Leader Incentives for Conflict Selection and Mobilization*

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Abstract

I argue that variation in the political cost of mobilization for interstate war can explain differences in the conflict behavior of democracies and autocracies. After demonstrating that the changes in government spending associated with war are more likely to result in the removal of democratic leaders than autocratic leaders, I develop a bargaining model in which the probabilistic outcome of a conflict is endogenously influenced by a leader’s decision to mobilize his country’s resources and the cost of mobilization is higher for democrats than it is for dictators. The model provides a rational explanation for known empirical regularities and offers the novel prediction that democratic targets should be more selective in reciprocating a conflict than autocratic targets. Beyond demonstrating the empirical validity of the bargaining model, quantitative support for this prediction offers an explanation for the success of democratic targets in interstate wars.

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Much of the quantitative research on interstate conflict conducted during the last twenty-five years has focused on the influence of domestic politics on conflict behavior. The most common conclusion of this scholarship is that domestic politics, and democratic political institutions in particular, effect the prosecution of interstate conflict. These institutional explanations of variation in democratic and autocratic conflict behavior generally assume that, compared to non-democratic leaders, democratic incumbents are more likely to be removed from office for involving their country in an interstate war (e.g., Reiter and Stam 2002) and/or losing an interstate war (e.g., Bueno de Mesquita et al. 1999).\(^1\) Unfortunately, the tenure of democratic leaders is not more sensitive to participation in an interstate war or interstate war outcomes than is the tenure of non-democratic incumbents (Chiozza and Goemans 2004, Debs and Goemans 2010). Thus, our theoretical explanations for why democracies and autocracies pursue different conflict policies follow from faulty premises.

This paper argues that differences in the conflict behavior of democracies and autocracies can be explained by variation across regime type in a previously overlooked aspect of the conflict process – the political cost of mobilization. The economic resources a political leader needs to allocate to his or her state’s military are greater during an interstate conflict or war than they are during peace-time. This proportional increase in military spending, and the accompanying decrease in non-military spending, during war-time represents a country’s economic mobilization for war (Sandler and Hartley 1995, Anderton and Carter 2009). The political cost of mobilization refers to how the higher military spending and lower non-military spending associated with the prosecution of an interstate war affects an incumbent leader’s political survival.

For the political cost of mobilization to explain variation in democratic and autocratic interstate conflict behavior, it must be the case that the political cost of mobilization varies across regime type and influences the conflict process. I argue that variation across regime type in the political power of the public and elite in society makes mobilization relatively more costly for democratic leaders than it is for autocratic leaders. Duration analysis is consistent with this claim: the increase in military spending and decrease in social spending associated with an interstate war increases the probability a democratic incumbent will be removed from office but not the probability that an autocrat will lose power. The implications of this result for the relationship between regime type and interstate conflict are then analyzed using a crisis

\(^1\)The phrases non-democracies, autocracies and dictatorships and their respective derivatives are used interchangeably throughout the manuscript. As used here, the terms refer to states whose political leaders are not determined through free and fair elections with (nearly) universal suffrage (Huntington 1991).
bargaining model. The model analyzes a situation in which two political leaders bargain over a contentious issue, upon failure to reach a peaceful settlement leaders can improve their chances of winning a militarized conflict by mobilizing their country’s resources, and democratic leaders pay a higher political cost for mobilization than do autocratic leaders. In addition to offering a rational explanation for some of the known empirical regularities from the literature on regime type and interstate conflict (e.g., the democratic peace), the model yields novel predictions related to patterns of democratic and autocratic conflict selection and mobilization. Quantitative analysis of the period from 1950 to 2001 is consistent with the model’s prediction that democratic targets should be more selective than autocratic targets in reciprocating conflicts initiated by more powerful challengers.

The remainder of the paper proceeds in six sections. The first discusses the prominence of the assumption that democratic leaders are more likely to be punished for fighting and losing interstate wars than are non-democratic incumbents, and the evidence that this claim is empirically unsupported. I then discuss the role of mobilization in the conflict process and demonstrate that its political cost is greater for democratic incumbents than for autocrats. The third section introduces and solves the formal model while the fourth derives the model’s empirical implications for the relationship between regime type and interstate conflict. I then test the model’s prediction that democratic targets are relatively more selective in reciprocating the challenges of stronger opponents than are autocratic targets. The sixth section concludes.

1 Regime Type, Interstate Conflict, and Leader Survival

The literature on the relationship between regime type and interstate conflict has yielded numerous empirical findings. The institutional explanations for these results typically have two things in common. The first is that democratic and non-democratic political institutions provide leaders with different incentives to participate in interstate conflicts and/or mobilize resources for waging interstate conflict. The second is that institutional explanations for variation in democratic and autocratic conflict behavior often follow from one of two assumptions: 1) democratic leaders are more likely to lose office for participating in an interstate conflict or war than are autocratic leaders; or 2) democratic leaders are more likely to lose office for losing an interstate conflict or war than are autocratic leaders. A review of the massive domestic politics and conflict research program is far beyond the scope of this paper. However, a brief look at some of
the influential explanations for three of the more robust findings of this literature demonstrates the prevalence of these two characteristics.\footnote{This is not to say that all institutional explanations for variation in the conflict behavior of democracies and non-democracies focus on incentives for selection and/or mobilization or follow from the assumptions that the tenure of democratic leaders is relatively more sensitive to conflict involvement or outcomes. For example, Morgan and Campbell (1991) argue that the relatively greater decisional constraints placed on democratic leaders explain why democracies are less likely to have conflicts escalate to war than are non-democracies. Considering another example, Debs and Goemans (2010) develop a formal model that predicts, among other things, the democratic peace. Their model is noteworthy because it assumes that the tenure of autocratic leaders is more sensitive to war outcomes than is the tenure of democratic leaders.}

Within the vast literature on regime type and interstate conflict, three empirical findings seem particularly robust. The first is the democratic peace. Semi-famously classified by Levy (1988) as the closest thing there is to a “law of international relations,” the dyadic democratic peace refers to the observation that democracies are less likely to fight one another than are other pairs of states (Babst 1964, Maoz and Russett 1993).\footnote{It should be noted that not all scholars agree that joint democracy is associated with a lack of militarized conflict and/or war between countries. For example, Gowa (1999) argues that an alignment of interests during the Cold War explains the relative peace between democracies, Gartzke (2007) argues that capitalism underlies the liberal peace, and Henderson (2002) argues that the democratic peace is limited to wealthy, Western countries. However, Dafoe (Forthcoming) demonstrates that the negative correlational relationship between joint democracy and interstate conflict is robust to these and other recent critiques of the dyadic democratic peace.}

Several institutional explanations for the democratic peace focus on the relative sensitive of democratic and autocratic leaders to interstate war participation and outcomes. For example, Schultz (2001) argues that media freedom and the presence of a strategic opposition in democracies make it more likely that democratic leaders will be punished for losing a war than will autocratic leaders. He then develops a set of formal models that predict, among other things, that democracies should be less likely to initiate a militarized conflict or reciprocate when targeted in a dispute. It then follows that pairs of democracies should be less likely to fight one another than other pairs of states. Although not the only two mechanisms they posit, Russett and Oneal (2001) argue that the democratic leg of the Kantian Triangle is partially a function of the greater sensitivity of democratic leaders to both the cost of war and a negative conflict outcome. Jackson and Morelli (2007) argue that the democratic peace follows from democratic leaders having a smaller political bias toward war than autocratic leaders and cite the greater sensitivity of democratic leaders to fighting a war and losing a war as two sources of this bias.

A second robust finding of the literature on regime type and interstate conflict is that democracies are more selective in choosing their conflict opponents than are autocracies (e.g., Clark and Reed 2003). That is, scholars have demonstrated that democratic countries are less likely than autocratic countries to initiate interstate conflicts and wars in which they face a relatively
high probability of losing (Reiter and Stam 1998, 2002) or their opponent possesses relatively more material capabilities (Bueno de Mesquita et al. 2004, Bak and Palmer N.d.). Reiter and Stam (1998, 2002) argue that democratic leaders are more careful than autocratic leaders when selecting interstate conflicts because democratic leaders are more likely to be punished for making their citizens fight a war than are dictators. Similarly, Filson and Werner (2004) develop a bargaining model that predicts democracies should be less likely than non-democracies to initiate conflicts against stronger opponents because democratic leaders are relatively more sensitive to the political costs of war.

A third result generally agreed upon by conflict scholars is that democracies are more likely to win the interstate wars they fight than are autocracies (Lake 1992, Clark and Reed 2003). There are two prominent explanations for this finding. First, democratic selectivity allows democratic initiators to systematically fight “easier” wars than their autocratic counterparts (among others, Reiter and Stam 2002, Filson and Werner 2004). As noted above, these arguments follow from the assumptions that democratic leaders are more likely to face punishment for fighting or losing an interstate war. A second explanation for democratic success in interstate wars is that democracies are able to mobilize more resources for a war effort than are non-democracies (Lake 1992, Schultz and Weingast 2003). Drawing on Schultz (2001a), Goldsmith (2007) argues that the existence of opposition parties in democracies provides democratic incumbents with an incentive to mobilize more resources for war absent for non-democratic leaders. Specifically, citizens in a democracy, but not in an autocracy, can punish an incumbent that fails to allocate the resources necessary for a winning war effort by voting for a leader’s political opposition in the next free-and-fair election.

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4 Reiter and Stam alternatively argue that democratic leaders are more risk averse in selecting conflicts than are autocratic leaders because their hold on office is more tenuous in general (1998) and because they must govern with the consent of the people to a significantly greater degree (2002). These different logics both lead to the conclusion that a democratic leader faces a higher probability of losing office for becoming involved in a war.

5 There have been two recent challenges to this result. First, Desch (2003, 2008) questions this conclusion of the so-called “democratic triumphalism” literature and argues that democracies are no more or less likely to win “fair fights” against equally strong opponents than are non-democracies. Desch’s argument, however, ignores the point that one of the reasons democracies are thought to win wars is precisely because they avoid strong opponents. See Lake (2003) and Reiter and Stam (2003) for more in-depth critiques of the logic and methodology underlying Desch’s conclusion. Second, Downes (2009) re-analyzes Reiter and Stam’s (2002) data and finds that democracies are no more or less likely to win wars than are non-democracies if one includes wars that ended in draws and non-originator participants are re-coded as joiners. Downes (2009), however, fails to explicitly account for the non-random population of interstate war participants. Using an ordered probit selection estimator that can account for draws and the non-random population of war participants, Carter, Bernhard and Palmer (N.d.) find that democratic initiators and targets are significantly more likely to achieve more positive war outcomes than are non-democratic initiators or targets.
The selectorate theory of Bueno de Mesquita and colleagues (1999, 2003) offers a unified explanation of the democratic peace, democratic selectivity, and democratic war success. Starting from the assumption that democratic leaders are more likely to be removed from power after losing an interstate war than are autocrats, selectorate theory argues that democratic incumbents should be more selective in becoming involved in interstate conflicts than autocratic leaders. Therefore, all else equal, pairs of democracies should be less likely to fight than either jointly autocratic dyads or mixed dyads. Further, conditional on their involvement in an interstate war, democratic leaders have a greater incentive to mobilize scarce resources for a war effort than do autocratic incumbents because democrats are more likely to be punished for losing a war. It therefore follows that democracies should achieve more successful war outcomes than autocracies because, relative to autocratic countries, democracies are better at selecting themselves out of wars they might lose and they will mobilize more resources in order to win the wars they do fight. In sum, selectorate theory argues that the greater sensitivity of democratic leaders to interstate war outcomes explains the democratic peace, democratic selectivity, and democratic interstate war success by altering the relative incentive democratic and autocratic leaders have for conflict selection and mobilization.

