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Leader Survival, Sources of Political Insecurity, and International Conflict

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Abstract

Recent research identifies the risk and consequences of losing office as important factors in leaders' decisions to initiate international conflicts. This paper argues that the institutional source of a domestic threat to a leader should condition the relationship between political insecurity and international conflict. Specifically, existing theoretical mechanisms linking international conflict to security in office should not apply to threats that come from outside a leader's selectorate. Natural disasters provide a convenient opportunity to test this argument since others have argued that disasters not only affect the risk that all types of leaders lose office but that they do so by creating threats that operate through different mechanisms in different domestic institutional contexts. I find that deaths from disasters are positively associated with conflict initiation among large-coalition leaders throughout the period of 1950 to 2007. I also find that neither disaster deaths nor events are related to conflict behavior for small-coalition leaders. In arguing that not all threats to leader survival matter for international conflict, the paper offers an important qualification to theories of leader survival and international conflict.

Keywords

leader survival, international conflict, disasters, selectorate theory

Political and personal survival incentives are important determinants of leaders' international conflict behavior (e.g., Chiozza and Goemans 2011; Bueno de Mesquita et al. 2003; Goemans 2000). Recent literature identifies specific mechanisms through which international conflict may help leaders retain power (Chiozza and Goemans 2011). When facing a heightened risk of losing office via "irregular" means (e.g., a coup) or facing post-tenure punishment (e.g., imprisonment or execution), leaders may *fight* or *gamble* for survival by initiating a war in a bid to hold on to power (Chiozza and Goemans 2011; Debs and Goemans 2010; Goemans 2000). Alternatively, when leaders face a heightened risk of "regular removal" (i.e., losing an election) but their personal well-being is not threatened, the *peace through insecurity* mechanism restrains leaders from risking conflict (Chiozza and Goemans 2003). This research agenda has produced powerful insights from a sparse set of explanatory factors—the risks of regular or irregular removal from office.

This paper argues that not all threats to survival should matter for international conflict. Political threats to leaders come from varied sources within countries (e.g., Smith 2008). I consider the implications of two different sources of domestic threats—institutional and extra-institutional threats—for the theoretical mechanisms linking leaders' political survival incentives to conflict initiation. Institutional threats come from actors who could potentially exert some control over the ability of a leader to maintain power within existing institutions. Extra-institutional threats come from actors that operate outside the institutions that govern leader survival in a country. Existing research on leaders and conflict focuses implicitly on institutional threats. If international conflict does not tend to affect or create policy benefits that accrue to groups challenging a leader from outside an existing institutional system, then conflict should not be a useful response to extra-institutional threats. This implies an important scope condition for theories of leader survival and international conflict.

Many factors that might affect leader survival through extra-institutional channels (e.g., revolutionary movements, terrorist threats) are potentially endogenous to conflict. To overcome this challenge, I draw on recent evidence from comparative politics which suggests that natural disasters threaten leaders' political survival through different mechanisms in different institutional settings (Quiroz Flores and Smith 2013). Leaders of

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relatively inclusive "large winning coalition" systems are sensitive to mounting public disapproval as disaster deaths increase. Conversely, autocratic leaders who rely on a small coalition of supporters are vulnerable to revolutionary groups that can more easily overcome collective action problems in the wake of disasters (Quiroz Flores and Smith 2013, 821–22). As such, disasters affect large-coalition leaders via institutional means (e.g., loss of support among coalition members) while they affect small-coalition leaders through extra-institutional means (e.g., rebel groups). My argument implies that as disasters worsen in large-coalition systems, leaders should become more or less likely to initiate conflicts depending on how they expect to lose office. Yet, because disasters affect small-coalition leaders through extra-institutional channels, disasters should be unrelated to conflict behavior in small-coalition systems even though they threaten leader survival.

I test these expectations using data from the International Disaster Database (Guha-Sapir, Below, and Hoyois 2015).[1] As hypothesized, I find a positive association between disaster deaths and international conflict initiation in large-coalition systems where leaders face irregular removal from office. Unexpectedly, the same result emerges for large-coalition leaders facing regular removal. Overall, the relationship between disasters and conflict tends not to vary with the distinction between regular and irregular removal: all large-coalition leaders tend to initiate more international conflicts as deaths from disasters increase. However, small-coalition leaders are no more or less likely to initiate international conflicts as disaster impacts (both deaths and disaster events) increase, consistent with the theory. Whereas existing theory would expect leader insecurity to correlate with conflict behavior (either positively or negatively) regardless of the specific type of threat, the findings suggest that understanding when heightened insecurity should affect conflict behavior requires taking into account the institutional sources of threats to leaders.

This paper makes a number of contributions. First, the paper advances theories of political survival by qualifying the conditions under which international conflict might benefit leaders. Threats to leader survival are varied (e.g., Smith 2008, 780), yet theories of leader survival and international conflict assume that any factor that affects the risk of removal matters for international conflict (Chiozza and Goemans 2011). Although the occurrence of disasters increases the risk that small-coalition leaders lose office (Quiroz Flores and Smith 2013, 838), disasters do not appear to affect the conflict behavior of small-coalition leaders as existing theory would expect. Second, the paper contributes to a growing literature that goes beyond the traditional dichotomy of democracy versus autocracy in studying the effects of domestic institutions on foreign policy (e.g., Weeks 2012). Third, the paper indirectly contributes to research on climate change and political violence. Prevailing wisdom holds that the effects of climate-related disasters will matter mostly for domestic politics and human security. Although true, this overlooks links between domestic turmoil and international conflict. Critics of the climate-conflict literature have repeatedly called for theory-driven contributions to this research agenda (e.g., N. P. Gleditsch 2012, 6; Nordas and Gleditsch 2007, 633; Salehyan 2008, 320; Streich and Mislan 2014), and this paper (indirectly) answers that call.

Leaders and International Conflict

A long tradition in international relations research examines how leaders' incentives for political survival affect international behavior. Much of this research evaluates diversionary conflict theory, which proposes that international conflict can be a useful means of diverting attention from domestic problems in times of domestic turmoil (e.g., Downs and Rocke 1994; Morgan and Bickers 1992; Oneal and Tir 2006). There is mixed evidence for diversionary conflict theory (e.g., Chiozza and Goemans 2011, 35–40; Oneal and Tir 2006, 757–60), and the research agenda that seeks to evaluate diversionary theory has been criticized for being too focused on the United States (Oneal and Tir 2006, 760).

