-week. Attacks are defined as non-criminal acts which result in the death of one or more persons. The data does not distinguish between Sunni insurgent attacks and Shia militia attacks. Attacks which result in only injuries are not included. Data and methods used to construct weekly attack counts are discussed in appendix A. All regressions include an interaction term that is equal to the satellite access variable one week before high resolve mentions/poll release.

Table 7. Estimate of the Relationship between Attack Levels and Province Level Characteristics in Various Time Periods

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable			Attacks			
Mean	10.04	28.99	32.24	10.04	28.99	32.24
	Pre-Election Season	Election Season (excludes Election Week)	Post-Election	Pre-Election Season	Election Season (excludes Election Week)	Post-Election
Panel A: Oil Production						
(oil)*(high mention/release week)	-5.25	-8.89	-6.81	-0.72	4.21	-6.73
	(11.28)	(14.31)	(7.81)	(5.88)	(12.31)	(9.2225)
(oil)*(one week before the high mention/release week)	-2.32	-8.83	-6.98	1.44	-1.56	-5.57
	(8.79)	(12.39)	(8.09)	(5.93)	(11.84)	(9.13)
(oil)*(one week after the high mention/release week)	-8.93	-3.36	-2.37	-3.54	1.85	1.86
	(9.69)	(12.76)	(8.18)	(5.75)	(12.08)	(9.13)
R-squared						
Panel B: Ethnic Distribution						
(predominantly Sunni)*(high mention/release week)	3.72	0.09	2.43	2.01	5.45	-2.45
	(3.73)	(4.71)	(2.63)	(1.93)	(3.86)	(3.12)
(predominantly Sunni)*(one week before the high mention/release week)	2.52	4.45	7.49***	-0.14	2.76	9.75***
	(2.83)	(4.02)	(2.70)	(1.94)	(4.11)	(3.26)
(predominantly Sunni)*(one week after the high mention/release week)	-1.82	3.61	-0.72	1.07	3.51	2.34
	(2.79)	(4.21)	(2.76)	(2.01)	(4.07)	(3.21)
R-squared						
Media Variable	Resolve	Resolve	Resolve	Poll	Polls	Polls
Province & Week FE	Y	Y	Y	Y	Y	Y
Observations	392	507	473	392	507	473

Notes: Standard errors clustered at the province level are reported in parentheses. Coefficients which are significant at the 0.05 (0.10, 0.01) level are marked with a ** (*, ***). Dependent Variable is number of attacks per region-week. Attacks are defined as non-criminal acts which result in the death of one or more persons. The data does not distinguish between Sunni insurgent attacks and Shia militia attacks. Attacks which result in only injuries are not included. Data and methods used to construct weekly attack counts are discussed in appendix A. Oil variable is defined as percent of total Iraqi oil production in province (source: Revenue Watch Institute). Pre-Election Season is November 2, 2004-November 8, 2005. Election Season is November 9, 2005-November 7, 2006. Post-Election is November 8, 2006-November 1, 2007.

Data for this paper is available at people.rwj.harvard.edu/~riyengar/. Questions about data and analysis may be directed to riyengar@rwj.harvard.edu or jonathan_monten@ksg.harvard.edu.

Attacks and Fatalities
US Fatalities
Daily data on coalition deaths comes from iCasualties.org. We downloaded the data from http://icasualties.org/oif/Details.aspx, which lists each death individually. We then aggregated the data by week. A fatality is included if any of the following occur:
- a news story or obituary that reports the death of a US service member is released (this must also be confirmed by the DoD),
- Centcom or the Multi-National Force in Iraq (MNF) releases the name of a soldier who has died (Centcom releases must be confirmed by the DoD),
- the DoD itself releases the name of a soldier who has died,
- the name of a soldier not already recorded appears in the weekly updated Department of Records listing of Operation Iraqi Freedom (OIF) fatalities.

http://icasualties.org/oif/Methodology.aspx.

Iraqi Civilian Fatalities
Our primary source for data on violent civilian fatalities comes from the IraqBodyCount.org (IBC) website. The principal researchers are Hamit Dardagan and John Sloboda. It is important to note upfront that the website is partisan—that is, anti war—but their methodology is conservative and seeks to provide an accurate lower bound for the number of violent civilian deaths reported. The data were downloaded from http://www.iraqbodycount.org/database/.