1.1 The Empirical Relationship between Leader Survival, Regime Type, and Interstate War

The above discussion makes clear that many of our prominent explanations for the democratic peace, democratic conflict selectivity, and democratic success in interstate wars assume that democratic leaders are more likely to be removed from power for participating in an interstate war or losing an interstate war. Unfortunately, the empirical basis for these assumptions is tenuous at best. As Debs and Goemans (2010) note, scholars most often cite the results of Bueno de Mesquita and Siverson (1995) as empirical justification for their claims. However, the inference that democratic leaders are more likely to lose office after losing an interstate conflict does not follow from the analysis of Bueno de Mesquita and Siverson (1995). They instead show that the unconditional probability of being removed from power is greater for a democratic leader than it is for a non-democratic incumbent. Bueno de Mesquita and Siverson are silent, however, on the crucial question of how political survival differs across regime type conditional on the outcome of an interstate war.6

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6Interested readers are directed to Debs and Goemans (2010) for a more in-depth discussion of this issue.
Two recent articles have explicitly examined the empirical relationship between political survival, interstate war, and regime type. Chiozza and Goemans (2004) report that the probability of an incumbent retaining office is statistically unrelated to her country’s involvement in an interstate war as either the initiator or challenger. With respect to the link between war outcomes and political survival, the analyses of Chiozza and Goemans (2004) and Debs and Goemans (2010) suggest the assumption that democratic leaders are more likely to be punished for losing an interstate war than are autocratic incumbents is significantly misguided. They find that the tenure of autocratic leaders is more sensitive to interstate war outcomes than is the political survival of democratic leaders. Their analyses indicate that the probability a democratic incumbent will be removed from office is not significantly affected by her country’s performance in an interstate war. Non-democratic incumbents, however, are rewarded with a lower probability of losing office upon winning an interstate war and are punished with a higher probability of removal from power after losing a war (Chiozza and Goemans 2004, Debs and Goemans 2010).

It is possible, however, that strategic behavior on the part of leaders might obscure the true relationship between political survival, regime type, and conflict outcomes. Schultz (2001b) argues that political leaders have an incentive to not participate in interstate wars in which a losing effort would see them removed from power. Subsequently, the wars we observe are disproportionately drawn from the non-random sample of the wars for which leaders would not lose power even if their states performed poorly. If a leader’s ability to identify which wars fall into this non-random sample of conflicts is a function of regime type, then statistical analyses would not capture the true data generating process. More precisely, if all leaders are more likely to lose office if they lose an interstate war and democratic leaders are more successful than autocratic leaders at avoiding wars in which a losing effort would result in an incumbent losing power, then duration analysis would indicate that losing an interstate war lowers an autocrat’s probability of retaining office but not a democratic leader’s probability of retaining office. Thus, it is possible that a strategic selection process might be obscuring the true relationship between political survival and interstate conflict outcomes across regime type.\footnote{It should be noted that Debs and Goemans (2010) raise two critiques to Schultz’s (2001b) argument that strategic selection can explain why we might not observe democratic leaders being punished for losing wars. First, why is it the case that democratic leaders are able to avoid wars in which losing decreases the probability they will be removed from office but not select wars in which winning increases their expected tenure? Second, it is unclear why democratic leaders should be able to strategically choose wars that will not endanger their political survival but autocratic incumbents cannot.}
To sum up the preceding discussion, there is no systematic support for the common assumptions that democratic leaders are more likely to be removed from power than autocratic leaders for either participating in an interstate war or losing an interstate war. Thus, a number of our influential explanations for the democratic peace, democratic selectivity, and the success of democracies in interstate wars rely on empirically untenable assumptions. The next section identifies a previously overlooked factor that might provide an explanation for these findings and other differences in the conflict behavior of democracies and autocracies.

2 The Political Cost of Mobilization

Interstate conflicts and wars are costly (Fearon 1995). Setting aside the inherent fatalities, a state’s participation in an interstate war inevitably results in its government increasing the economic resources allocated to the military (e.g., Hewitt 1992, Sandler and Hartley 1995, Goldsmith 2003, Bueno de Mesquita et al. 2003, Fordham and Walker 2005). The difference between a country’s allocation of economic resources to military spending during times of peace and war represents a state’s economic mobilization for war (Goldsmith 2007, Anderton and Carter 2009). It is instructive to consider the degree to which mobilization for war influences a country’s defense burden (i.e., military spending/GDP). Countries fighting in an interstate war allocated, on average, 6.69% of their annual gross domestic product to military spending while countries at peace spent only 2.59% of their annual GDP on the military between 1816 and 1998 (This difference is statistically significant at greater than the 0.01 level).\textsuperscript{8} Framed differently, the average, national defense burden has been 159% higher during war-time than during peace-time. Economic mobilization for war, therefore, is associated with countries allocating significantly more of their economic resources to the military.

Scholars typically have focused on two ways in which mobilization affects the interstate conflict process. First, as one might expect, empirical research indicates that the outcome of interstate wars is (partially) a function of belligerents’ relative mobilization efforts (Organski and Kugler 1980, Kugler and Domke 1986, Stam 1996).\textsuperscript{9} Second, crisis bargaining theorists

\textsuperscript{8}These figures are based on data from Fordham and Walker (2005).

\textsuperscript{9}Note that mobilization is not the same as capabilities. Indeed, some of the scholarship on the relationship between mobilization and war outcomes has been motivated by the desire to improve upon predictions of war outcomes based on the naive balance of capabilities (Organski and Kugler 1980, pgs. 66-67). It is possible (and arguably common) that states fewer total resources mobilize their available resources to a greater degree than do states with greater total resources. For instance, consider the relative degree to which North Vietnam and the United States allocated their available resources to waging the Vietnam War.
argue that mobilization can influence the onset and escalation of an international conflict by serving as a costly signal of a state’s resolve (Schelling 1960, Fearon 1997) and/or altering a conflict’s probabilistic outcome (Slantchev 2005, Arena N.d.). The existing literature, however, largely ignores the political cost of mobilization and its implications for the interstate conflict process.

The political cost of mobilization refers to how a country’s mobilization for interstate war affects an incumbent leader’s political survival. Mobilization for war, as the term is used here, refers to the increase in the economic resources allocated to the military associated with the prosecution of an interstate war. Resource scarcity necessitates that the increase in military spending associated with mobilization be met with a complementary decrease in the resources allocated to non-military, and in particular social, programs (Sandler and Hartley 1995, Anderson and Carter 2009). Mobilization for interstate war, therefore, requires leaders to engage in the classic guns-and-butter trade-off. Thus, at a basic level mobilization for interstate war alters the distribution of government resources between military and non-military spending. The political cost of mobilization then refers to how the increase in military spending and decrease in non-military spending associated with mobilization for interstate war affects a leader’s ability to stay in power.

For the political cost of mobilization to influence the relationship between regime type and interstate conflict, it must be the case that democratic and autocratic leaders pay different political costs for mobilizing. To my knowledge, selectorate theory (Bueno de Mesquita et al. 1999, 2003, 2004) is the only existing piece of scholarship that explicitly considers the political cost of mobilization across regime type. Bueno de Mesquita et al. argue that economic mobilization for war should be relatively more costly for autocratic leaders than for democratic leaders. The logic behind this claim rests upon three points. The first is the selectorate model’s key formal result: the political survival of a democratic leader is more efficiently secured with relatively more public goods and fewer private benefits than is the political survival of an autocratic leader (Bueno de Mesquita et al. 1999, 2003). The second is the assumption that all of the resources not spent on mobilization are then distributed to a leader’s winning coalition in the form of private benefits (2003, pgs. 233, 266). Third, selectorate theory assumes that winning an interstate war is a public good (2003, pg. 266). From these three points, it follows that mobilization

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10 Mobilization for war can usefully be thought of as an opportunity cost for a government’s political leaders: the resources necessary to prosecute an interstate war would have been directed at other purposes absent a state’s participation in a war.
is relatively more politically costly for autocratic leaders because the resources mobilized in
the pursuit of the public good of a winning war effort otherwise could have been distributed
as private benefits. Put differently, mobilization increases the probability an autocratic leader
will lose office because it decreases the resources available for private benefits but mobilization
does not threaten the political survival of democratic leaders because it does not decrease the
resources available for the provision of public goods. Thus, selectorate theory argues that the
political cost of mobilization should be higher for autocratic leaders than democratic leaders.

In contrast to selectorate theory, I argue that mobilization for interstate war should be more
politically costly for democratic leaders than autocratic leaders. The logic behind this claim
follows from four factors: the relative political influence of the public, civilian elite, and military
across regime type; the relative preferences over government spending of those three societal
groups; the distribution of government resources associated with mobilization for interstate
war; and the relationship between political survival and policy responsiveness. As Dahl (1971),
Acemoglu and Robinson (2006), and others argue, we can distinguish between democratic and
non-democratic governments by the relative political power of the public and elite – defined
here as consisting of the wealthy civilian elite and military. Specifically, members of the public
have relatively more political power and influence vis-à-vis the elite in a democracy than they
do in an autocracy.\textsuperscript{11}

Variation in the political power of the public and elite in democracies and autocracies has
implications for the political cost of mobilization across regime type because members of each
societal group have incentives to prefer different patterns of government spending. Members of
the general public derive relatively greater benefits from proportionately higher social spending
and lower military spending than do the civilian elite and military. Why would this be? Consider
first the spending preferences of the public relative to those of the civilian elite. The public
should prefer proportionately higher social and lower military spending than the civilian elite
for two reasons. First, the public derives more direct benefits from social spending than do
the wealthy civilian elite, whom can provide themselves with the services that the general
public receives via the welfare state (e.g., education, health care, food subsidies).\textsuperscript{12} Second,

\textsuperscript{11} That is not to say that the relative political power of each societal group does not vary within each type of regime
(e.g., parliamentary vs. presidential democracy, or military junta vs. personalistic dictatorship), merely that the
relative political power of the public and elite is systematically different in democracies than it is in non-democracies.

\textsuperscript{12} Of course, members of the civilian elite do derive some benefits from social spending. In particular, the elite
would benefit from some of the long-term consequences of increased social spending, such as an educated and healthier
workforce. That said, it is members of the public, and not the elite, that would be better educated, healthier and
spending on social programs typically are financed through taxes on the wealth of the civilian elite (Przeworski et al. 2000, Boix 2003). Thus, the civilian elite bear the brunt of the costs of the social welfare state while deriving relatively fewer benefits than members of the general public. While both groups benefit from the military spending required to provide the public good of national defense (Olson and Zeckhauser 1968), it follows that the general public would prefer a government allocate proportionately more of its resources to social spending than the civilian elite.

With respect to members of the military, the public has three reasons to prefer proportionately higher social spending and lower military spending. First, members of a nation’s armed forces rely directly on military spending for their livelihoods. Second, military training socializes members of the military to value a strong armed forces and favor high military spending (Nordlinger 1977, Geddes 2003). Third, scarcity implies that higher military spending crowds out the resources available to a government for social spending popular with the general public (Sprout and Sprout 1968, Garfinkel 1994, Fordham and Walker 2005). It therefore follows that the general public should prefer relatively lower military spending and higher social spending than members of the military.

Members of the general public then have incentives to prefer proportionately higher social spending and lower military spending than members of both the civilian elite and military. From the discussion above, economic mobilization for war increases the proportion of a government’s resources allocated to the military. Given scarce resources, mobilization for war also implies a complementary reduction in the economic resources a government can allocate to non-military spending (Sandler and Hartley 1995, Anderton and Carter 2009). Notably, this reduction includes spending on social programs favored by the general public (Sprout and Sprout 1968). For example, from 1960 to 1999 countries allocated, on average, 24.9% fewer of their economic resources to health care spending during war-time than during times of peace (1.97% annual GDP during peace-time vs. 1.48% annual GDP during war-time per Kugler (2002)).

As incumbent politicians retain office by responding to the preferences of their key constituents (Key 1961, Canes-Wrone, Brady and Cogan 2002, Burstein 2003), it follows that office-valuing democratic incumbents are more likely than autocratic incumbents to be removed from office if they enact policies that run counter to the preferences of the public. Because the public prefers relatively lower military spending and higher social spending than the elite and mobilization for have a longer life-expectancy due to government spending on social programs.
war is associated with higher military spending and lower social spending, the variation in the political power of the public and elite across regime type should result in the political cost of mobilization being higher for democratic leaders than autocratic leaders.

2.1 Estimating the Political Cost of Mobilization across Regime Type

We therefore have two competing expectations about the relationship between leadership survival, regime type, and economic mobilization for war. I argue that the increase in military spending and decrease in social spending associated with mobilization should make it relatively more costly for democratic leaders. In contrast, selectorate theory (Bueno de Mesquita et al. 1999, 2003) argues that mobilization should be more likely to result in autocratic leaders losing office than democratic incumbents. Ultimately, whether democratic or autocratic incumbents pay a higher political cost for mobilizing is an empirical question. Accordingly, I estimate the relationship between leadership survival, regime type, and mobilization for interstate war using a semi-parametric Cox model. The data set contains 4,488 leader-year observations (863 leaders from 103 countries) from 1960 to 1999. The dependent variable is the number of days a leader had been in power and is based on data from the Archigos project (Goemans, Gleditsch and Chiozza 2009).