Recent contributions qualify and extend the intuition behind diversionary theory to highlight not just how political survival incentives shape leaders' conflict behavior but also the role of personal costs that leaders may incur from losing office (Chiozza and Goemans 2003, 2004, 2011; Debs and Goemans 2010; Goemans 2000). Indeed, the consequences of losing office vary dramatically in different cases. That a leader faces a 50 percent chance of losing office could be based on expectations about the result of an upcoming election or an impending coup. Chiozza and Goemans's (2011) theory develops a distinction between "regular" and "irregular" removal. They argue that leaders anticipating irregular removal might gain from international conflict through two mechanisms. First, a leader may "fight for survival" by sending suspected coup plotters within his regime to the front lines to eliminate an internal threat *à la* Saddam Hussein's 1990 invasion of Kuwait (Chiozza and Goemans 2011, 27). Second, a leader may "gamble for survival" by behaving belligerently in the hopes of obtaining new resources to distribute to supporters. These could be public goods (e.g., national prestige, enhanced security through victory in war) or private goods (e.g., natural resources) (see also Downs and Rocke 1994, 364; Goemans 2000). Scholars frequently invoke the 1904

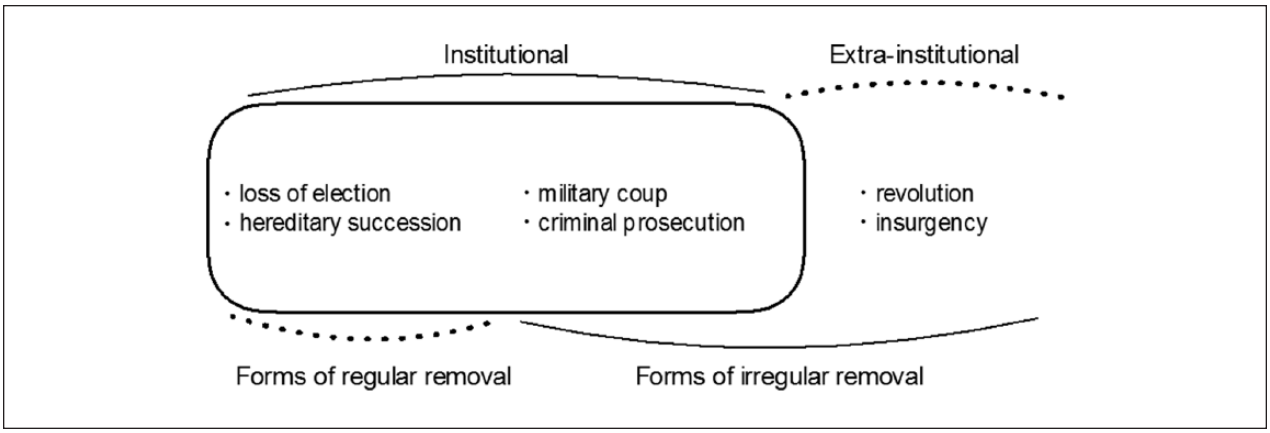

Figure 1. Types of leader removal and sources of removal threat.

Russo-Japanese War and the 1982 Falklands War as instances where insecure leaders sought to use international conflict to ease domestic turmoil (Levy and Thompson 2010, 101). From the perspective of a leader facing post-tenure punishment, conflict might be an acceptable risk if it improves one's chances of remaining in power. Alternatively, for leaders who anticipate a peaceful retirement upon leaving office ("regular" removal), conflict is needlessly risky, especially if heightened political insecurity makes a leader less able to insulate herself from any negative repercussions of conflict. The costs of engaging in conflict while in a relatively less secure position deter conflict for leaders who have little reason to fear for their personal well-being upon leaving office. This is the "peace through insecurity" mechanism (Chiozza and Goemans 2011, 32–35).

The Institutional Sources of Threats to Leaders

One dimension of political threat that is obscured in the regular–irregular typology is the institutional source of a threat. In general, threats may come from institutional or extra-institutional sources. An institutional threat is one that originates with groups that exert or have the potential to exert political power within a country's existing political institutions. When former U.S. President H. W. Bush lost his bid for reelection to the U.S. presidency in 1992, the risk of and means through which he ending up losing office were institutional: the loss of an election. Had the attempted coup against Turkish President Recep Tayyip Erdogan in 2016 succeeded, it would have represented a form of irregular removal, and an instance of irregular removal instigated by actors with a formal institutional role within Turkish society (the military). An extra-institutional threat is one that originates with actors or groups who operate *outside* of a country's institutional system. Although this includes threats from outside the state, here I focus on *domestic* extra-institutional threats. The 2011 revolution that led to the demise of Libyan leader Muammar Gaddafi was carried out by militias that were openly hostile to Gaddafi and existed outside of Libyan political institutions. The cases of Turkey and Libya illustrate that the reason that leaders face irregular removal varies.

Figure 1 visualizes the relationship between types of removal and the institutional sources of threat. In short, some institutional threats to political survival may be associated with regular removal, others might be associated with irregular removal. However, there are some forms of irregular removal that are "extra-institutional" in nature—they arise from groups with no formal institutional role in society.

The reason that focusing on the institutional source of threats to a leader matters is simple: the mechanisms that link international conflict to retaining political power depend either on international conflict generating benefits for groups that operate within a country's existing institutional structure *or* on international conflict indirectly eliminating threats from domestic groups *over which a leader exerts control*. Leaders often face threats that originate from within groups that are necessary for them to retain power. Yet, they also face threats from groups that exist outside of the political rules of the game, such as threats from revolutionary movements. Although others have pointed out that threats to leaders come from many sources (e.g., Smith 2008), theories of leaders and international conflict ignore the source of a threat. Although Chiozza and Goemans (2011, 5) consider revolutionary threats as a potential source of interstate conflict, their argument focuses on cases where the revolutionary threat (1) comes from groups that enjoy safe havens across international borders or (2) involves the cooperation of actors within an existing regime (e.g., a rival military faction). In the first case, a conflict becomes international because of

the need to eliminate a threat that happens to cross national borders, and the logic of using "international" conflict to eliminate that threat does not comport with either the fighting or gambling for survival mechanisms. In the second case, fighting or gambling for survival might reduce internal opposition. But, it is unclear how the fighting or gambling for survival mechanisms would make international conflict a useful response to an extra-institutional domestic threat like a revolutionary movement. Groups that pose an extra-institutional threat receive little benefit from any goods the government provides or would obtain from international conflict. Similarly, a leader cannot send these domestic opponents off to war since she does not control them. It would seem odd for a leader to send armed forces abroad when facing an imminent revolution. As such, extra-institutional threats should not systematically affect leaders' incentives for *international* conflict.