Once there are two news sources reporting an incident, two measures are constructed, *reportedminimum* and *reportedmaximum*. If multiple numbers are reported, the lowest is entered as *reportedminimum*. This can be zero if "zero deaths" is reported. However, a wording like "unable to confirm any violent civilian deaths" is not a report of zero deaths and thus is not entered in either column. Moreover, when the report does not mention civilians specifically, this number is entered in the *reportedmaximum* variable but zero is entered into the *reportedminimum* variable unless the proportion of violent civilian deaths is given or a similar detail is given.) If a "family" is reported killed, this is entered as three deaths.

Attacks by enemy combatants
The monthly data for troop strength comes from the Brookings Iraq. Information may be accessed at http://www3.brookings.edu/fp/saban/iraq/index.pdf.
The table was assembled by Brookings from a variety of news sources (a list is available in the footnotes of the Iraq Index).

Media Mentions Count

The script is written in Ruby using the Mechanize and Hpricot libraries. It navigates to ProQuest's homepage, and iterates through a sequence of search terms, each of which combines a government official's name with one or more buzz words, e.g. "bush and embolden and iraq." For each search, the

broadest range of articles available through ProQuest is returned, and then the script sorts the publication dates of the articles into a weekly tally, ranging from Jan 1, 2003 to the present. For analysis purposes, the tallies are aggregated across search terms.

Search Terms:
 "<Official's Name>" + "Resolve!"
"<Official's Name>" + "embolden!" + "insurg!"

Officials included:
President: George W. Bush;
Vice-President: Richard Cheney;
Secretary of Defense: Donald Rumsfeld, Robert Gates;
Secretary of State: Colin Powell, Condoleezza Rice;
US Commander in Iraq: Ricardo Sanchez, George W. Casey, David Petraeus;
Press Secretary: Ari Fleischer, Scott McLellan, Tony Snow, Dana Perino.

Poll Release Counts
Identifying Polls to Count

Included Polls
- CNN/Gallup/USA Today
- Fox
- CBS

Excluded Polls
- PEW

Relevant questions in included polls
CNN/Gallup/USA Today
"Which comes closest to your view about what the U.S. should now do about the number of U.S. troops in Iraq - the US should send more troops to Iraq, the U.S. should keep the number of troops as it is now, the U.S. should withdraw some troops from Iraq, or the U.S. should withdraw all of its troops from Iraq?"

"Here are four different plans the U.S. could follow in dealing with the war in Iraq. Which one do you prefer: withdraw all troops from Iraq immediately, withdraw all troops by November, 2006 – that is, in 12 months time, withdraw troops, but take as many years to do it as are needed to turn control over to the Iraqis, or send more troops to Iraq?"

Iraqi Security Forces Counts
Weekly data on the size and makeup of the Iraqi Security Forces (ISF) comes from the Department of State's Iraq Weekly Status Report (IWSR). This report provides updates on the progress toward eight "pillars" of the US policy in Iraq. The weekly reports were downloaded from
http://www.state.gov/p/nea/rls/rpt/iraqstatus/.

Iraqi Security Force Readiness

Readiness data is obtained from "Measuring Stability and Security in Iraq: Quarterly Reports." These reports are available beginning in July 2005 and may be accessed at: http://www.defenselink.mil/home/features/Iraq_Reports/

As noted in the text, judgments about the operational quality of an Iraqi unit are based on "Operational Readiness Assessments" compiled by U.S. trainers embedded with a particular unit or other military observers. While individual ORAs are kept classified, summarized information is provided in Petraeus 2007 and the DOD quarterly reports on Measuring Security and Stability in Iraq. On some of the limits of the ORA data as a measure of operational effectiveness, see Jones 2007.