The following explanatory variables are included in the model. I use a dichotomous measure of a country’s regime type. Democracy is coded 1 in year t if a leader’s government has a value of +7 on the 21-point Polity2 index (Marshall and Jaggers 2005) and 0 otherwise. Military Spending is operationalized as the percent of a country’s nominal gross domestic product (GDP) allocated to the military in year t. I standardize a state’s military over GDP in order to account for the significant variation in the gross levels of government spending across countries. Military expenditure data are taken from the National Material Capabilities data set Singer, Bremer and Stuckey (1972) and GDP data are taken from Gleditsch (2002). The interaction term Democracy*Military Spending is used to model the differential effects of military social spending on the prospects of leadership survival across regime type. The variable Health Care Spending, measured as the percent of a state’s nominal GDP allocated to health

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13With the exception of the variables measuring government spending, all explanatory variables were taken from the Replication Material associated with Goemans (2008): http://www.rochester.edu/college/faculty/hgoemans/research.htm.

14The analyses presented below were re-estimated using +6 on the Polity2 index as the cut-point for Democracy. The results led to the same substantive inferences presented below.
care in year $t$, is used to proxy a government’s social spending. Variation in the effect of social spending on leadership survival across regime type is modeled using the interaction term $\text{Democracy} \times \text{Health Care Spending}$. The dichotomous variable $\text{Interstate War}$ is coded 1 if a leader’s country is involved in an interstate war and 0 otherwise and is based on data from the International Crisis Behavior (ICB) project (Brecher and Wilkenfeld 1997). To identify how interstate war conditions the effect of regime type and government spending on leadership survival, the following interaction terms are included in the model: $\text{Democracy} \times \text{Interstate War}$, $\text{Military Spending} \times \text{Interstate War}$, $\text{Health Care Spending} \times \text{Interstate War}$, $\text{Democracy} \times \text{Military Spending} \times \text{Interstate War}$, and $\text{Democracy} \times \text{Health Care Spending} \times \text{Interstate War}$. Considered jointly, these explanatory variables allow us to assess how the changes in government spending associated with mobilization for war influence the political survival of democratic and autocratic leaders.

In addition to the variables of theoretical interest, a number of factors that have been shown to affect political survival are included in the statistical model. A state’s annual GDP Growth (Heston, Summers and Aten 2006) is controlled for as it alternatively has been shown to decrease a leader’s hazard of losing office (Bueno de Mesquita et al. 2003), increase a leader’s hazard of losing office (Goemans 2008) and initially increase a leader’s hazard of losing office but with the effect diminishing significantly in the length of tenure (Chiozza and Goemans 2004, Debs and Goemans 2010). Goemans (2008) demonstrates leaders that obtain office through irregular means face a greater hazard of being removed from office than incumbents that rise to power through the previously institutionalized channels of their country. The dichotomous variable $\text{Irregular Entry}$, coded 1 if an incumbent came to power in an irregular manner and 0 otherwise, therefore is included in the analysis. I control for a state’s involvement in a Civil War in a given year with a dichotomous indicator based on the UCDP/PRIO Armed Conflict Database (Gleditsch et al. 2002). I control for war outcomes using a set of variables that indicate whether the leader’s country was victorious ($\text{Win War}$), vanquished ($\text{Lose War}$), or obtained a draw ($\text{Draw War}$) in an interstate war during a leader’s tenure. Each variable is modeled as a decay function of $\text{War Outcome} = \frac{1}{1+t}$, where $\text{War Outcome} \in \{\text{Win War}, \text{Draw War}, \text{Lose War}\}$ and $t$ stands for the number of years since the given outcome was achieved.\footnote{For example, if a leader oversaw a winning war effort in year $t$ $\text{Win War}$ takes on a value of 1 in year $t$, 0.5 in $t+1$, 0.333 in $t+2$, etc.}

The relationship between leadership survival and mobilization for war across regime type
was tested using a semi-parametric Cox model. The Cox model is preferable to parametric event history models (e.g., exponential, Weibull or Gompertz models) when the phenomenon of theoretical interest is the relationship between a set of covariates and the likelihood of a subject failing and not the distributional form of subject failure (Box-Steffensmeier and Jones 2004). As my substantive interest is how leadership survival varies as a function of the interaction between government spending, interstate war, and regime type, the Cox model is methodologically appropriate.

I extend the standard Cox model to account for shared frailty among leaders of the same state and non-proportional hazards. “Shared frailty” event history models are used to account for unobserved heterogeneity across sub-groups that makes subjects within group \( j \) more or less likely to fail than subjects in group \( \tilde{j} \) (Box-Steffensmeier and Jones 2004). Failure to account for systematic unobserved heterogeneity could lead to biased coefficient estimates and faulty inferences (Box-Steffensmeier and Jones 2004). It is likely the case that factors exist that would lead political leaders in different countries to survive in power for different lengths of time, even after including an extensive list of control variables in the model. A frailty term is included in the model to account for this variation in the likelihood of a leader losing office across countries. Formally, the frailty term \( \nu \) is a random variable with a mean of 1 and variance of \( \Theta \) and is drawn from the Gamma distribution. Conceptually, it is analogous to a random effect clustered on countries in the regression framework. Previously, Chiozza and Goemans (2004) and Goemans (2008) have used Cox models with shared frailty to model leadership survival.

The duration model estimated here also accounts for non-proportional hazards between covariates and leader survival. The Cox model rests upon the proportional hazards assumption, i.e. the influence of an explanatory variable on the hazard of a subject failing is constant over time (Cameron and Trivedi 2005, Box-Steffensmeier and Jones 2004). The coefficient estimates yielded by the Cox model are inconsistent and can result in faulty inferences if the effect of a covariate on the likelihood of failure changes over the life-spell of a subject. Analysis of the Schoenfeld residuals identified the presence of non-proportional hazards with the variables Democracy, Military Spending, Health Care Spending, Democracy*Health Care Spending, Health Care Spending*Interstate War, GDP Growth, Irregular Entry, and Civil War. Following Box-Steffensmeier and Zorn (2001) and Box-Steffensmeier and Jones (2004), the non-proportional hazards were corrected by interacting the offending variables with the natural log of a leader’s tenure in office up to time \( t \). The results of my analysis are reported in Table 1.
Table 1: Leadership Survival, Regime Type, and Mobilization for War, 1960-1999

<table>
<thead>
<tr>
<th>Dependent Variable: Days in Office</th>
<th>β</th>
<th>s.e.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Democracy</td>
<td>6.24</td>
<td>0.76**</td>
</tr>
<tr>
<td>Democracy*ln(t)</td>
<td>-0.92</td>
<td>0.11**</td>
</tr>
<tr>
<td>Military Spending</td>
<td>0.45</td>
<td>0.07**</td>
</tr>
<tr>
<td>Military Spending*ln(t)</td>
<td>-0.07</td>
<td>0.01**</td>
</tr>
<tr>
<td>Democracy*Military Spending</td>
<td>0.04</td>
<td>0.03</td>
</tr>
<tr>
<td>Health Care Spending</td>
<td>2.69</td>
<td>0.21**</td>
</tr>
<tr>
<td>Health Care Spending*ln(t)</td>
<td>-0.42</td>
<td>0.04**</td>
</tr>
<tr>
<td>Democracy*Health Care Spending</td>
<td>-2.93</td>
<td>0.29**</td>
</tr>
<tr>
<td>Democracy<em>Health Care Spending</em>ln(t)</td>
<td>0.46</td>
<td>0.04**</td>
</tr>
<tr>
<td>Interstate War</td>
<td>-0.58</td>
<td>0.66</td>
</tr>
<tr>
<td>Democracy*Interstate War</td>
<td>1.63</td>
<td>1.76</td>
</tr>
<tr>
<td>Military Spending*Interstate War</td>
<td>0.04</td>
<td>0.11</td>
</tr>
<tr>
<td>Democracy<em>Military Spending</em>Interstate War</td>
<td>-0.05</td>
<td>0.13</td>
</tr>
<tr>
<td>Health Care Spending*Interstate War</td>
<td>0.19</td>
<td>0.56</td>
</tr>
<tr>
<td>Health Care Spending<em>Interstate War</em>ln(t)</td>
<td>0.19</td>
<td>0.11*</td>
</tr>
<tr>
<td>Democracy<em>Health Care Spending</em>Interstate War</td>
<td>-1.77</td>
<td>1.01*</td>
</tr>
<tr>
<td>Win War</td>
<td>-1.39</td>
<td>0.81*</td>
</tr>
<tr>
<td>Draw War</td>
<td>0.73</td>
<td>0.57</td>
</tr>
<tr>
<td>Lose War</td>
<td>1.20</td>
<td>0.45**</td>
</tr>
<tr>
<td>GDP Growth</td>
<td>9.77</td>
<td>3.11**</td>
</tr>
<tr>
<td>GDP Growth*ln(t)</td>
<td>-2.11</td>
<td>0.45**</td>
</tr>
<tr>
<td>Entry</td>
<td>5.95</td>
<td>0.44**</td>
</tr>
<tr>
<td>Entry*ln(t)</td>
<td>-0.90</td>
<td>0.07*</td>
</tr>
<tr>
<td>Civil War</td>
<td>1.38</td>
<td>0.48**</td>
</tr>
<tr>
<td>Civil War*ln(t)</td>
<td>-0.17</td>
<td>0.07*</td>
</tr>
</tbody>
</table>

Observations: 4,488
Subjects: 863
Failures: 696
Log-Likelihood: -3745.6453
\(\chi^2\): 437.63
Prob > \(\chi^2\): <0.01
\(\Theta\): 0.61 0.13**

Two-tailed: *: p ≤ 0.05; **: p ≤ 0.01

Three points are worth noting before discussing the results. First, positive coefficients indicate that higher values of an explanatory variable are associated with a leader facing a greater hazard of losing office while negative coefficients denote an inverse relationship between a covariate and an incumbent’s hazard of being removed from power. Thus, positive and negative coefficients suggest that higher values of an explanatory variable are associated with a shorter
and longer tenure in office, respectively. Second, an interaction with \( \ln(t) \) signed in the opposite direction of the constituent term indicates a decay in the original effect over a leader’s tenure.\(^{16}\) Third, the statistically significant \( \Theta \) indicates that non-trivial variation exists in the likelihood of a leader being removed from power across states and that extending the Cox model to account for shared frailty among leaders of the same country was methodologically appropriate.

The control variables behave as expected. Consistent with Debs and Goemans (2010), positive GDP Growth increases the hazard a leader will be removed from office early during her reign, but this relationship is decreasing in an incumbent’s tenure. An incumbent that came to power in an irregular manner (e.g., a coup) faces a higher hazard of losing power early in her tenure than a leader whom obtained office through the previously institutionalized channels of her country. This relationship degrades over time, however. A similar relationship exists between political survival and civil war. Early on, a leader whose state is fighting a civil war faces a higher probability of being replaced by a challenger compared to an incumbent whose state is not in a civil war. This negative relationship between civil war and leadership survival is decreasing in an incumbent’s tenure. Unsurprisingly, compared to a leader whose state has not participated in an interstate war, an incumbent’s probability of remaining in power is greater if they won an interstate war and lower if they lost an interstate war. An incumbent’s hazard of losing office is unrelated to obtaining a draw in an interstate war.

The various interaction terms and estimation of the statistical model via maximum likelihood limit the usefulness of Table 1 for assessing whether mobilization for interstate war is more likely to result in democratic or autocratic leaders being removed from power.\(^{17}\) As discussed above, economic mobilization for war refers to the increase in military spending decrease in non-military spending that accompanies a country’s involvement in an interstate war (Anderton and Carter 2009). In addition to higher military spending, resources scarcity leads mobilization for war to also be associated with a decrease in social spending. I therefore used the parameter estimates reported in Table 1 to calculate the predicted probability of survival for an incumbent leader given three hypothetical mobilization scenarios. Each scenario assumes that a leader mobilized her country’s resources, fought, and won an interstate war in her first year in office.

\(^{16}\)For example, if the coefficient on Health Care Spending is positive, indicating that higher spending when a country is not involved in an interstate war is associated with an autocratic incumbent facing a higher risk of being removed from office, a negative coefficient on Health Care Spending*\( \ln(t) \) indicates that this greater hazard for an autocratic leader decreases the longer she remains in office.