One caveat to this argument is that threats that are "extra-institutional" in some contexts may turn into "institutional" threats in other systems. For example, even though the incentive for revolution should be weak in countries with more inclusive institutions (Smith 2008, 791), revolutionary movements may arise in those settings. If these movements (or other threats like terrorist groups) threaten the security of groups that decide a leader's fate in office, then the logic of using international conflict to gamble for survival and appease those groups may apply. Although I do not test this specific caveat to the theory (for reasons discussed below), it is a potentially important qualification to the theory.

Natural Disasters, Leader Survival, and International Conflict

Many extra-institutional threats to leaders—terrorist campaigns, revolutionary movements—are likely endogenous to international conflict. One plausibly exogenous variable that others have argued and found affects leader survival is the extent to which a country experiences natural disasters (Achen and Bartels 2012; Quiroz Flores and Smith 2013).[2] Why should natural disasters affect leader survival? Quiroz Flores and Smith (2013, 828) draw on selectorate theory (Bueno de Mesquita et al. 2003, 285) to argue that insofar as disasters cause deaths and damage in large-coalition systems, leaders should face an increased risk of losing office.[3] These leaders have institutional incentives to provide public goods like security, and constituents will evaluate them on this policy dimension. Although this incentive should generally cause leaders to invest in disaster preparedness, when disasters *do* occur, supporters may doubt a leader's competence. Because the extent of a disaster depends partially on the preparations and response of a government (e.g., Kahn 2005, 283, Plümper and Neumayer 2009), it may reveal information about a leader's ability to govern (Quiroz Flores and Smith 2013).[4] Coalition members in large-coalition systems are intolerant of incompetence since they can expect to do similarly well under a challenger with identical incentives to provide public goods (Bueno de Mesquita et al. 2003, 279). When large-coalition leaders fail to prevent deaths from disasters, coalition members will perceive them as being incompetent, and their security in office should be threatened. Empirically, these leaders are more likely to lose office as deaths from disasters increase (Quiroz Flores and Smith 2013, 840).[5]

This logic changes where only a small portion of the population is eligible to participate in the procedures of leader selection ("small-coalition" systems). Here, a coalition member's fate depends critically on the incumbent holding power since the likelihood of inclusion in an alternative winning coalition is low compared with a large-coalition system. This induces loyalty to incumbents. In addition, small-coalition leaders have more slack resources to compensate for shocks than do large-coalition leaders (Bueno de Mesquita et al. 2003, 285). As coalition members are more loyal and the leader is better able to compensate any losses they do experience, human impacts of disasters per se should not be destabilizing for small-coalition leaders. Consistent with this theory, Quiroz Flores and Smith (2013, 837) find that small-coalition leaders are unaffected by disaster deaths. Yet disasters might catalyze threats to small-coalition leaders through extra-institutional channels. A disaster can provide a focal point for antiregime sentiments while simultaneously corralling potential revolutionaries into geographically compact areas, facilitating recruitment efforts by opposition groups (Quiroz Flores and Smith 2013, 821–22).[6] So, while dictators may worry little about the human impacts of disasters, the disaster-induced threat of revolution looms large when citizens can overcome coordination problems. Quiroz Flores and Smith (2013, 828) argue that disaster *events*—independent of the human toll—should be associated with an increased likelihood of losing power in small-coalition systems, and they find empirical support for this hypothesis. Nel and Righarts (2008, 159) recount how an earthquake in 465/464 BC helped "Messenian helots who were enslaved when Sparta" initiate a revolutionary challenge to Spartan rulers (which ultimately failed). The 1972 earthquake in Nicaragua and the 1976 earthquake in Guatemala have also been linked to increased leader insecurity through similar mechanisms (Jonas 1991; Kelman 2012; Valenta and Valenta 1987).

In sum, disasters should affect large-coalition leaders by harming groups that are necessary for them to retain power. Conversely, the way that disasters threaten small-coalition leaders is by affecting groups with no

institutional role in politics. Thus, while it is a disaster that creates a threat in both cases, the "source" of the threat differs across the two regime types.

Hypotheses

This argument about the different mechanisms through which disasters might affect leader survival combined with Chiozza and Goemans's (2011) theory implies a number of hypotheses on the relationship between disasters and international conflict.[7] Consider large-coalition leaders first. Large-coalition leaders might fear regular or irregular removal. As disasters worsen in large-coalition systems where leaders might fear irregular removal, leaders should become more prone to engaging in international conflicts. International conflict can introduce an additional policy dimension on which constituents may evaluate leaders, and success on this dimension may compensate for perceived failure in other contexts. Thus, these leaders may want to "gamble for survival." Some suggestive examples help illustrate the logic. In the 1998 war between Ethiopia and Eritrea, Abbink (2003, 221) argues that Ethiopian president, Meles Zenawi, faced pressure to respond forcefully to Eritrea's border violations because his government was "in the midst of serious political problems and opposition from large sections of the public." One major problem was managing the effects of unusually damaging El Niño-induced flooding that killed hundreds of people in 1997 (Glantz 2000; Guha-Sapir, Below, and Hoyois 2015). Given that Ethiopia had only recently taken steps toward democracy and was in the midst of a hostile rivalry with Eritrea, it would be reasonable to expect that Zenawi feared irregular removal through a coup. Tures (2009, 74) argues that Iran's belligerent foreign policy rhetoric under President Ahmadinejad was driven by efforts to "[distract] the Iranian people from the deleterious shortcomings of its increasingly ineffective president." Although many factors contributed to popular dissatisfaction with Ahmadinejad's government, one source of public discontent was the government's response to earthquakes (Torbati 2012; Valinejad 2012). In 2013, *The New York Times* called public anger over the Philippine government's response to a typhoon the "biggest challenge" of President Aquino's presidency (Jacobs 2013). The Philippines is mostly democratic but has experienced a number of attempted coups in the past few decades. Shortly after, Aquino took an increasingly hard line (rhetorically) against China in disputes over islands in the South China Sea, comparing his situation to that of "Czechoslovakia's leaders in the late 1930s" (Bradsher 2014). The theory would explain this as a case where a leader sought to boost his government's popularity, which was partially a function of a natural disaster, by framing a standoff with a foreign country as dangerous and taking a strong stance (a potentially risky choice). Finally, in their case studies of international conflict in Central America from 1840 to 1918, Chiozza and Goemans (2011, 120–21) note that a cholera epidemic contributed to "undermining [leader of the Federal Republic of Central America] Morazán's legitimacy," which was an important factor in Morazán's decision to make war against Guatemala to preserve the union.