Iraqi National Government Budget
Government expenditures data is available from the Iraq Weekly Status Report, Weekly Expenditure Reports, available at: http://www.state.gov/p/nea/rls/rpt/iraqstatus/

Satellite Access Survey
Face-to-face interviews were conducted among 1,444 Iraqi adults. Interviews were carried out between August 20 and September 5, 2005. The overall response rate was 89 percent, ranging from 93% in Baghdad to 100% in Suleymania and Erbil. Eleven percent of those selected refused to participate in the study. The sample was drawn from a multi-stage probability-based sample was drawn, utilizing residential listings from Iraq's 1997 Population and Housing Census. Census sub-districts were utilized as primary sampling units (PSUs), with each PSU being selected using probability-proportional-to-size procedures. Interviewers were given all address details for households at four sampling points within each PSU. Within each selected household, one respondent was randomly selected using the last birthday method. The margin of error, assuming a 95% confidence level and the clustering effects of a multi-stage design, is approximately ± 3.4% for the overall sample.

Appendix Table 1. Specification Checks for Attacks Regressions using Logs and Per-Capital Measures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variable		Attacks			log(attacks)		Attacks per 100,000 people		
Mean	32.24	10.04	28.99	1.17	1.77	1.76	0.44	1.07	0.92
	Post-Election	Pre-Election Season	Election Season	Pre-Election Season	Election Season	Post-Election	Pre-Election Season	Election Season	Post-Election
Panel A: "Resolve" Mentions									
(satellite access)*(high mention week)	-1.12 (2.25)	6.16 (6.44)	2.69 (5.50)	0.39 (1.14)	0.48 (0.38)	0.26 (0.51)	-0.82** (0.35)	0.71 (0.69)	0.88 (0.64)
(satellite access)*(one week before the high mention week)	-7.22* (4.06)	3.74 (5.83)	-0.16 (4.00)	0.09 (0.63)	0.51 (0.41)	0.02 (0.39)	-0.32** (0.14)	-0.20 (0.29)	0.62 (0.64)
(satellite access)*(one week after the high mention week)	3.58 (5.14)	5.32* (3.32)	8.79* (4.95)	0.56 (0.87)	0.79* (0.48)	0.63* (0.38)	0.04 (0.19)	0.22 (0.38)	0.20 (0.38)
R-squared	0.2539	0.4263	0.4978	0.0900	0.6006	0.6417	0.2620	0.4106	0.4762
Panel B: Poll Release									
(satellite access)*(release week)	-4.21 (2.40)	3.30 (7.49)	2.73 (4.04)	-1.45** (0.51)	0.22 (0.48)	0.11 (0.74)	-0.7098 (0.5113)	-0.08 (0.48)	0.32 (0.47)
(satellite access)*(one week before release)	-1.62 (2.40)	-4.62 (4.08)	3.05 (8.29)	-0.54* (0.28)	-0.09 (0.39)	0.43 (0.61)	-0.2806 (0.2574)	0.24 (0.24)	0.29 (0.46)
(satellite access)*(one week after release)	-1.02 (1.60)	4.19* (2.65)	9.50** (4.08)	0.23 (0.48)	0.06 (0.44)	0.12 (0.51)	0.0911 (0.3700)	0.66* (0.40)	0.42* (0.24)
R-squared	0.2931	0.4266	0.5124	0.4371	0.5970	0.6379	0.2508	0.4104	0.4754
Province Fixed Effect	Y	Y	Y	Y	Y	Y	Y	Y	Y
Week Fixed Effect	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	392	507	473	392	507	473	392	507	473

Notes: Standard errors clustered at the province level are reported in parentheses. Coefficients which are significant at the 0.05 (0.10, 0.01) level are marked with a ** (*, ***). Attacks are defined as non-criminal acts which result in the death of one or more persons. The data does not distinguish between Sunni insurgent attacks and Shia militia attacks. Attacks which result in only injuries are not included. Data and methods used to construct weekly attack counts are discussed in appendix A. Pre-Election Season is November 2, 2004-November 8, 2005. Election Season is November 9, 2005-November 7, 2006. Post-Election is November 8, 2006-November 1, 2007.