\(^{17}\)Among others, see Braumoeller (2004) and Brambor, Clark and Golder (2006) on interaction terms and Greene (1997) and King, Tomz and Wittenberg (2000) on obtaining valid statistical inferences from maximum likelihood estimates.
and then was able to return military and social spending back to their mean peace-time levels for the following four years. To provide a baseline for comparison, I calculated the predicted probability of leader survival given that an incumbent was able to fight a war without changing the allocation of economic resources to military and social spending from their peace-time levels (i.e., Military Spending and Health Care Spending were set to their sample peace-time values, 2.45% and 1.97%, respectively, during the year a leader’s country was at war). I then simulated the probability of incumbent survival given an average mobilization of resources, that is Military Spending and Health Care Spending were set to their respective war-time means (5.18% and 1.97%). The third scenario assumes that a leader required a large mobilization for the war effort, which was simulated by setting Military Spending and Health Care Spending, respectively, to the 95th (18.82%) and 5th (0.21%) percentile observations during war-time. The various interaction terms in Model 1 were manipulated as necessary for the different scenarios. The other explanatory variables included in the model were set to simulate the following scenario: a leader that gained power through the official institutions of her country, enjoyed mean GDP growth, and had the mean population during her entire tenure. The frailty term $\nu$ was set to simulate a state whose leader faces the mean likelihood of being removed from office.

Figures 1 and 2 present the predicted probability of leadership survival given these three scenarios in an autocracy and a democracy, respectively. The solid blue lines in the graphs report the predicted probability of a leader remaining in office up to that point in time given that she was able to fight the war without mobilizing her country’s resources. The dashed red line in each figure represents the predicted probability of survival given an average mobilization. The black, dash-dotted lines graph the predicted probability of leader survival given a large economic mobilization for war.

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18While the military spending value might seem high, it is worth putting this figure into context by considering that the average annual U.S. defense burdens was approximately 32% in World War II, 10% in the Korean War, and 7% in the Vietnam War. Thus, military spending in the “large” mobilization scenario is closer to the U.S. experience in the Korean War than it is to the mobilization of the “Arsenal of Democracy” in World War II.
Considered jointly, Figures 1 and 2 strongly support my claim that democratic leaders pay a higher political cost for mobilizing than do autocratic leaders. Focusing first on the autocratic case, the predicted probabilities reported in Figure 1 indicate that mobilization for interstate war does not substantively influence whether an autocratic incumbent remains in power. If an autocrat is able to win a war without mobilizing any resources he has a 76% chance of surviving in office for one year and a 51% chance of holding onto power for four years. Larger mobilization efforts do not significantly reduce an autocrat’s odds of survival and have only a modest substantive effect. The chance of an autocrat surviving in office for one and four years given an average mobilization are 74% and 49%, respectively. Similarly, an autocrat’s respective chances for holding on to power for one and four years given a large mobilization are 70% and 47%. In sum, mobilization for interstate war does not seem to impose much of a political cost.

Figure 1: Leadership Survival and Mobilization for War in an Autocracy
on autocratic leaders.

A different story emerges when we consider the relationship between economic mobilization for war and the political survival of democratic leaders presented in Figure 2. A democratic leader has a 61% chance of completing her first year in office and a 36% chance of finishing her fourth year in office if she is able to win an interstate war without altering the peace-time allocation of resources to military and social spending. The likelihood a democratic incumbent remains in power drops significantly with larger mobilization efforts. Given an average mobilization of resources a democratic leader has approximately a 39% chance of finishing her first year in office and only a 22% chance of remaining in power for four years. Even more startling, the chances a democratic incumbent completes her first and fourth years in office after a large mobilization of resources are only 8% and 5%, respectively. Compared to the baseline scenario

Figure 2: Leadership Survival and Mobilization for War in a Democracy
of fighting a war without mobilizing, a democratic leader is approximately 36\% less likely to successfully complete her first and fourth years in office given an average mobilization of resources and approximately 87\% less likely to finish years one and four after large mobilizations.

The analysis presented here indicate that the political cost of mobilization is higher for democratic leaders than it is for autocratic leaders. The next section explores the implications of this result for the relationship between regime type and the interstate conflict process by developing a crisis bargaining model in which democratic leaders pay a higher cost for mobilizing resources than do autocratic leaders.

3 Crisis Bargaining with Costly Mobilization

The above discussion and analysis highlight three features of the complex relationship between political survival, interstate conflict, regime type, and mobilization. First, mobilization for interstate war increases the economic resources dedicated to the military at the expense of spending on non-military programs (Anderton and Carter 2009). Second, mobilization for war increases the probability a country will win an interstate war (Organski and Kugler 1980). Third, the political cost of mobilization is higher for democratic incumbents than it is for autocratic leaders. To identify the implications of these relationships for the interstate conflict process, I develop a bargaining model in which the probabilistic outcome of a conflict is a function of a leader’s decision to mobilize and democratic leaders pay a higher political cost for mobilizing than do autocratic leaders. The model is presented informally here and fully characterized in the appendix.

The game analyzes the leaders of Country 1 ($L_1$) and Country 2 ($L_2$) bargaining over the continuously divisible good $x \in [0,1]$, which can be thought of as a piece of territory or a contentious policy issue.\footnote{For expositional convenience, I assume $L_1$ is female and $L_2$ is male.} $L_1$ makes demand $x$ of $L_2$, which $L_2$ either accepts or rejects. Accordingly, $L_1$ can be viewed as the Challenger and $L_2$ can be viewed as the Target. If $L_2$ accepts demand $x$, the game ends with $L_1$ receiving $x$ and $L_2$ receiving $1 - x$. If $L_2$ rejects demand $x$, then Countries 1 and 2 fight one another. I model conflict as a costly lottery, where the value of winning is normalized to 1, the value of losing is normalized to 0, the probability of Country 1 winning is $p$, the probability of Country 2 winning is $1 - p$, and fighting imposes cost $c_i > 0$ on each side.
\( L_1 \) and \( L_2 \) can increase their country’s probability of winning the conflict by mobilizing its economic resources. \( L_i \)’s mobilization effort \( \mu_i \) consists of distributing \( e_i \) resources among military spending \((g_i)\) and social spending \((b_i)\). The optimal allocation of guns and butter in a given mobilization effort is a function of how relatively efficient \( g_i \) and \( b_i \) are in securing \( L_i \)’s political survival. I assume that the relative efficiency of military and social spending in a given mobilization for \( L_i \) is a function of the pre-mobilization balance of capabilities \((F_i)\), regime type \((R_i)\), and \( L_j \)’s mobilization of resources to the military \((g_j)\). Specifically, I assume that military spending is relatively more efficient than social spending against stronger opponents than against weaker opponents, for autocratic leaders than for democratic leaders, and against larger opposing mobilizations than smaller opposing mobilizations. I further assume that mobilization imposes the political cost \( \delta_i > 0 \) upon \( L_i \). Based on the results presented in Figures 1 and 2, the model assumes democratic leaders pay a higher cost for mobilization than do autocratic leaders and that the cost of mobilization is increasing in the size of the mobilization for democratic leaders. I assume that \( L_1 \) always mobilizes to fight but whether \( L_2 \) mobilizes is a function of his type; \( \theta \in \{l, h\} \), where \( L_2 \) mobilizes if \( \theta = h \) but will not mobilize if \( \theta = l \). I assume that \( L_2 \) knows his own type but that \( L_1 \) knows only that \( \theta = l \) with probability \( w \) and \( \theta = h \) with probability \( 1 - w \).

The expected conflict payoff for each leader depends on \( L_2 \)’s type. After rejecting \( x \), \( L_2 \) does not mobilize her country’s resources before fighting Country 1 if \( \theta = l \). In this case, \( L_1 \)’s expected utility is \( p - c_1 - \delta_1 \) and \( L_2 \)’s expected utility is \( 1 - p - c_2 \); where \( p = \frac{m_1}{m_1 + m_2} \), \( p \) represents the balance of dyadic military capabilities when \( L_2 \) does not mobilize, and \( m_2 \) represents Country 2’s military capabilities without a mobilization effort. If \( \theta = h \), after rejecting demand \( x \), \( L_2 \) mobilizes his country’s resources before fighting \( L_1 \). In this scenario \( L_1 \)’s expected conflict payoff is \( p - c_1 - \delta_1 \) and \( L_2 \)’s expected payoff for fighting is \( 1 - p - c_2 - \delta_2 \); where \( p = \frac{m_1}{m_1 + m_2} \), \( m_2 = m_2 + g_2 \), \( p > p \), and \( p - p = g_2 \).

The timing of the game is as follows. In the first stage, Nature (N) chooses \( L_2 \)’s type \( \theta \in \{l, h\} \). \( L_1 \) then makes demand \( x \) of \( L_2 \), which \( L_2 \) chooses to accept or reject. If \( L_2 \) accepts \( x \), the game ends. If \( L_2 \) rejects \( x \) and \( \theta = l \), \( L_1 \) mobilizes, and the two countries fight. If \( L_2 \) rejects \( x \) and \( \theta = h \), \( L_1 \) and \( L_2 \) mobilize, and the two countries fight.
3.1 Equilibria

Due to the asymmetric information over $\theta$, the model is solved for perfect Bayesian equilibria. The game has two pure strategy equilibria, one in which $L_1$ and $L_2$ always reach a peaceful agreement and another where the two fight with positive probability.

**Proposition 1 (Peace Equilibrium).** The following is a perfect Bayesian equilibria if $w \leq \hat{k}$: $L_1$ demands $\underline{x}$, both types of $L_2$ accept and peace obtains.

**Proof.** See appendix.

Proposition 1 indicates that there are conditions under which conflict will not occur in equilibrium. In order to avoid conflict, $L_1$ must make a demand that is greater than or equal to $L_2$’s expected value for fighting. Therefore, if $\theta = l$, then $L_1$ can avoid conflict with a demand of $\overline{x} = \overline{p} + c_2$. If $\theta = h$, then $L_1$ can avoid war only if she makes a demand that incorporates the cost $L_2$ pays to mobilize and $L_2$’s increased likelihood of success in a war: $\underline{x} = \underline{p} + c_2 + \delta_2$. As $\overline{x} > \underline{x}$, it follows that both types of $L_2$ will accept demand $\overline{x}$ from $L_1$. When will $L_1$ make the more modest demand? $L_1$ will demand $\underline{x}$ if and only if she believes that there is only a small probability that $L_2$ will not mobilize to fight a war (i.e. $w$ is less than or equal to the critical value $\check{k} = \frac{c_1 + c_2 + \delta_1 + \delta_2}{(\overline{p} + c_1 + c_2 + h_1)}$). This makes intuitive sense. $L_1$ would prefer not to provoke a fight against an $L_2$ who will mobilize his country’s resources for war. As such, if $L_1$ thinks $L_2$ is likely to mobilize for war she will make the modest demand $\underline{x}$ that an $L_2$ willing to mobilize ($\theta = h$) would prefer to fighting. Therefore, if $w \leq \check{k}$ then $L_1$’s optimal play is to demand $\underline{x}$, which both types of $L_2$ will accept rather than fighting. While conflict is avoided under these conditions, the model indicates that an alternative scenario exists in which $L_1$ and $L_2$ fail to reach a bargain and militarized conflict ensues.

**Proposition 2 (Conflict Equilibrium).** The following is a perfect Bayesian equilibria if $w > \check{k}$: $L_1$ demands $\overline{x}$, $L_2$ accepts the demand and peace obtains if $\theta = l$; and, if $\theta = h$, $L_2$ rejects the demand, $L_1$ and $L_2$ choose their optimal mobilizations, and the two countries fight.

**Proof.** See appendix.
The model’s second perfect Bayesian equilibrium obtains when $L_1$ believes with a sufficiently high probability (i.e. $w > \hat{\kappa}$) that $L_2$ will not mobilize his country’s resources to fight. Given this scenario, $L_1$ derives the greatest utility in expectation by making the bold demand $\pi = p + c_2$. As noted above, $\pi$ is the smallest demand that $L_2$ will accept instead of going to war if $\theta = l$. However, if $\theta = h \pi$ is larger than the smallest demand $L_2$ will accept rather than mobilizing and fighting a war. Thus, if $L_1$ demands $\pi$ and $\theta = h$, $L_2$ will reject the demand, both leaders will choose their optimal mobilizations, and Countries 1 and 2 will fight.