In addition, a leader may fear a military coup if generals believe she is ineffective. For example, Pakistan has occasionally reverted to military rule when democratically elected leaders have failed to cope with crises, and there were "[r]umours of an army coup" following flooding in Pakistan in 2010 (The Economist 2010). Another example is Chile, where public support for coups increased following the 2010 earthquake (Carlin, Love, and Zechmeister 2014, 11). A recent report by the United States's Congressional Research Service expressed concern that popular dissatisfaction with the political system brought on by environmental crises might lead Pakistan to behave more belligerently toward India (Vaughn et al. 2010). Here and in other similar cases, it is plausible that the "fighting for survival" mechanism may succeed in distracting the military (at least temporarily) during a period of domestic upheaval, while simultaneously winning public favor through the "gambling for survival" mechanism.

> **Hypothesis 1 (H1):** Leaders of large-coalition systems who face irregular removal initiate more international conflicts as deaths from natural disasters increase.

As the effects of disasters worsen in large-coalition systems where leaders face *regular* removal, leaders should feel less secure in office and should find international conflict a less desirable option. For example, some commentators attributed U.S. President Bush's more conciliatory foreign policy during the first part of his second term to the public backlash against his response to Hurricane Katrina in 2005 (Daalder and Lindsay 2005). Periods of relative dovish-ness in India's foreign policy toward Pakistan have also been attributed to disasters (Kelman 2012, 37).

> **Hypothesis 2 (H2)**: Leaders of large-coalition systems who face regular removal from office initiate fewer international conflicts as deaths from natural disasters increase.

Given that *deaths* from disasters should not affect the survival of small-coalition leaders (Quiroz Flores and Smith 2013), deaths from disasters should be unrelated to

international conflict behavior in small-coalition systems. Similarly, because disaster events should increase the risk of losing office for small-coalition leaders but should do so through extra-institutional channels, disaster events should also be unrelated to international conflict behavior in small-coalition systems. These are predictions about the absence of a relationship between disasters and international conflict and thus illustrating the logic of these expectations in individual cases is difficult. However, one illustrative example of how international conflict would often not be a useful response to revolutionary movements comes from Nicaragua. Drury and Olson (1998, 154) cite a 1972 earthquake in Nicaragua as a key catalyzing event in the formation of the Sandinista National Liberation Front (FSLN) which ultimately succeeded in toppling the Somoza regime from power in the 1979 Nicaraguan Revolution. Here, the movement sought the removal of the Somoza regime, and it is not obvious that either the fighting or gambling for survival mechanisms could have played any role in reducing the threat posed by the FSLN. Indeed, "[t]he Somoza government responded to the increased opposition with further censorship, intimidation, torture, and murder" (UCDP 2018), not international conflict.

Hypothesis 3 (H3): Leaders of small-coalition systems are no more or less likely to initiate international conflicts as disaster deaths increase.

Hypothesis 4 (H4): Leaders of small-coalition systems are no more or less likely to initiate international conflicts as the frequency of disaster events increases.

The next section develops a research design to evaluate these hypotheses.

Research Design

Testing the theory requires data on natural disasters, domestic institutions, and international conflict. I start with a data set of leader-years from the *Archigos* data set (version 4.0; Goemans, Gleditsch, and Chiozza 2009). To measure conflict propensity, I count the number of militarized interstate disputes (MIDs) a country initiated during a given year (or during a given portion of a year if a leader exited office mid-year) using the Correlates of War (COW) MIDs data set (Jones, Bremer, and Singer 1996). MIDs are "united historical cases in which the threat, display or use of military force short of war by one member state is explicitly directed towards the government, official representatives, official forces, property, or territory of another state" (Jones, Bremer, and Singer 1996, 168). This is the primary dependent variable in the analysis below.[8] I include all MID initiations since even lower level acts of conflict may affect leader survival and thus are relevant for the theory (Chiozza and Goemans 2011, 89), though I also report the results using a count of "high-hostility" MIDs that are coded as having hostility levels 4 and 5 (the use of force and war, respectively).

The key independent variables are (1) human impacts of disasters, (2) disaster events, (3) domestic institutions of leader survival, and (4) the anticipated means and consequences of losing office. Using the International Disaster Database (Guha-Sapir, Below, and Hoyois 2015),[9] I count both the total number of disaster events and the total number of deaths from natural disasters that occurred in a given country during the previous year, or during the previous portion of a year for years in which a leader took power mid-year. I lag the disaster variables by one year to ensure that any disasters occurred (or started) prior to the onset of conflict.[10] Although others distinguish between rapid- and slow-onset disasters, I am mainly interested in the human toll of disasters in large-coalition systems, and as such I include both. It may be the case that coalition members are more or less forgiving for certain types of disasters, but this is difficult to know ex ante. Alternatively, some types of disasters might pose greater threats to small-coalition regimes. For example, earthquakes may more effectively help rebels overcome collective action problems than a drought (or maybe not). Because I do not have strong theoretical expectations about these relationships, I follow Quiroz Flores and Smith (2013) in including all types of natural disasters. I take the natural log of the disaster variables, adding one to each observation to account for cases with zero deaths or events.