Appendix Table 2. Specification Checks of Continuous and Flexible forms of Media Mentions Count

		(1)	(2)	(3)	(4)	(5)	(6)
		Pre-Election Season	Election Season	Post-Election	Pre-Election Season	Election Season	Post-Election
	Dependent Variable	Attacks			U.S. Military Fatalities		
	Meant	10.04	28.99	32.24	0.88	0.69	0.73
Panel A: Continuous Mentions Specification							
	(satellite access)*(resolve mention count)	-0.94***	-0.18	0.07	-0.05	0.02	-0.02
		(0.23)	(0.56)	(0.34)	(0.05)	(0.03)	(0.02)
	(satellite access)*(previous week resolve mention count)	-0.18	0.35	0.13	-0.01	0.01	-0.00
		(0.25)	(0.60)	(0.22)	(0.03)	(0.04)	(0.01)
	(satellite access)*(subsequent week resolve mention count)	-0.08	1.20**	2.02*	-0.05**	-0.04	0.02
		(0.20)	(0.37)	(1.04)	(0.02)	(0.02)	(0.04)
	R-squared	0.26	0.43	0.50	0.53	0.72	0.52
Panel B: Flexible Mentions Specification							
	(satellite access)(week with 1-3 resolve mentions)	-0.31	1.09	-1.87	-1.56	0.82	0.48
		(8.88)	(6.53)	(19.49)	(1.58)	(1.85)	(2.46)
	(satellite access)(one week before week with 1-3 resolve mentions)	1.29	4.56	20.87	-1.61	1.78	-0.13
		(10.29)	(15.54)	(12.47)	(1.06)	(1.88)	(0.70)
	(satellite access)(one week after week with 1-3 resolve mentions)	6.15	-9.00	1.51	0.50	-2.44	-1.81
		(4.83)	(6.41)	(8.67)	(0.81)	(2.05)	(2.04)
	(satellite access)(week with 4-6 resolve mentions)	10.11	12.77	-15.77	-0.53	0.65	0.36
		(6.20)	(9.27)	(19.74)	(0.93)	(0.68)	(1.65)
High Mention Indicator = 0	(satellite access)(one week before week with 4-6 resolve mentions)	4.06	5.46	0.64	-0.96	0.95	-1.00
		(7.00)	(17.65)	(10.05)	(1.10)	(1.55)	(1.21)
	(satellite access)(one week after week with 4-6 resolve mentions)	5.00	5.16	2.62	0.73	-0.67	-1.01
		(6.24)	(9.51)	(9.16)	(0.94)	(1.84)	(2.25)
	(satellite access)(week with 7-9 resolve mentions)	10.05	8.35	-7.53	-1.10	0.71***	-0.15
		(10.77)	(10.90)	(15.88)	(1.76)	(0.24)	(1.46)
	(satellite access)(one week before week with 7-9 resolve mentions)	5.19	1.61	3.60	-1.84*	0.79	-0.83
		(6.77)	(16.80)	(7.69)	(1.01)	(1.44)	(0.69)
	(satellite access)(one week after week with 7-9 resolve mentions)	0.23	2.50	3.57	0.64	2.98	-0.61
		(4.59)	(3.23)	(6.41)	(0.84)	(2.09)	(0.87)
High Mention Indicator = 1	(satellite access)(week with 10-15 resolve mentions)	3.09	4.93	-12.25	-0.24	1.12***	0.06
		(3.44)	(16.84)	(19.77)	(1.18)	(0.33)	(1.64)
	(satellite access)(one week before	7.62	6.04	6.14	-1.28	1.27	0.32