Proposition 2 nicely highlights the risk-return trade-off inherent with crisis bargaining under incomplete information (Fearon 1995, Powell 2002). Specifically, if $L_1$ makes the bold demand $\pi$ and $\theta = l$ she will obtain utility that would have been left on the bargaining table if she made the more modest demand $\pi$. At the same time, attempting to capture this utility by making the bold demand $\pi$ increases the risk of having to fight against an opponent who is willing to mobilize his country’s resources to fight.

The model’s two equilibria demonstrate that a leader’s willingness to pay the political cost of mobilization can influence the rational calculations of political leaders during crisis bargaining. The next section uses the model’s equilibria to derive a set of empirical implications for the relationship between regime type and interstate conflict behavior.

4 Empirical Implications

The model yields a set of empirical implications related to the relationships between regime type and conflict selection and mobilization. Consistent with the logic of backwards induction, I work “up the tree” and begin with the model’s prediction for the relationship between regime type and economic mobilization.

**Proposition 3:** The optimal mobilization of military resources is greater in an autocracy than in a democracy.

*Proof.* See appendix.
Proposition 3 predicts that the optimal mobilization of resources for an autocratic leader contains greater military spending than does the optimal mobilization for a democratic leader. The logic behind this claim is fairly transparent. Recall that $L_i$ distributes his available economic resources $e_i$ between military ($g_i$) and social spending ($h_i$) based on the relative efficiency of each in securing his or her political survival. Specifically, a leader should allocate greater resources to the type of spending that is better at allowing him to remain in power and fewer resources to the type of spending that is less efficient in securing his tenure. Based on the analyses presented in Figures 1 and 2, higher military spending and lower social spending are more likely to result in a democratic leader losing office than an autocrat. Thus, compared to the autocratic case, military spending is relatively less efficient and social spending is relatively more efficient in securing a democratic incumbent’s political survival. It therefore follows that an autocrat’s optimal mobilization effort contains more military spending than does a democratic leader’s optimal mobilization.

The empirical scholarship on the relationship between regime type economic mobilization for war is divided in its conclusions. In the earliest work on the subject, Kugler and Domke (1986) find no difference in the mobilization efforts of democratic and autocratic major power belligerents in the global wars of the twentieth century (Russo-Japanese, World War I and World War II). Reiter and Stam’s (2002) analysis of all interstate war participants between 1816 and 1990 fails to find a significant difference between democratic and autocratic war-time defense burdens. In contrast, Bueno de Mesquita et al. (2003, 2004) and Goldsmith (2007) conclude that democracies mobilized more of their resources for 19th and 20th century interstate wars than did non-democracies. Focusing on the post-World War II period, Carter and Palmer (N.d.) demonstrate that non-democracies increase military spending, and decrease social spending, to a greater degree than do democracies. Carter (N.d.b) offers an explanation for these disparate findings. Specifically, he demonstrates that democracies mobilized more resources for war than did autocracies in the period from 1816 to 1945, but that there has been an autocratic advantage in economic war effort during the post-World War II era.

Given the existing research, how should we interpret the empirical validity of Proposition 3? Recall that Proposition 3 follows from the assumption that military spending is relatively more efficient in securing the political survival of autocratic leaders than democratic leaders. The duration analysis underlying this assumption (Table 1 and Figures 1 and 2 presented above) are based on data during the period from 1960 to 1999. Thus, Proposition 3 is consistent with
the empirical record, per Carter and Palmer (N.d.) and Carter (N.d.b), for the time period in which the model’s key assumption holds empirically (i.e., the post-World War II era).

The model’s second empirical prediction concerns the relative selectivity of democratic and autocratic targets in rejecting a challenger’s demand.

**Proposition 4:** As the relative strength of the challenger increases, democratic targets are increasingly less likely to resist than are autocratic targets.

*Proof.* See appendix.

Proposition 4 argues that democratic leaders are more selective than autocratic leaders in rejecting the demands of and fighting against challengers. This claim follows from a leader’s optimal mobilization effort and how the relative cost of mobilization varies as a function of the size of a mobilization across regime type. The optimal allocation of military spending in a mobilization effort is increasing in the relative strength of a state’s opponent. This makes intuitive sense: the stronger a country’s opponent is the more resources that a leader will need to dedicate to an interstate war effort.\(^20\) The duration analysis reported in Figures 1 and 2 indicate that the political cost of mobilization is increasing in the size of a mobilization for democratic leaders but not autocratic leaders. It therefore follows that the optimal mobilization effort against a relatively stronger challenger is increasingly costlier for a democratic incumbent than it is for an autocratic leader. As the probability of conflict is decreasing in the target’s political cost of mobilization (see the proofs of Propositions 1 and 2), it follows that democratic targets will be increasingly less likely than autocratic targets to resist the demands of relatively stronger challengers.

The model’s prediction that democracies are more selective in rejecting the demands of challengers than are autocracies differs from existing research on the relationship between regime type and the conflict behavior of targeted states. Fearon (1994) argues that domestic “audience costs” should result in democratic leaders being less likely to back down in interstate crises than autocratic leaders. Consistent with the audience costs argument, Partell and Palmer (1999) find that democracies, and countries with a constrained executive more generally, are less likely to back down after being challenged in a militarized interstate dispute. In contrast, Schultz\(^20\)Compare, for example, England’s mobilization efforts against Germany in World War II and against Argentina in the Falklands war.

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\(^{20}\) Compare, for example, England’s mobilization efforts against Germany in World War II and against Argentina in the Falklands war.
(2001a) develops a signaling model that predicts democratic targets should be less likely to resist a challenge than autocratic targets. Contrary to both his expectations and the work of Fearon (1994) and Partell and Palmer (1999), Schultz finds no empirical relationship between regime type and a target’s probability of conflict reciprocation. In a departure from each of these pieces, the model developed here suggests that the relationship between regime type and target reciprocation is conditional on the relative balance of capabilities between belligerents. The next section empirically analyzes this prediction.

Proposition 4 also offers an institutional explanation for the success of democratic targets in interstate wars. Arguments that locate the interstate war success of democracies in the selection of opponents focus on the decision of a challenger to initiate an interstate conflict (among others, Reiter and Stam 2002, Bueno de Mesquita et al. 2003). The model developed here, however, predicts that democratic targets are more selective in reciprocating a challenge than are autocratic targets. If, \textit{ceteris paribus}, relatively weaker countries are less likely to win the wars they fight than are stronger countries (e.g., Clark and Reed 2003), then Proposition 4 provides a rational institutional explanation for why democratic targets are more likely to win interstate wars than are autocratic targets.

The model also provides an alternative explanation for the most prominent finding of the literature on regime type and interstate conflict: the democratic peace.

**Proposition 5:** A pair of democracies is less likely to fight than a mixed dyad or a pair of autocracies.

**Proof.** See appendix.

The model’s explanation for the dyadic democratic peace (Russett and Oneal 2001) follows from variation in the optimal mobilizations of democratic and autocratic leaders, the interdependent nature of a leader’s optimal mobilization, and the influence of mobilization on a conflict’s probabilistic outcome. The optimal mobilization for an autocratic leader contains relatively more military spending than does the optimal mobilization for a democratic leader (Proposition 3). Recall that, in addition to his or her country’s regime type, a leader’s mobilization effort is

\begin{footnote}{While claims that democracies mobilize to a greater degree than autocracies would cover democratic initiators and targets (e.g., Bueno de Mesquita et al. 2003, Goldsmith 2007), Proposition 3 demonstrates that this argument does not hold when the political cost of mobilization is taken into account.}

25
also a function of the opposing leader’s mobilization of military resources. The optimal military mobilization for a leader, then, is larger against an autocratic opponent than it is against a democratic opponent. It therefore follows that a democratic target will mobilize fewer military resources than an autocratic target, irrespective of the challenger’s regime type, and that the optimal mobilization for a democratic target will consist of lower military spending against a democratic challenger than against an autocratic challenger. How does this lead to a dyadic democratic peace? From the critical cut-point \( \hat{\kappa} \), the probability two countries will fight is decreasing in the degree to which a target’s military mobilization affects the probabilistic outcome of the conflict (i.e. \( \pi - \bar{\pi} = g_2 \)). The probability of two democracies fighting is thus lower than the probability conflict given a jointly autocratic or mixed dyad because a pair of democracies yields the smallest optimal military mobilization for the targeted state in a crisis.

Proposition 5, and the logic underlying it, is consistent with the work of Banks (1990) and Fearon (1995) on crisis bargaining under asymmetric information. Using the mechanism design framework, Banks (1990) formally demonstrates that the probability of conflict is increasing in the military capabilities of the informed player in any bargaining model with asymmetric information. Autocratic targets are able to mobilize more military resources than are democratic targets in the model developed here (Proposition 3). Further, all targets should mobilize more resources against an autocratic challenger than against a democratic challenger. It therefore follows that, all else equal, a jointly democratic dyad will result in the fewest military capabilities mobilized by the target. Given Banks’s (1990) analysis, it then must be the case that two democracies are less likely to fight than are two autocracies or a mixed dyad.

Where Banks (1990) demonstrates that Proposition 5 must be true given the features of the model, Fearon (1995) is useful for understanding the mechanism by which pairs of democracies should be less likely to fight than other dyads. Fearon demonstrates that, by leading to uncertainty over a player’s value for conflict, uncertainty over capabilities and/or resolve is a rationalist explanation for war. Further, the probability of conflict goes to zero as this uncertainty is removed. In the model presented here, \( L_1 \) is uncertain over whether \( L_2 \) will mobilize resources to fight and, ultimately, her valuation of fighting (i.e., \( \pi - c_1 \) vs. \( \bar{\pi} - c_1 \)). Given that the

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22 Rarely used in political science (although see Fey and Ramsay (2011) for a recent application to interstate conflict), mechanism design allows for the identification of characteristics that any equilibrium must possess in a given class of games. See Myerson (1979) and Myerson and Satterthwaite (1983) for canonical examples of mechanism design in economics. Textbook treatments of mechanism design theory are given in Chapter 7 of Fudenberg and Tirole (1991) and Chapter 11 of McCarty and Meirowitz (2007).

23 This is because when uncertainty is removed the asymmetric model becomes a model of complete information in which war does not occur in equilibrium (Fearon 1995).
optimal military mobilization is larger in autocracies than it is in democracies (Proposition 3) and the assumption that the optimal mobilization for $L_i$ is increasing increasing in the military mobilization of $L_j$, it follows that there is less uncertainty about $L_1$’s value for conflict given a pair of democracies than either a mixed or jointly autocratic dyad.\(^{24}\) As the probability of conflict is decreasing in the uncertainty over a player’s value for conflict, two democracies are less likely to fight one another than are other pairs of states.

The last empirical implication derived from the model concerns the relative “attractiveness” of democratic and autocratic targets.

**Proposition 6:** Challengers prefer democratic targets over autocratic targets.

**Proof.** See appendix. \(\square\)

Proposition 6 argues that challengers prefer democratic targets to autocratic targets. More precisely, compared to facing an autocratic target, a challenger is never worse off in expectation when facing a democratic target and is typically strictly better off in expectation when facing a democratic target. To demonstrate this point, consider the challenger’s expected payoff in the four exhaustive and mutually exclusive scenarios that can occur in the game. The first scenario occurs when $L_1$ believes with a sufficiently high probability that $L_2$ will not mobilize and $L_2$ is not willing to mobilize ($w \leq \hat{k}$ and $\theta = l$). In this situation, $L_1$ demands $\pi \equiv \bar{p} + c_2$ and $L_2$ accepts. There is no difference in $L_1$’s utility between a democratic and an autocratic target. In the second scenario $L_1$ believes with a sufficiently high probability that $L_2$ will not mobilize but, in reality, $L_2$ will mobilize his country’s resources ($w \leq \hat{k}$ and $\theta = h$). Equilibrium behavior requires that $L_1$ demands $\pi \equiv \bar{p} + c_2$, $L_2$ rejects the demand, $L_i$ mobilizes $g_i^*$ resources for military spending, and Countries 1 and 2 fight. $L_1$’s expected payoff is equal to $p - c_1 - \delta_1$. From Proposition 3, the optimal mobilization for an autocratic $L_2$ contains more military spending than the optimal mobilization for a democratic $L_2$. Holding the pre-mobilization balance of military capabilities constant, it therefore follows that $\bar{p}^D > \bar{p}^A$ and that $L_1$ is strictly better off if the target is a democracy. The third scenario obtains when $L_1$ believes with a sufficiently high probability that $L_2$ will mobilize resources for conflict but in truth $L_2$ is unwilling to mobilize ($w > \hat{k}$ and $\theta = l$). In this case, $L_1$ demands $\bar{z} \equiv \bar{p} + c_2 + \delta_2$ and $L_2$ accepts. As $\delta^D > \delta^A$, $L_1$

\(^{24}\)That is, $\bar{p} - \bar{p}$ is smaller given two democracies than any other pair of states.
is strictly better off if the target is a democracy. In the final possible scenario in the model, \( L_1 \) believes with a sufficiently high probability that \( L_2 \) will mobilize and \( L_2 \) is willing to mobilize \((w > \hat{k} \text{ and } \theta = h)\). This leads to \( L_1 \) demanding \( x = p_2 + c_2 + \delta_2 \) and \( L_2 \) accepting the demand. As \( \delta^D > \delta^A \), \( L_1 \) is strictly better off if the target is a democracy. Therefore, of the four possible combinations of \( w \) and \( \theta \) that can occur in the model, \( L_1 \)'s expected utility is strictly higher when facing a democracy than it is when facing an autocratic in three scenarios and is the same regardless of the target’s regime type in the other scenario.\(^{25}\)

The existing scholarship is divided on the relative attractiveness of democratic and autocratic targets. Selectorate theory (Bueno de Mesquita et al. 1999, 2003) argues that democracies are worse targets than autocracies because democratic leaders are willing to mobilize more of their resources to defend against a militarized challenge.\(^{26}\) Unfortunately, Bueno de Mesquita et al. do not empirically test this prediction. In contrast to selectorate theory but consistent with the model developed here, Schultz (1999, 2001a) argues that institutional features of democratic governments, in particular media freedom and opposition parties, should lead challengers to prefer democratic targets over autocratic targets. Empirically, Schultz finds that democracies are more likely than autocracies to be targeted in militarized interstate disputes. Proposition 6, then, provides an alternative theoretical explanation for Schultz’s (2001a) empirical results.