To operationalize winning-coalition size, I use the *W* score from Bueno de Mesquita and Smith (2010). The variable is a function of component measures in the Polity IV data set (*xrcomp, xropen*, and *parcomp*) and the Cross-National Time Series Data Archive's measure of regime type (Banks 2011). The variable ranges between 0 and 1 in increments of .25, with values closer to 1 indicating larger winning coalitions. I use this measure to create two categories of winning-coalition size. I code countries that score 0.5 or higher as large-coalition systems, and those that score below 0.5 as small-coalition systems. Bueno de Mesquita and Smith (2008, 193) refer to predicted coalition sizes of 0.3 and 0.46 as "substantial," so 0.5 would seem a reasonable and possibly even conservative cut point for separating out large- from small-winning-coalition systems. However, below I also report results for an alternative threshold of $W \geq 0.75$.

I use the Polity IV Regulation of Chief Executive Recruitment (*xrreg*) variable (Marshall, Jaggers, and Gurr 2010) to measure how a leader expects to be removed from office. This is similar to the approach taken by Goemans (2000, 56–57), who uses "mixed" regimes (regimes that are neither fully autocratic nor

fully democratic) to proxy for leaders who might anticipate irregular removal. Alternatively, Chiozza and Goemans (2011) indirectly model the risk of losing office, since they theorize that the risk of international conflict and the risk of losing office are endogenous. However, their estimates of removal risks include components of domestic regimes that factor into the *W* score in Bueno de Mesquita and Smith (2010), which I use to code large-coalition and small-coalition systems. Instead, I use the *xrreg* variable, a three-category ordinal variable measuring the procedures of leader removal in a given country. (Note that this is *not* one of the components of the *W* score.) This indicator may not dynamically capture the threat of irregular removal, but where it does code irregular removal we should be more confident that leaders do plausibly fear an irregular exit.[11] A score of three indicates regular removal, lesser scores indicate irregular removal.[12] Using these two sources of data, I code a leader's membership in one of four categories of institutions: large coalition/regular removal, large coalition/irregular removal, small coalition/regular removal, and small coalition/irregular removal.[13]

Control Variables

I control for potential confounders that might be correlated with disaster impacts and conflict (Achen 2005; Ray 2003). First, since developed countries are better able to prevent impacts from disasters (Kahn 2005) and may also be less likely to engage in international conflict (Gartzke 2007), I include a measure of real gross domestic product (GDP; logged and lagged by one year) from K. S. Gleditsch (2002). Second, larger countries might experience more disasters simply by virtue of their size and they may also share more borders which could lead to a higher likelihood of fighting over territory (Bremer 2000, 30–31; Gibler 2007). To account for this, I include a (logged) measure of land area in square kilometers (World Bank 2013) and a measure of population in thousands from K. S. Gleditsch (2002).[14] I also control for military capabilities using the COW Composite Indicator of National Capabilities (CINC) score (Singer, Bremer, and Stuckey 1972), since well-equipped militaries might be able to successfully manage the effects of a disaster and prevent deaths, and stronger countries might be more conflict prone (or may have more opportunities to engage in conflict) (Bremer 2000, 25). I lag this variable by one year. In some of the models below, I also account for additional determinants of conflict with a count of years since the last MID and a count of years that a leader has been in office. I also included year dummies to account for conflict opportunity common to all leaders in a given year. The statistical tests use data for the years 1950–2007. The spatial and temporal domains of the data are limited by *Archigos* and the data from Bueno de Mesquita and Smith (2010). The online appendix reports summary statistics for the key variables.

Results

I estimate negative binomial regression models where the outcome variable is a count of conflicts initiated by a leader during a given year.[15] I interact the disaster deaths variable with the large coalition/irregular removal and large coalition/regular removal dummy variables, leaving small-coalition systems out as the baseline category. To evaluate H1 and H2, Table 1 reports the estimated marginal effects of disaster deaths on conflict initiation in small-coalition systems (the base coefficient) and large-coalition regular and irregular removal systems.[16] In models 1 through 4, the outcome variable counts all MIDs of any intensity. Models 5 and 6 include only MIDs that reached a hostility level of 4 or higher in the dependent variable.

Consistent with H1, the positive coefficient on the interaction term between large-coalition systems with irregular removal and disaster deaths in all models except model 5 suggests that large-coalition leaders who face irregular removal from office initiate more international conflicts as deaths from natural disasters increase. Although this relationship is more uncertain in model 5, the relationship between disasters and conflict remains positive. Models 2, 4, and 6 use an alternate threshold of 0.75 to separate large- from small-winning coalition systems and provide consistent support for H1. For each pair of models, the result for large-coalition irregular removal leaders is stronger in the model that uses the alternate *W* threshold.

Against the expectations of H2, disasters also seem to be positively associated with conflict in large-coalition systems where leaders likely face *regular* removal. Indeed, in four of the six models (models 1–4), the marginal effect of disasters for large-coalition regular removal leaders is positive and significant. Furthermore, in a test of the linear restriction that the effects are the same across the regular and irregular regimes, only in models 2, 4, and 6 is there evidence that the coefficients are statistically distinguishable from one another (the *p* values in the *F* tests are .07, .04, and .16, respectively). One explanation for this finding relates to recent evidence that leaders of democratic countries may be more belligerent when the prospects for reelection are removed. Both Zeigler, Pierskalla, and Mazumder (2014) and Conconi, Sahuguet, and Zanardi (2014) report that democratic leaders (whom preside over large-coalition systems) are more conflict prone in their final terms, which they argue is a result of a lack of electoral accountability insulating leaders from the costs of conflict. If disasters lead democratic,

Table 1. Marginal Effect of Disasters on Conflict Initiation by Coalition Size, 1950–2007.

	DV: MIDs initiated				DV: Hostile MIDs initiated	
	(1)	(2)	(3)	(4)	(5)	(6)
	Base	$W \geq 0.75$	Extra controls	Extra controls $W \geq 0.75$	Extra controls Hostile MIDs	Extra controls $W \geq 0.75$ Hostile MIDs
Small coalition	−0.034	0.007	−0.026	0.002	−0.01	0.007
	(0.027)	(0.019)	(0.027)	(0.019)	(0.031)	(0.022)
Large coalition, irregular removal	0.045**	0.146**	0.041*	0.163**	0.028	0.146**
	(0.023)	(0.05)	(0.023)	(0.05)	(0.028)	(0.072)
Large coalition, regular removal	0.047**	0.046**	0.052**	0.049**	0.039	0.039
	(0.022)	(0.022)	(0.022)	(0.022)	(0.028)	(0.028)
Observations	6,843	6,843	6,843	6,843	6,843	6,843
Log likelihood	−3,373.874	−3,364.957	−3,270.848	−3,260.541	−2,468.987	−2,458.328
Theta	0.630*	0.637*	0.803*	0.812*	0.538*	0.552*
	(0.062)	(0.063)	(0.085)	(0.086)	(0.063)	(0.065)
Akaike information criterion	6,767.748	6,749.914	6,675.695	6,655.082	5,071.974	5,050.656

Estimated standard errors in parentheses. Negative binomial regression models. All models include CINC score, land area (km^2, log), real GDP (log), and population (thousands). Models 3 to 6 include time in office, peace years, and year dummies. MIDs = militarized interstate disputes; CINC = Composite Indicator of National Capabilities; GDP = gross domestic product; DV = Dependent variable.
*$p < .1$. **$p < .05$.

large-coalition leaders to lose elections, then it might be the case that disasters will be associated with more frequent conflict initiation, which could explain this finding. In any case, these results provide no support for H2.