week with 10-15 resolve mentions)	(7.51)	(21.86)	(8.87)	(1.05)	(1.71)	(0.69)
(satellite access)(one week after week with 10-15 resolve mentions)	1.50 (5.02)	11.08** (4.73)	7.12 (3.64)	0.08 (0.80)	0.86 (2.07)	2.31** (1.14)
(satellite access)(week with 16-25 resolve mentions)	0.00 (0.00)	8.29 (19.06)	4.54 (14.96)	0.00 (0.00)	1.86** (0.83)	-0.13 (1.33)
(satellite access)(one week before week with 16-25 resolve mentions)	4.65 (8.64)	9.76 (22.62)	9.94 (10.71)	-1.46 (0.97)	1.09 (1.89)	0.47 (0.81)
(satellite access)(one week after week with 16-25 resolve mentions)	12.50 (7.20)	3.65 (4.95)	9.49 (6.17)	2.14 (1.45)	1.06 (1.49)	0.99 (1.12)
(satellite access)(week with >25 resolve mentions)	--	--	-5.42 (18.33)	--	--	0.16 (1.21)
(satellite access)(one week before week with > 25resolve mentions)	--	--	2.23 (7.21)	--	--	0.53 (0.85)
(satellite access)(one week after week with >25 resolve mentions)	--	--	4.94 (9.07)	--	--	0.84* (0.48)
R-squared	0.31	0.43	0.51	0.55	0.73	0.52
Province and Week FE	Y	Y	Y	Y	Y	Y
Observations	392	507	473	392	507	473

Notes: Standard errors clustered at the province level are reported in parentheses. Coefficients which are significant at the 0.05 (0.10, 0.01) level are marked with a ** (*, ***). Attacks are defined as non-criminal acts which result in the death of one or more persons. The data does not distinguish between Sunni insurgent attacks and Shia militia attacks. Attacks which result in only injuries are not included. Data and methods used to construct weekly attack counts are discussed in appendix A. Pre-Election Season is November 2, 2004-November 8, 2005. Election Season is November 9, 2005-November 7, 2006. Post-Election is November 8, 2006-November 1, 2007.

Appendix Table 3. Falsification Checks using Oil Production and Ethnic Composition

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable			Attacks			
Mean	10.04	28.99	32.24	10.04	28.99	32.24
	Pre-Election Season	Election Season (excludes Election Week)	Post-Election	Pre-Election Season	Election Season (excludes Election Week)	Post-Election
Panel A: Oil Production						
(oil)*(high mention/release week)	-3.97	-8.82	-5.25	-3.96	12.16	-2.12
	(12.81)	(15.30)	(8.57)	(6.87)	(13.65)	(10.29)
(oil)*(one week after the high mention/release week)	-5.27	0.82	1.91	3.95	3.00	-5.27
	(9.29)	(12.23)	(8.50)	(6.00)	(12.07)	(9.28)
(% Sunni)*(high mention/release week)	3.67	-0.93	1.43	1.74	6.50	-4.84
	(4.12)	(5.05)	(2.81)	(2.11)	(4.12)	(3.32)
(% Sunni)*(one week after the high mention/release week)	-0.28	0.75	-1.75	2.62	3.02	1.22
	(2.44)	(8.68)	(2.87)	(1.87)	(4.11)	(3.30)
(satellite access)*(high mention release week)	9.16	4.66	2.48	10.97**	5.07	10.36**
	(6.17)	(10.24)	(6.47)	(4.57)	(9.94)	(8.67)
(satellite access)*(one week after the high mention/release week)	5.00	9.40**	2.44	4.53	8.19*	13.13***
	(4.47)	(4.35)	(5.57)	(3.32)	(4.98)	(6.90)
R-Squared						
Media Variable	Resolve	Resolve	Resolve	Poll	Polls	Polls
Province Fixed Effects	Y	Y	Y	Y	Y	Y
Week Fixed Effects	Y	Y	Y	Y	Y	Y
Observations	392	507	473	392	507	473

Notes: Standard errors clustered at the province level are reported in parentheses. Coefficients which are significant at the 0.05 (0.10, 0.01) level are marked with a ** (*, ***). Dependent Variable is number of attacks per region-week. Attacks are defined as non-criminal acts which result in the death of one or more persons. The data does not distinguish between Sunni insurgent attacks and Shia militia attacks. Attacks which result in only injuries are not included. Data and methods used to construct weekly attack counts are discussed in appendix A. Oil variable is defined as percent of total Iraqi oil production in province (source: Revenue Watch Institute). Pre-Election Season is November 2, 2004-November 8, 2005. Election Season is November 9, 2005-November 7, 2006. Post-Election is November 8, 2006-November 1, 2007. All regressions include an interaction terms that are equal to the satellite access, oil, and ethnic composition variable one week before high resolve mentions/poll release