The model developed here has implications for four areas of the extensive literature on regime type and the interstate conflict process. First, it provides a rational, institutional explanation for the democratic peace that does not rely on the empirically unsupported assumption that democratic leaders are more likely to be punished for fighting or losing a war. Second, it demonstrates that once the political cost of mobilization is explicitly considered incumbency-valuing democratic leaders do not have an incentive to mobilize greater military resources than do autocratic leaders. Third, the model provides an alternative logic for Schultz’s (2001a) finding that democracies are more attractive targets than autocracies. Last, the model offers a novel explanation for why democratic targets are more successful in interstate wars than their autocratic counterparts: democratic targets are more likely to select themselves out of an interstate crisis against a stronger opponent than are autocratic targets. The next section

\(^{25}\)It is worth noting that because autocracies should mobilize more resources than democracies (Proposition 3) this result is consistent with Banks’s (1990) result that stronger informed players (\( L_2 \) in the model developed here) should obtain larger equilibrium payoffs from peaceful settlements in any bargaining game with asymmetric information.

\(^{26}\)Note, again, that this argument rests on the empirically tenuous assumption that democratic leaders are more likely to be removed from power after losing an interstate war than are autocratic leaders and that Proposition 3 argues autocracies should mobilize more resources for conflict than democracies.
empirically analyzes this prediction.

5 Regime Type and Target Selectivity

The model predicts that, due to the relative political cost of mobilization across regime type, autocratic leaders will be more likely to reject the demands of relatively stronger challengers than will democratic leaders. This expectation is tested by analyzing the relationship between regime type, relative capabilities, and the conditional probability a target reciprocates when challenged in a militarized interstate dispute (MID). If the model’s prediction is right, democracies should be less likely than autocracies to reciprocate the challenges of relatively stronger opponents.

The hypothesis that democratic targets are more selective than autocratic targets is tested on a directed-dyad year data set covering all country-pairs between 1945 and 2001. I omit “ongoing,” “reverse,” and “joiner” dyad-years (see Bennett and Stam 2000b). As the decision to reciprocate requires that an initial challenge be made, the relationship between regime type and target selectivity is estimated using a selection model. Specifically, I use a censored probit that allows me to model the probability a country responds militarily to a challenge, conditional on a crisis being initiated in the first place. Failure to explicitly account for the non-random initiation of a crisis could result in inefficient and biased estimates of the probability of reciprocation and, ultimately, incorrect inferences about the relationship between regime type and target selectivity (Greene 1997, Reed 2000). Using a censored probit to test Proposition 4 requires the use of two dichotomous dependent variables. The first, Initiation, is coded 1 if Country 1 in a directed-dyad initiates a militarized interstate dispute against Country 2 in a given year and 0 otherwise. The second dependent variable, Reciprocation, is coded 1 if upon being challenged Country 2 reciprocates and 0 if Country 2 yields to Country 1’s initial demand. Initiation and Reciprocation are both based on the MID data set (Ghosn, Palmer and Bremer 2004).

The following explanatory variables are included in the statistical model. Democracy\(_t\) is coded 1 if Country 1 in a dyad has a value of +7 on the 21-point Polity\(^2\) index in year \(t\).

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27 The data set was created using the EUGene software (Bennett and Stam 2000a).
28 For applications of the censored probit in studies of interstate conflict, see Reed (2000) and Clark and Reed (2003).
29 Technical details of the censored probit are given in, among others, Greene (1997) and Cameron and Trivedi (2005).
30 The analysis presented below do not distinguish between the hostility level of the MID initiated by Country 1. As a robustness check, I re-estimated the model using different hostility levels to see if the results held at different levels of hostility; e.g., what are the results if we consider only MIDs with a hostility level of 1, a hostility level of \(\leq 2\), etc. The results of the robustness checks led to the same substantive conclusions as those presented here.
and 0 otherwise (Marshall and Jaggers 2005). \(\text{Democracy}_2\) is coded analogously.\(^{31}\) \(\text{Relative Capabilities}\) identifies the dyadic balance of material capabilities and is measured as \(\frac{\text{cap}_1}{\text{cap}_1 + \text{cap}_2}\), where \(\text{cap}_i\) represents a country’s annual CINC score from the National Material Capabilities data set (Singer, Bremer and Stuckey 1972). Therefore, \(\text{Relative Capabilities}\) theoretically ranges from 0 to 1, where 0 represents a situation in which Country 2 controls all of the capabilities in the dyad and 1 indicates that Country 1 possesses all of the capabilities in a dyad. The model predicts that democracies should be less likely to reject the demands of stronger challengers than autocracies. The interaction term \(\text{Relative Capabilities} \times \text{Democracy}_2\) is included in the model to capture this (hypothesized) effect.

The above explanatory variables are needed to test the relationship between regime type and target selectivity and therefore are included in both the selection and outcome equations of the censored probit estimator. I also include a set of variables that predict the initiation of a conflict but not the probability of reciprocation in order to identify the model (Greene 1997, Cameron and Trivedi 2005). The variable \(\text{Contiguity}\) is a six-point index in which higher values represent a greater level of contiguity and is based on the Direct Contiguity Data, 1816-2006, v.3.1 (Stinnett et al. 2002). \(\text{Major Power}\), coded 1 if either state in the dyad is considered a major power per the Correlates of War project (Correlates of War Project 2008) and 0 otherwise, is included in the model as major powers are significantly more likely to be involved in interstate conflicts than other states. Last, the cubic polynomial of the number of years since Country 1 initiated a conflict against Country 2 (\(\text{Time}, \text{Time}^2, \text{and Time}^3\)) are included in the first stage of the model to account for temporal dependence within the data (Carter and Signorino 2010). Table 2 reports the model’s estimates of conflict initiation and reciprocation.

Before analyzing the estimated relationship between regime type and target selectivity, recall that a censored probit was used in an attempt to avoid inefficient and biased estimates of conflict reciprocation (Greene 1997). The statistically significant selection parameter \(\rho\) indicates that the selection (\(\text{Initiation}\)) and outcome (\(\text{Reciprocation}\)) equations of the censored probit are not statistically independent from one another. Accordingly, the use of a selection model to account for the non-random sample of targeted states is methodologically appropriate.

Similar to the above analysis of the relationship between leadership survival and mobilization, the interaction term \(\text{Relative Capabilities} \times \text{Democracy}_2\) and estimation of the censored probit

\(^{31}\)The statistical results presented below were re-estimated using +6 as the critical value in determining a country’s regime type. The results led to the same substantive inference as those presented in the main text.
Table 2: Regime Type and Interstate Conflict Reciprocation, 1950-2001

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Initiation</th>
<th>Reciprocation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$ (s.e.)</td>
<td>$\beta$ (s.e.)</td>
</tr>
<tr>
<td>Democracy$_1$</td>
<td>-0.07(0.02)**</td>
<td>-0.71(0.09)**</td>
</tr>
<tr>
<td>Democracy$_2$</td>
<td>0.26(0.04)**</td>
<td>0.04(0.17)</td>
</tr>
<tr>
<td>Relative Capabilities</td>
<td>0.29(0.04)**</td>
<td>-0.09(0.17)</td>
</tr>
<tr>
<td>Relative Capabilities*Democracy$_2$</td>
<td>-0.21(0.07)**</td>
<td>-0.51(0.26)*</td>
</tr>
<tr>
<td>Contiguity</td>
<td>0.30(0.00)**</td>
<td></td>
</tr>
<tr>
<td>Major Power</td>
<td>0.52(0.02)**</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>-0.11(0.01)**</td>
<td></td>
</tr>
<tr>
<td>Time$^2$</td>
<td>4.07E-03(2.96E-04)**</td>
<td></td>
</tr>
<tr>
<td>Time$^3$</td>
<td>-4.27E-05(4.33E-06)**</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-3.27(0.04)**</td>
<td>1.87(0.17)**</td>
</tr>
</tbody>
</table>

Selection Parameter ($\rho$) | -0.21(0.06)**

Log-Likelihood | -8,064.54
$\chi^2$-statistic | 86.03
Probability $> \chi^2$ | <0.01
Uncensored N | 1,451
Censored N | 868,292

Two-tailed: * : p ≤ 0.05; ** : p ≤ 0.01

via maximum likelihood limit the usefulness of Table 2 for assessing the relative selectivity of democratic and autocratic targets (among others, Brambor, Clark and Golder 2006, King, Tomz and Wittenberg 2000). Interpretation of the results in Table 2 is further complicated by the conditional nature of selection models (e.g., Greene 1997). Following the recommendations of King, Tomz and Wittenberg (2000), I assess whether democracies are statistically less likely to reciprocate the challenges of stronger opponents than are autocracies using a set of post-estimation simulations of the model reported in Table 2. More specifically, I used the parameter estimates of the censored probit to calculate the conditional probability that a democracy and an autocracy would reciprocate a challenge across the range of Relative Capabilities, given that a challenge had initially occurred. I then calculated the first difference (and associated confidence interval) of these two conditional probabilities to assess statistical significance.\footnote{The post-estimation simulations were conducted through the following six steps. First, 10,000 draws were taken from a multivariate normal distribution based on the coefficient and variance-covariance matrices of Model 1. Second, I set the explanatory variables in the model to mimic a substantively interesting situation: a pair of directly contiguous, non-major power states which had not experienced a conflict against one another in 17 years (the sample median). Third, the predicted probability of State A initiating an interstate conflict against State B and State B reciprocating the conflict across the range of the explanatory variable Relative Capabilities was calculated given an autocratic
The formal model predicts that democratic leaders should be less likely than autocrats to reject the demands of relatively stronger challengers. If this prediction is borne out empirically, a democratic target should become increasingly less likely than an autocratic target to reciprocate a challenge as Country 1 controls more of the capabilities in a dyad. Figure 3 reports the predicted conditional probabilities of democratic and autocratic reciprocation given a democratic challenger.

![Figure 3: Conditional Probabilities of Reciprocation, Democratic Initiator](image)

The dashed blue and solid red lines in Figure 3 represent, respectively, the conditional probabilities of a democracy and an autocracy reciprocating the challenge of a democratic target. Fourth, the values of the explanatory variables were manipulated to mimic the same dyad as described in Step 2 but with a democratic target. Fifth, I repeated Step 3. Sixth, the first difference, with corresponding standard errors, between the conditional predicted probabilities of State D reciprocating a conflict against State A across the range of Relative Capabilities was calculated. See King, Tomz and Wittenberg (2000) on the utility of post-estimation simulations for interpreting the results of statistical analyses.
initiator. The diamonds indicate that the two probabilities are statistically different from one another at the 95% level. The flat solid line in Figure 3 indicates that the predicted probability of an autocratic target reciprocating the challenge of a democratic initiator is almost insensitive to the balance of power within a dyad. Specifically, an autocracy is expected to resist the demands of a democratic challenger about 73% of the time regardless of the dyadic distribution of capabilities. In contrast, the probability of a democratic target reciprocating a challenge declines substantially in the share of dyadic capabilities controlled by the democratic initiator. For instance, a democratic target is expected to reciprocate the challenge of a democratic opponent that controls 25% percent of the resources about 71% of the time but will yield to the demands of a democratic challenger that commands 75% of the dyadic capabilities approximately 60% of the time – or a 16% reduction in the probability of reciprocation. Figure 3 therefore supports the model’s prediction that democratic targets are less likely than autocratic targets to reciprocate the challenges of stronger initiators. It is possible, though, that these results hold only given a democratic challenger. Figure 4 therefore reports the predicted conditional probabilities of a democracy and an autocracy reciprocating the challenge of an autocratic initiator.