Overall, Table 1 provides support for H1, but it provides less evidence that the positive association between disasters and conflict is exclusive to large coalition, irregular removal regimes.[17] The models so far attempt to account for differences within regime types by controlling for a number of potentially confounding factors that might affect disasters and international conflict propensity. To address possible concerns about selection bias or that disaster deaths and conflict are endogenous to regime type in ways that are not captured in the analysis, I estimate an alternative model replacing the disaster deaths variable with a count of earthquake events. Deaths from earthquakes may still be endogenous to regimes, but the timing of earthquake events is random.[18] Table 2 shows that the main result from Table 1—the positive association between earthquakes and conflict initiation in both types of large-coalition systems but not small-coalition systems—also carries over to this specification.

To see how disaster deaths affect a "typical" leader's propensity for conflict, I analyze expected counts of MID initiations for the average leader in each regime category (Long 1997, 237, 224). I characterize the uncertainty associated with these estimates using ten thousand simulated sets of coefficients from the estimated sampling distributions of the estimated coefficients from models 1 and 2 in Table 1 and model 7 in Table 2. The coefficients are drawn from a multivariate normal distribution with mean $\hat{\beta}_j$ and variance σ_j, where $\hat{\beta}_j$ is a vector of estimated coefficients from model j and σ_j is the variance–covariance matrix for model j. For each set of coefficients, I calculated the change in the expected count of MIDs when the control variables are set to their means within regime categories when the disaster deaths variable is increased from its mean to one standard deviation above its mean. I take the mean of the distribution of differences and the quantiles for the 80 percent, 90 percent, and 95 percent confidence intervals and plot them in Figure 2. In model 1, the change in expected count of MIDs for both types of leaders is small, though statistically distinguishable from zero. (The mean percentage change is about 10% and 11% for each type of leader, respectively.) In model 2, which uses the alternative threshold of $W \geq 0.75$, those changes increase to about 38 percent and 41 percent, respectively, and the 90 percent and 95 percent confidence intervals do not include zero. Increasing the earthquake count from 0 to 1 in model 7 leads to a statistically significant 36 percent change in the expected count of MID initiations for both groups of leaders.

The third hypothesis stipulates that disaster deaths should not affect the conflict incentives of small-coalition leaders. Consistent with H3, the coefficient on the disaster deaths variable (this coefficient refers to the

Table 2. Marginal Effect of Earthquake Events on Conflict Initiation by Coalition Size, 1950–2007.

	DV: MIDs initiated		DV: Hostile MIDs initiated	
	(7)	(8)	(9)	(10)
	Base	Extra controls	Base	Extra controls
Small coalition	−0.02	0.014	−0.121	−0.077
	(0.127)	(0.123)	(0.169)	(0.168)
Large coalition, irregular removal	0.308**	0.239**	0.376**	0.284**
	(0.07)	(0.068)	(0.087)	(0.084)
Large coalition, regular removal	0.301**	0.303**	0.221**	0.291**
	(0.082)	(0.079)	(0.112)	(0.105)
Observations	6,843	6,843	6,843	6,843
Log likelihood	−3,364.023	−3,263.083	−2,559.665	−2,462.386
Theta	0.634** (0.061)	0.807** (0.084)	0.396** (0.042)	0.540** (0.062)
Akaike information criterion	6,748.045	6,660.165	5,139.330	5,058.772

Estimated standard errors in parentheses. Negative binomial regression models. All models include CINC score, land area (km^2, log), real GDP (log), and population (thousands). Models 8 and 10 include time in office, peace years, and year dummies. MIDs = militarized interstate disputes; CINC = Composite Indicator of National Capabilities; GDP = gross domestic product.
*$p < .1$. **$p < .05$.

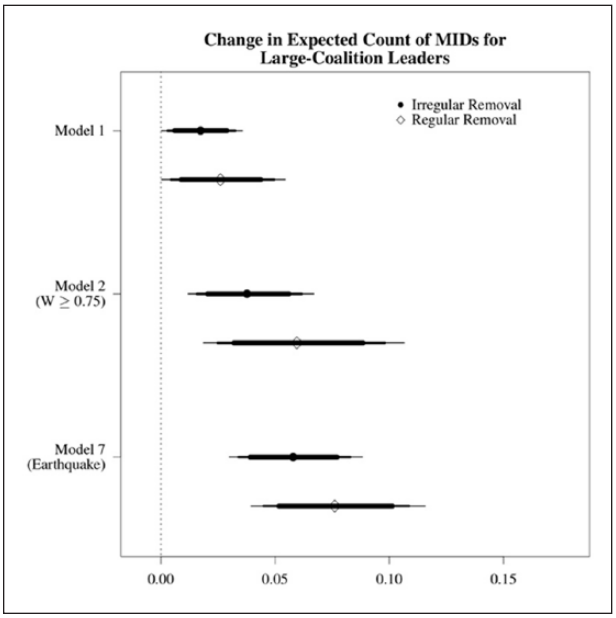

Figure 2. Expected count of MIDs analysis.
The thickest to thinnest lines represent the 80%, 90%, and 95% confidence intervals, respectively. The control variables are held at their means within each regime type group, and the disaster deaths variable is increased from the mean to the mean plus one standard deviation within each group. In the results for model 7, the earthquakes variable is changed from 0 to 1. MIDs = militarized interstate disputes.

effect of disaster deaths for the baseline category of small-coalition systems) is close to zero and statistically insignificant across all of the models in Table 1. Finally, H4 predicts that though disaster *events* should increase the hazard of losing office for small-coalition leaders, they should not affect the conflict behavior of these leaders. Table 3 presents the results of an analysis that separates the data into subsets of small-coalition leaders facing regular and irregular removal. For small-coalition leaders facing regular removal, there is no significant effect of disasters on conflict behavior (model 11). However, for small-coalition leaders facing *irregular* removal, the direction of the coefficients points to the opposite of what we would expect from Chiozza and Goemans's (2011) theory: the coefficient on disaster events is negative in model 12.

Overall, the results above provide consistent support for H1, H3, H4, and no support for H2. The online appendix contains a variety of supplementary analyses, many of which produce results similar to those reported here. The statistical results have a number of important implications. First, even if disasters only affect lower level conflicts behavior for a subset of leaders, others have shown that current disputes may make future crises and wars more likely (e.g., Colaresi and Thompson 2002). Although Nelson (2010) finds no cases of war initiation following major disasters, this paper identifies more subtle conditions under which disasters can affect international tensions. Second, the findings in Chiozza and Goemans (2011, 89) suggest that lower intensity conflicts and crises can benefit leaders, and as such they are relevant for theory testing. Third, though the substantive effects of disasters on conflict initiation are modest, it may be unreasonable to expect disasters to have a large substantive effect on conflict initiation. Chiozza and Goemans's (2011) models account for dozens of factors thought to influence leader survival, and it is not necessarily surprising that when the analysis is confined to a

Table 3. Disasters, Removal Type, and Conflict in Small-Coalition Regimes.

	Dependent variable: MIDs initiated	
	Regular removal	Irregular removal
	(11)	(12)
Disaster events (log)	−0.032	−0.131
	(0.601)	(0.212)
Disaster deaths (log)	0.064	−0.030
	(0.103)	(0.049)
CINC	80.463	89.305***
	(92.354)	(30.992)
Land area (km^2)	0.225*	0.006
	(0.118)	(0.057)
Real GDP (log)	−0.156	0.366***
	(0.174)	(0.085)
Leader tenure	0.00001	−0.00001***
	(0.00002)	(0.00000)
Population	0.002	−0.024***
	(0.015)	(0.009)
Peace years	−0.054	−0.020***
	(0.046)	(0.007)
Constant	−3.464*	−4.700***
	(1.964)	(0.870)
Observations	551	1,221
Log likelihood	−163.503	−699.874
Theta	4.639 (8.836)	1.045*** (0.241)
Akaike information criterion	345.006	1,417.749

Estimated standard errors in parentheses. Negative binomial regression models. All models include CINC score, land area (km^2, log), real GDP (log), population, time in office, and peace years. MIDs = militarized interstate disputes; CINC = Composite Indicator of National Capabilities; GDP = gross domestic product.
*$p < .1$. **$p < .05$. ***$p < .01$.

single type of threat, the substantive impact of that threat is smaller and less precise. Finally, a key finding here is that small-coalition leaders' international conflict behavior does not seem to respond to disasters in ways that existing theory suggests. I have argued that the reason for this is that disasters pose threats to leaders through mechanisms that do not matter for international conflict in small-coalition systems.

Conclusion

This paper has argued that not all threats to leader survival matter for international conflict. I have argued that Chiozza and Goemans's (2011) "fighting" and "gambling" for survival mechanisms would not necessarily reduce threats from extra-institutional threats. The consequences of removal do not seem to matter when we distinguish between regular and irregular removal within small-coalition regimes and consider the effect of disaster events on conflict behavior. This is an important qualification to existing theories of leaders and international conflict. The paper also shows that deaths from natural disasters are associated with a modest increased risk of conflict in large-coalition systems. Although the paper set out with the expectation that how a leader expects to lose office should condition this relationship within large-coalition regimes, I find little statistical evidence that this distinction matters in this context.

One important caveat is in order. I have developed an argument about extra-institutional versus institutional threats in general. Yet, my research design (i.e., the reliance on disasters as an empirical measure of removal risk) allows testing this argument in only a partial way. The evidence is consistent with the expectation that extra-institutional threats do not affect leaders' conflict incentives systematically, but that evidence comes only from a sample of small-coalition leader-years. Whether the argument holds for *extra-institutional* threats in large-coalition systems remains to be seen. Indeed, there is no measure in this paper that purports to represent an extra-institutional threat to a large-coalition leader, nor is there a measure that proxies an institutional threat to a

small-coalition leader. By design, I cannot say anything about the importance of threat sources *within* coalition types. This is an important limitation, as it is possible that the absence of a relationship between extra-institutional threats and international conflict is peculiar to small-coalition systems. In particular, the relatively inclusive nature of large-coalition systems may create more room for accommodation and co-optation of extra-institutional threats. International conflict might support this process by creating a sense of shared threat among those within and outside a state's existing institutions. In addition, as noted in the theory section, if "extra-institutional" actors threaten groups with an institutional role in society, which may be more likely in large-coalition systems, then international conflict might be advantageous to leaders. In this case, extra-institutional threats may matter for conflict behavior in large-coalition systems. Although the use of natural disasters as an empirical proxy for removal risk has the advantage of reducing concerns about endogeneity, it precludes comparing institutional to extra-institutional threats within large-coalition regimes. This is a question that future research could address with alternative measures of specific threats.

From a policy perspective, this paper suggests that international efforts to invest in disaster preparedness are particularly important in countries with relatively inclusive institutions in regions where acts of hostility and belligerence may escalate quickly. Given that aid may be beneficial in these relatively inclusive systems (e.g., Bueno de Mesquita and Smith 2007, 280), donors may be able to reduce international tensions by helping these countries prepare for and respond to natural disasters. Investments to support cooperative disaster relief efforts like the United Nations's Central Emergency Response Fund might be expanded and justified not only the basis of humanitarianism but also international peace and security. Indeed, by emphasizing the role that leaders' incentives for political survival play in shaping international conflict decisions, this paper provides a new way to think about how problems of human security might affect international security.