Figure 4 indicates that whether an autocratic target reciprocates the challenge of a fellow autocracy is unrelated to the relative balance of capabilities. An autocracy that possesses all of the resources in a dyad is expected to resist a demand approximately 91% of the times while an autocracy that controls none of the resources will reciprocate approximately 90% of challenges. A democratic target, however, becomes more selective in the challenges it reciprocates as its autocratic opponent controls relatively more resources. Given 75% of the total dyadic capabilities a targeted democracy will resist the demands of an autocratic challenger 90% of the time, or as often as an autocratic target. However, if an autocratic initiator possesses 75% of the dyadic resources a targeted democracy is predicted to reciprocate a challenge 84% of the time – a 7% reduction in the conditional probability of reciprocation. Thus, the results reported in Figures 3 and 4 strongly support the claim that democratic targets are more selective in reciprocating the challenges of stronger initiators than are autocratic targets.
6 Conclusion

Quantitative research on the relationship between regime type and interstate conflict has consumed much of the contemporary study of international relations. Unfortunately, our explanations for three of the strongest findings that have emerged out of this scholarship – the democratic peace, democracies are more selective in conflicts than autocracies, and democracies are more successful in interstate wars than autocracies – are based on the empirically unsupported assumptions that democratic leaders are more likely to be punished for fighting or losing an interstate war than are autocratic leaders (Chiozza and Goemans 2004, Debs and Goemans 2010). This paper represents an attempt at explaining variation in interstate conflict behavior across regime type based on more firmly grounded micro-foundations. The mobilization of economic resources to the military at the expense of government spending on non-military
programs is central to the prosecution of interstate war (Sandler and Hartley 1995, Anderton and Carter 2009). I demonstrate that the political cost of these mobilization efforts vary significantly across regime type. Specifically, economic mobilization increases the probability a democratic incumbent will lose office but has no effect on the likelihood an autocratic leader remains in power. A bargaining model built upon this empirical result sheds light on why, compared to autocracies, democracies are less likely to fight one another (Russett and Oneal 2001), are more selective in the opponents they fight (Bueno de Mesquita et al. 2004), and are more likely to win the wars they fight (Lake 1992).

The paper makes three contributions to the extensive literature on regime type and interstate conflict. First, while fighting or losing an interstate war does not shorten the expected tenure of a democratic incumbent (Chiozza and Goemans 2004, Debs and Goemans 2010), the increase in military spending and decrease in social spending associated with mobilization does. This result potentially offers an explanation for why democracies select themselves out of long and difficult wars (Bennett and Stam 1998, Reiter and Stam 2002). Additionally, it suggests that democratic leaders have a greater incentive than autocratic leaders to avoid the guns-and-butter trade-off, a relationship suggested by Carter and Palmer (N.d.). This implies that democratic leaders would have a greater incentive than autocratic leader to finance expensive war efforts through deficit spending (Slantchev 2010). Although the logic differs, this leads to the same implication as Schultz and Weingast’s argument that democratic leaders should be more likely to pay for international competitions by borrowing money on the open market than autocratic leaders (1998, 2003).

Second, the finding that democratic targets are more selective than autocratic targets in reciprocating the challenges of stronger initiators suggests a rational, institutional explanation for why democratic targets are more likely to win interstate wars than autocratic targets. Reiter and Stam (2002) report that democratic targets won 63% of the wars they fought from 1816 to 1990 while non-democracies won only 37% of the wars in which they were initially targeted. As discussed above, the most common institutional explanations for democratic success in interstate wars are that democracies are better at avoiding difficult wars and mobilize more of their resources than autocracies. Proponents of the democratic selectivity arguments focus on the behavior of democratic initiators (Reiter and Stam 2002, Bueno de Mesquita et al. 2004). With respect to a democratic advantage in mobilization efforts, the empirical record is mixed on the relationship between regime type and economic war effort (Reiter and Stam 2002, Bueno de
Further, the model developed here indicates that once the political cost of mobilization is explicitly considered democratic leaders have less of an incentive to mobilize a large amount of their resources than do autocratic leaders. Therefore, the formally derived and empirically supported result that democracies are less likely to resist stronger challengers than are autocracies suggests that the success of democratic targets in interstate war might be due to this selection effect.

Last, and arguably most importantly, the paper suggests that focusing on the political cost of mobilization is a potentially fruitful way to analyze the relationship between regime type and interstate conflict. While the model developed here is simple, it offers an explanation for the central empirical finding of the literature on regime type and conflict, provides an alternative logic to why democracies might make better targets than autocracies, and generates a novel prediction about the conflict behavior of democracies and autocracies. A natural extension to the present paper would be to identify how the cost of mobilization varies among different types of democracies and autocracies and use these results to analyze variation in their conflict behavior. A more nuanced model that incorporates intra-war bargaining and multiple opportunities to mobilize could generate predictions regarding the magnitude and timing of mobilization and why democracies and autocracies alter their behavior as a war endures (Bennett and Stam 1998). Models that consider interactions between the political cost of mobilization and signaling (Slantchev 2005), the prospect of leadership turnover (Wolfrud 2007), and incumbent preferences beyond retaining office (Carter N.d.a), would also appear to offer promising insights into the interstate conflict process. Regardless of the specific form future research might take, the formal and empirical results presented here suggest that explicitly considering the political cost of mobilization holds promise for improving our understanding of the conflict process.
7 Appendix

7.1 Formal Model

The model assumes that the leader of Country 1 (\(L_1\)) and the leader of Country 2 (\(L_2\)) are bargaining over policy issue \(x \in [0, 1]\), it is within the power of each leader to determine his or her country’s participation in an interstate war, and each leader can distribute her country’s available economic resources toward the pursuit of his or her preferred policies. For expositional purposes, I treat \(L_1\) as female and \(L_2\) as male. There are two types of \(L_2\): \(\theta \in \{l, h\}\), where \(\theta = l\) does not mobilize before fighting and \(\theta = h\) mobilizes before fighting. I assume that \(L_2\) knows his own type but that \(L_1\) only knows that \(L_2\) is \(\theta = l\) with probability \(w\) and \(\theta = h\) with probability \(1 - w\). I assume \(L_1\) will always mobilize and that this is common knowledge.

\(L_i\)'s mobilization effort \(\mu_i\) refers to her/his allocation of military spending (\(g_i\)) and non-military spending (\(b_i\)) subject to the budget constraint of economic resources \(e_i; e_i = g_i + b_i\). The distribution of \(g_i\) and \(b_i\) are functions of the relative efficiency of each type of spending in securing \(L_i\)'s political survival; \(\pi_i \in \{\gamma_i, \beta_i\}\), where \(\gamma_i\) represents the relative efficiency of \(g_i\), \(\beta_i\) represents the relative efficiency of \(b_i\), \(0 < \gamma_i \leq 1, 0 \leq \beta_i < 1\), and \(\gamma_i + \beta_i = 1\). I assume that \(\gamma_i\) and \(\beta_i\) are functions of three factors: 1) Country \(i\)'s regime type \(R_i \in \{D, A\}\), where \(D = \) democracy and \(A = \) autocracy; 2) the pre-mobilization balance of capabilities \(F_i \in \{0, 1\}\), where \(F_i = \frac{m_j}{m_i + m_j}\), \(m_i\) is Country \(i\)'s capabilities, and \(m_j\) is Country \(j\)'s capabilities; and 3) Country \(j\)'s mobilization of \(g_j\). That is, \(\gamma_i(R_i, F_i, g_j)\) and \(\beta_i(R_i, F_i, g_j)\). With respect to \(\gamma_i\), I assume that military spending is relatively more efficient for autocratic leaders than democratic leaders, and increasingly more efficient in the share of pre-mobilization capabilities possessed by a state’s opponent and the military mobilization of a state’s opponent. These assumptions are formally written, respectively, as follows:

\[
\begin{align*}
\gamma(D_i, F_i, g_j) &< \gamma(A_i, F_i, g_j) \quad \forall F_i, g_j \\
\frac{\partial \gamma(R_i, F_i, g_j)}{\partial F_i} &> 0 \quad \forall R_i, g_j \\
\frac{\partial \gamma(R_i, F_i, g_j)}{\partial g_j} &> 0 \quad \forall R_i, F_i
\end{align*}
\]

As \(\gamma_i + \beta_i = 1\), Equations (1) - (3) imply the following functional characteristics for \(\beta_i\):
In words, the three preceding equations indicate that social spending is relatively more efficient for democratic leaders than autocratic leaders, and is increasingly less efficient in the share of pre-mobilization capabilities possessed by a state’s opponent and the military mobilization of a state’s opponent.

$L_i$’s mobilization effort is written as the Cobb-Douglas production function $\mu_i = g_i^{2\lambda} b_i^{\beta_i}$. I assume that mobilization $\mu_i$ imposes the political cost of mobilization $\delta_i$ upon $L_i$ and $\delta_i$ is a function of a state’s regime type ($R_i$) and the distribution of military ($g_i$) and social ($b_i$) spending in a given mobilization effort; $\delta_i(R_i, g_i, b_i)$ and $0 < \delta_i \leq 1 \forall (R_i, g_i, b_i)$. Figures 1 and 2 suggest three aspects of the relationship between the political cost of mobilization and regime type: 1) democratic leaders pay a higher political cost for mobilizing than do autocratic leaders; 2) the political cost of mobilization is increasing in military spending for democratic leaders; and 3) the political cost of mobilization is decreasing in social spending for democratic leaders. These aspects of the relationship between regime type and the political cost of mobilization are written, respectively, as follows:

$$\beta(D_i, F_i, g_j) > \beta(A_i, F_i, g_j) \quad \forall \quad F_i, g_j$$

$$\frac{\partial \beta(R_i, F_i, g_j)}{\partial F_i} < 0 \quad \forall \quad R_i, g_j$$

$$\frac{\partial \beta(R_i, F_i, g_j)}{\partial g_j} < 0 \quad \forall \quad R_i, F_i$$

The game begins with Nature ($N$) choosing $L_2$’s type $\theta \in \{l, h\}$. $L_1$ then demands $x$ from $L_2$. If $L_2$ accepts demand $x$, the game ends with $L_1$ receiving $x$ and $L_2$ receiving $1 - x$. If $L_2$ rejects the demand, $L_1$ and $L_2$ have the opportunity to mobilize resources and then fight. Interstate conflict is modeled as a costly lottery, where the value of winning a war is normalized to 1, the value of losing a war is normalized to 0, and fighting entails some positive, non-zero
cost to each leader \((0 < c_i \leq 1 \forall L_i)\). Therefore, if \(L_2\) rejects demand \(x\) and \(\theta = l\), \(L_1\) chooses \(\mu_1\). Countries 1 and 2 fight, \(L_1\) receives the expected payoff of \(p - c_1 - \delta_1\) and \(L_2\) receives the expected payoff of \(1 - p - c_2\); where \(p = \frac{m_1}{m_1 + m_2}\) is equal to the balance of military capabilities given that \(L_1\) mobilized but \(L_2\) did not. If \(L_2\) rejects demand \(x\) and \(\theta = h\), \(L_1\) and \(L_2\) choose \(\mu_1\) and \(\mu_2\) and then Countries 1 and 2 fight. \(L_1\) receives the expected payoff of \(p - c_1 - \delta_1\) and \(L_2\) receives the expected payoff of \(1 - p - c_2 - \delta_2\); where \(p = \frac{m_1}{m_1 + m_2}\) is equal to the balance of military capabilities after \(L_2\)’s mobilization, \(p > \overline{p}\), and \(p - \overline{p} = g_2\).

### 7.2 Solution

Asymmetric information over \(L_2\)’s type makes perfect Bayesian equilibria the appropriate solution concept. The model has two pure strategy perfect Bayesian equilibria, one in which peace always obtains and one in which fighting can occur with positive probability.

**Proposition 1 (Peace Equilibrium).** If \(w \leq \hat{k}\), the following is a perfect Bayesian equilibrium in pure strategies: \(L_1\) demands \(\underline{x}\) and both types of \(L_2\) accept demand \(\underline{x}\).

*Proof.* Following the logic of backwards induction, I first solve for \(L_i\)’s optimal mobilization, then \(L_2\)’s decision to accept or reject \(L_1\)’s demand, and finally \(L_1\)’s optimal demand. \(L_i\)’s optimal \(\mu^* = g_i^{\gamma_i}b_i^{\beta_i}\) is the relative allocation of \(g_i\) and \(b_i\) that most efficiently secures \(L_i\)’s political survival, subject to the resource constraint \(e_i = g_i + b_i\). \(L_i\)’s maximization problem is solved with the following Lagrangian function:

\[
\mathcal{L}_i = \gamma_i \ln g_i + \beta_i \ln b_i + \lambda_i(e_i - g_i - b_i)
\]

Setting the partial derivatives of \(\mathcal{L}_i\) with respect to \(g_i\) and \(b_i\) to zero and solving yields

\[
\frac{\partial \mathcal{L}_i}{\partial g_i} = \frac{\gamma_i}{g_i} - \lambda_i = 0 \quad \Rightarrow \quad g_i^* = \frac{\gamma_i}{\lambda_i} \tag{7}
\]

\[
\frac{\partial \mathcal{L}_i}{\partial b_i} = \frac{\beta_i}{b_i} - \lambda_i = 0 \quad \Rightarrow \quad b_i^* = \frac{\beta_i}{\lambda_i} \tag{8}
\]

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Substituting Equations 7 and 8 into the budget constraint and solving for \( \lambda_i \) we get

\[
\lambda_i = \frac{\gamma_i + \beta_i}{e_i}
\]

Substituting the above equation into Equations 7 and 8 allows us to define the optimal marginal provision of \( g_i \) and \( b_i \) in a given \( \mu_i \) in terms of \( e_i, \gamma_i, \) and \( \beta_i \).

\[
\begin{align*}
g_i^* &= \frac{\gamma_i e_i}{\gamma_i + \beta_i} \\
    b_i^* &= \frac{\beta_i e_i}{\gamma_i + \beta_i}
\end{align*}
\] (9) (10)

Equations 9 and 10 tell us that, holding \( e_i \) constant, \( L_i \) will allocate marginally more resources to \( g_i \) than to \( b_i \) as \( \gamma_i \) increases relative to \( \beta_i \) and marginally more resources to \( b_i \) than to \( g_i \) as \( \beta_i \) increases relative to \( \gamma_i \).

Having identified the optimal mobilization for \( L_i \), I now turn to \( L_2 \)'s decision to accept or reject \( L_1 \)'s demand \( x \). If \( \theta = l \), then \( L_2 \) will accept demand \( x \) iff \( U_{L_2, \theta = l}(\text{accept}) \geq EU_{L_2, \theta = l}(\text{reject}) \Rightarrow 1 - x \geq 1 - p - c_2 \Rightarrow x \leq p + c_2 \equiv \overline{p} \). If \( \theta = h \), then \( L_2 \) will accept demand \( x \) iff \( U_{L_2, \theta = h}(\text{accept}) \geq EU_{L_2, \theta = h}(\text{reject}) \Rightarrow 1 - x \geq 1 - p - c_2 - \delta_2 \Rightarrow x \leq p + c_2 + \delta_2 \equiv \overline{p} \). As \( \delta_i > 0 \) \( \forall L_i, \overline{p} > \underline{p} \). It therefore follows that if \( L_1 \) demands \( \underline{p} \), both types of \( L_2 \) will accept.

We now turn to \( L_1 \)'s optimal demand. \( L_1 \) will demand \( \underline{p} \) iff \( EU_{L_1, \theta = l}(x = \underline{p}) \geq EU_{L_1, \theta = h}(x = \overline{p}) \Rightarrow p + c_2 + \delta_2 \geq w(p + c_2) + (1 - w)(p - c_1 - \delta_1) \Rightarrow \)

\[
w \leq \frac{c_1 + c_2 + \delta_1 + \delta_2}{(p - p + c_1 + c_2 + \delta_1)} \equiv \hat{k}
\]

(11)

Therefore, if \( w \leq \hat{k} \), \( L_1 \)'s optimal demand is \( \underline{p} \), which both types of \( L_2 \) will accept.

\[\square\]

**Proposition 2 (Conflict Equilibrium).** If \( w > \hat{k} \), the following is a perfect Bayesian equilibrium in pure strategies: \( L_1 \) demands \( \overline{p} \). If \( \theta = l \), \( L_2 \) accepts \( \overline{p} \) and peace obtains. If \( \theta = h \), \( L_2 \) rejects \( \overline{p} \), \( L_1 \) and \( L_2 \) choose their optimal mobilizations \( \mu_1^* = g_1^{*\gamma_1}b_1^{*\beta_1} \) and \( \mu_2^* = g_2^{*\gamma_2}b_2^{*\beta_2} \), respectively, and Countries 1 and 2 fight.
Proof. From the proof of Proposition 1, $\pi$ is the smallest $x$ that $L_2$ will accept if $\theta = l$, $\bar{x}$ is the smallest $x$ that $L_2$ will accept if $\theta = h$ will accept, and $\pi > \bar{x}$. Given Equation 11, when $w > \hat{k} L_1$’s optimal demand is $\pi$, which $L_2$ will accept if $\theta = l$ and will reject if $\theta = h$. If $\theta = h$, then $L_1$ and $L_2$ will mobilize before Countries 1 and 2 fight. From Equations (9) and (10) in the proof of Proposition 1, $L_i$’s optimal mobilization $\mu_i^* = g_i^* \gamma_i \beta_i$ is defined by $g_i^* = \frac{\gamma_i e_i}{\gamma_i + \beta_i}$ and $b_i^* = \frac{\beta_i e_i}{\gamma_i + \beta_i}$.

\[ \blacklozenge \]

Proposition 3. Optimal autocratic mobilization includes more military spending than optimal democratic mobilization.

Proof. From Equation 9, $L_i$’s optimal military mobilization is defined as $g_i^* = \frac{\gamma_i e_i}{\gamma_i + \beta_i}$. From Equation 1, $\gamma(D_i, F_i, g_j) < \gamma(A_i, F_i, g_j) \forall (F_i, g_j)$ $\Rightarrow g_i^{A*} > g_i^{D*} \forall (F_i, g_j)$.

\[ \blacklozenge \]

Proposition 4. Democratic targets are increasingly less likely than autocratic targets to fight stronger challengers.

Proof. Recall that the Conflict Equilibrium obtains iff $w > \frac{c_1 + c_2 + \delta_1 + \delta_2}{(\frac{c_1}{2} + c_1 + c_2 + \delta_1)} \equiv \hat{k} \Rightarrow$ increases in $\hat{k}$ decrease the probability of conflict. From Equations 3, 9, and 5, $\frac{\partial \gamma_i (R_i, F_i, g_j)}{\partial F_i} > 0 \forall (R_i, g_j)$, $g_i^* = \frac{\gamma_i e_i}{\gamma_i + \beta_i}$, and $\frac{\delta_i (D_i, g_i, b_i)}{\partial g_i} > 0 \forall (D_i, b_i)$. As such, increases in $F_2$ imply increases in $\delta_2^D$ but not $\delta_2^A$. Accordingly, $(\delta_2^D - \delta_2^A \mid F_2) > (\delta_2^D - \delta_2^A \mid F_2) \forall F_2 \Rightarrow (\hat{k} \mid D_2, F_2) - (\hat{k} \mid A_2, F_2) > (\hat{k} \mid D_2, F_2) - (\hat{k} \mid A_2, F_2) \forall F_2 > F_2$.

\[ \blacklozenge \]

Proposition 5. Pairs of democracies are less likely to fight than mixed dyads or jointly autocratic dyads.

Proof. Recall that the Conflict Equilibrium obtains iff $w > \frac{c_1 + c_2 + \delta_1 + \delta_2}{(\frac{c_1}{2} + c_1 + c_2 + \delta_1)} \equiv \hat{k} \Rightarrow$ increases in $\hat{k}$ decrease the probability of conflict. Accordingly, the probability of conflict is decreasing as $\bar{p} - \bar{p} \to 0$. From Equations 3, 9, and Proposition 3, $\frac{\partial \gamma_i (R_i, F_i, g_j)}{\partial g_j} > 0 \forall (R_i, F_i)$, $g_i^* = \frac{\gamma_i e_i}{\gamma_i + \beta_i}$, and
$g_i^{A*} > g_i^D \forall (F, g_j)$ \Rightarrow $(g_i^D | R_1 = A_1) > (g_i^{A*} | R_1 = D_1)$ and $(g_i^{A*} | R_1 = A_1) > (g_i^D | R_1 = D_1)$. By assumption, $p - p = g_2 \Rightarrow (p - p | R_1 = D_1, R_2 = D_2) < (p - p | R_1 = A_1, R_2 = D_2)$ and \((p - p | R_1 = D_1, R_2 = D_2) < (p - p | R_1 = D_1, R_2 = A_2) \Rightarrow (\hat{k} | R_1 = D_1, R_2 = D_2) > (\hat{k} | R_1 = A_1, R_2 = D_2)$ and \((\hat{k} | R_1 = D_1, R_2 = D_2) > (\hat{k} | R_1 = D_1, R_2 = A_2)\).

\[\square\]

**Proposition 6.** Challengers are never worse off when facing a democratic target.

*Proof.* Proposition 6 is proved by considering equilibrium behavior and $L_1$’s expected payoff in the four exhaustive and mutually exclusive cases that can occur in the model.

**Case 1:** $w \leq \hat{k}$ and $\theta = l$.

$L_1$ demands $x \equiv p + c_2$ and $L_2$ accepts \(\Rightarrow EU(L_1) = p + c_2\). As $p = \frac{m_1}{m_1 + m_2}$ and $c_1$ does not vary across regime type \(\Rightarrow EU(L_1 | R_2 = D) = EU(L_1 | R_2 = A)\).

**Case 2:** $w \leq \hat{k}$ and $\theta = h$.

$L_1$ demands $x \equiv p + c_2$, $L_2$ rejects $x$, $L_i$ chooses mobilization $\mu_i^* = g_i^{*\gamma} b_i^{*\beta}$, and Countries 1 and 2 fight \(\Rightarrow EU(L_1) = p - c_1 - \delta_1\). As $p = \frac{m_1}{m_1 + m_2}$, $m_2 = m_2 + g_2$, $(g_i^D | R_2 = D) < (g_i^D | R_2 = A) \Rightarrow (p | R_2 = D) > (p | R_2 = A) \Rightarrow EU(L_1 | R_2 = D) > EU(L_1 | R_2 = A)$.

**Case 3:** $w > \hat{k}$ and $\theta = l$.

$L_1$ demands $x \equiv p + c_2 + \delta_2$ and $L_2$ accepts \(\Rightarrow EU(L_1) = p + c_2 + \delta_2\). From Case 2, $(p | R_2 = D) > (p | R_2 = A) \Rightarrow EU(L_1 | R_2 = D) > EU(L_1 | R_2 = A)$. Further, from Equation 4, $(\delta_2 | R_2 = D) > (\delta_2 | R_2 = A) \Rightarrow EU(L_1 | R_2 = D) > EU(L_1 | R_2 = A)$.

**Case 4:** $w > \hat{k}$ and $\theta = h$.

$L_1$ demands $x \equiv p + c_2 + \delta_2$ and $L_2$ accepts \(\Rightarrow EU(L_1) = p + c_2 + \delta_2\). From Case 2, $(p | R_2 = D) > (p | R_2 = A) \Rightarrow EU(L_1 | R_2 = D) > EU(L_1 | R_2 = A)$. Further, from Case
3, $(\delta_2|R_2 = D) > (\delta_2|R_2 = A) \Rightarrow EU(L_1|R_2 = D) > EU(L_1|R_2 = A)$.

To summarize, $L_1$’s expected payoff is independent of the target’s regime type in Case 1 and is strictly higher against a democratic target than against an autocratic target in Cases 2, 3, and 4. It therefore follows that $L_1$ is never worse off when facing a democratic target.

References


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