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Notes

1. The data and code needed to replicate the statistical estimates reported in this article are available online at http://mdilorenzo.github.io.
2. The United Nations Office for Disaster Risk Reduction defines a disaster as "[a] serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources." See http://www.unisdr.org/we/inform/terminology. For a review of various definitions of "disaster," see Perry (2007) and Quarantelli (2005). The International Disaster Database (Guha-Sapir, Below, and Hoyois 2015) records an event as a disaster if it causes at least ten deaths, affects at least one hundred people, causes authorities to declare a state of emergency, or leads to a call for international assistance. Floods, droughts, earthquakes, hurricanes, and tsunamis are well-known examples of natural events that might constitute disasters. Indeed, whether an event is a "disaster" depends on the extent of the human and economic damage it causes. A hurricane in a developed country might cause minimal damage, while the same hurricane could cause widespread death and suffering in an underdeveloped state. As such, the hurricane would only count as a "disaster" in the latter case. There is evidence that disasters are less frequent and less severe in developed, democratic countries (e.g., Quiroz Flores and Smith 2013; Kahn 2005; Plümper and Neumayer 2009).
3. Systems where a large proportion of citizens are eligible to participate in the institutional processes of leader selection are "large-coalition systems."
4. In some cases, disasters appear to be beneficial for leaders (e.g., Bechtel and Hainmueller 2011; Gasper and Reeves 2011; Healy and Malhotra 2009; Lazarev et al. 2014). However, the findings in Quiroz Flores and Smith (2013, 841) suggest that, when disasters do help leaders, the effects are substantively small.
5. Drury and Olson (1998, 154–55) detail many cases—winning coalition size, $W \in \{0, 0.25, 0.5, 0.75, 1\}$, from Bueno de Mesquita and Smith (2010) appears after year: Haiti (1954, $W = 0.5$), Mexico (1985, $W = 0.5$), Guatemala (1976, $W = 0.5$), Bangladesh (1970, W missing)—where political unrest wrought by disasters heightened the

risk of or led to irregular removal for a number of leaders and regimes. This includes events like popular strikes and protests challenges regimes (Haiti) and the formation of electoral movements inspired by governments' failings in disaster response (Mexico). For an analysis of the Guatemala case, see Gawronski and Olson (2013).

6. In principle, this effect operates everywhere, but the incentive is weak in large-coalition systems (Smith 2008, 791).
7. Existing literature on disasters and conflict focuses primarily on domestic conflict (e.g., Brancati 2007; Drury and Olson 1998; Nardulli, Peyton, and Bajjalieh 2015; Nel and Righarts 2008; Omelicheva 2011; Slettebak 2012), and suggests that disasters may increase grievances while simultaneously reducing state capacity, creating a window of opportunity for civil conflict (Nel and Righarts 2008, 166). In addition, disasters can aggravate scarcity problems, helping opposition movements win support (Brancati 2007, 722). These effects vary across contexts. Indeed, Omelicheva (2011, 463) argues that preexisting institutions and domestic conditions explain most of the negative impacts attributed to disasters. Besley and Persson (2011, 5) find that disasters—which they argue serve as "negative shocks to wages and positive shocks to aid flows"—interact with weak institutions to affect domestic political violence. In any case, disasters can sometimes have dramatic political consequences. Although most work focuses on disasters and *civil* conflict, some scholars emphasize the international implications of disasters (e.g., Akcinaroglu, DiCicco, and Radziszewski 2011; Kelman 2012; Nelson 2010). For example, disasters could either provide opportunities for rapprochement or exacerbate conflicts between strategic rivals (e.g., Kelman 2012, 14). These studies have not produced conclusive results. Although major disasters increase the probability of conflict initiation, there are no clear cases where a major disaster ($\geqslant$10,000 deaths) was directly related to the initiation of a serious conflict (Nelson 2010, 174). Case studies suggest that disasters may interact with domestic factors (e.g., civil strife) to indirectly affect international conflict, but no systematic test confirms this hypothesis (Nelson 2010). Streich and Mislan (2014, 16) conclude from this that "[d]isasters generally do not lead to the initiation of conflict," which is a fair assessment.
8. This variable counts all instances where a state is coded "1" for both the "sidea" and "orig" variables in the militarized interstate dispute (MID) participant-level (vs. 4.01) data set. The "sidea" variable indicates that a state is on the initiating side of a conflict, and the "orig" variable indicates that state was an initiator on the first day that the conflict started.
9. For a critical review of existing data sources on disasters, see Tschoegl, Below, and Guha-Sapir (2006), and for the EM-DAT database (Emergency Events Database) specifically, see Guha-Sapir, Hargitt, and Hoyois (2004). Despite its limitations, EM-DAT provides the most comprehensive data on natural disasters spatially and temporally (Kelman 2012, 74).
10. See the online appendix for a description of the data and procedures for dealing with missing countries.
11. In the online appendix, I report the empirical distribution of removal type by my coding of regime type.
12. The first and third categories of *xrreg* clearly correspond to irregular and regular removal, respectively. The second category is less clear, but more closely corresponds to irregular removal. The exact wording is reproduced in the online appendix.
13. A random sample of large-coalition irregular removal country-years in the data include Guatemala (1962), Czechoslovakia (1963), Albania (1982), Turkey (1983), and Colombia (1968). Large-coalition regular removal country-years include Bolivia (1989), Venezuela (1976), South Africa (1953), France (1972), and Canada (1952). Small-coalition country-years include Iraq (1963), Kuwait (1998), Nepal (2003), Equatorial Guinea (1972), and Burkina Faso (1991).
14. Where the measure of land area is missing, I manually coded land area in squared kilometers using Wikipedia.
15. I use a negative binomial model rather than a Poisson regression model because of over-dispersion in the outcome variables. The online appendix reports a list of observations where leaders of large-coalition systems initiated at least one MID following a year with an above-average number of disaster deaths.
16. I carried out the significance tests for the interaction terms according to the procedures outlined in Hilbe (2007, 523–26).
17. When considering a subset of large-coalition, regular removal leaders with lower than mean gross domestic product (GDP) and Composite Indicator of National Capabilities (CINC) scores, the coefficient on the disaster deaths variable is negative, consistent with Hypothesis 2, though not statistically significant.
18. The results are also robust to control for the composite $polity2$ score from Marshall, Jaggers, and Gurr (2010), though doing this is problematic since components of this measure are used to construct both the measure of W and my measure of removal type.

Supplementary Material

Replication files and the online appendix can be accessed at my personal website: http://mdilorenzo.github.io/

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