

# Leader Preferences and Government Spending in Democracies and Dictatorships\*

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## Abstract

How do actors' preferences and domestic political institutions influence government spending when leaders and their constituents can differ in their policy preferences? A formal model developed to address this question indicates variation in winning coalitions' spending preferences and the cost of leader replacement results in leaders securing their survival with different spending distributions and varying in their responsiveness to their constituents' preferences. Consistent with the model's expectations, I find that, compared to democratic leaders, dictators spend more on the military and their preferences have a larger effect on military spending.

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A fundamental task of government is to finance state policies and programs through the allocation of scarce economic resources. Considerable variation exists in how governments distribute the resources they possess, particularly across regime type. Explanations for why democracies and non-democracies allocate their resources differently typically assume leaders are motivated by their own political survival and democratic incumbents are politically accountable and responsive to larger constituencies than are autocratic leaders (e.g., Bueno de Mesquita et al. 2003).<sup>1</sup> Rather than being motivated exclusively by their political survival, though, most political incumbents also have policy preferences (for example, Fenno 1978, Strøm 1990). How, then, do actors' preferences and political institutions interact to influence patterns of government spending?

I develop a game-theoretic model to analyze the relationship between leader survival and government spending when both an incumbent and her constituents hold preferences over how a government allocates resources. In equilibrium, the optimal mix of military and non-military spending is a function of a leader's and her constituents' policy preferences, a leader's motivation for implementing policy, and how difficult it is for a leader's winning coalition to replace her. The model indicates that a leader will rationally allocate spending distributions other than those preferred by her key constituents when she is not exclusively motivated by her political survival. However, a leader that deviates from the spending distribution preferred by her winning coalition faces a higher probability of losing office than a responsive leader. Variation in the spending preferences of democratic and non-democratic winning coalitions implies different optimal spending distributions for survival-motivated leaders across regime type. The model also suggests variation in the cost of replacement results in dictators allocating spending distributions closer to their ideal points than democrats. Statistical analyses of the period from 1950 to 2001 are consistent with the model's expectations. I find that, on average, dictatorships allocate more of their resources to the military than do democracies and dictators' preferences have a larger effect on military spending than do democrats' preferences.

This paper makes multiple contributions to our understanding of the relationship between political leaders and government policy. First, my results illustrate the utility of allowing variation in leaders' motivation for enacting policy and actors' policy preferences. Doing so allows for more specific predictions about political behavior than approaches that assume citizens do

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<sup>1</sup>The terms non-democracy, autocracy, dictatorship, and their respective derivatives are used interchangeably throughout this article.

not vary in their policy preferences. Further, allowing a leader to vary in the extent to which she is motivated by policy or survival concerns provides a useful framework for considering how policies vary with dynamic constraints on a leader's behavior (Clark and Nordstrom 2005). Second, my findings indicate that the degree to which an incumbent is responsive to her constituents' preferences is a function of her motivation for implementing policy. This qualifies the common claim that policy responsiveness is a defining characteristic of democracy (e.g., Dahl 1971, Putnam 1993). Third, the model developed here implies we should observe significant differences in the effect of leaders' and their constituents' preferences within democratic and non-democratic regimes.

The remainder of the paper proceeds as follows. The first section outlines the basic motivations all leaders have for enacting policy: securing their survival and pursuing their personal preferences. I then develop a simple model of the relationship between leader survival and government spending that allows an incumbent and her winning coalition to have preferences over the spending distribution and leaders to be motivated by policy outcomes and remaining in power. The model identifies the general dynamics underlying the relationship between government spending and leader survival that hold for all incumbents and their winning coalitions. The third section incorporates into the model systematic variation across regime type in the spending preferences of incumbents' winning coalitions and the cost of leader replacement. This allows us to see how two institutional characteristics of democracies and dictatorships lead to variation in the equilibrium behavior of leaders and winning coalitions. The fourth empirically assesses one of the model's expectations. The article concludes with a discussion of the larger implications of my findings for existing scholarship and future research.

## 1 Leader Motivations for Policy Decisions

Political incumbents have two basic motivations for enacting policies. Their first is to secure their political survival, which is done by maintaining the support of their winning coalition (Riker 1962, Bueno de Mesquita et al. 2003). An incumbent retains the support of her winning coalition by enacting their preferred policies, a process known as policy responsiveness (*inter alia*, Erikson, MacKuen and Stimson 2002, Burstein 2003). One of the most important ways in which an incumbent is responsive to her key constituents is by allocating scarce resources to their preferred policies and programs (Smith and Bueno de Mesquita 2011, Arena and Nicoletti 2014).

Consistent with this claim, scholars have demonstrated that patterns of military spending and social spending in democracies vary with public preferences across countries and over time (among others, Wlezien 1996, Soroka and Wlezien 2005, Brooks and Manza 2007).

Much of the explicit theorizing and empirical work on policy responsiveness has focused on democracies. This is unsurprising as it reflects the intuition that democratic politicians are accountable for their actions while dictators rarely have to answer for their behavior.<sup>2</sup> However, autocrats also secure their political survival through policy responsiveness. Key notes that even “the least democratic regime ... needs the ungrudging support of substantial numbers of its people. If that support does not arise spontaneously, measures will be taken to stimulate by tactical concessions to public opinion” (1961, pg. 3). More recently, selectorate theory argues all leaders retain the political support necessary to remain in power by allocating the resources available to them between public goods and private benefits (Bueno de Mesquita et al. 1999, 2003). Gandhi and Przeworski (2006, 2007) argue that autocratic leaders maintain their hold on political power partially through policy concessions. Similarly, a dictator keeps his ruling coalition satisfied and retains office through power sharing agreements and policy concessions in Svoboda’s (2009) model of authoritarian politics.

The preceding discussion makes clear that any leader interested in remaining in power, regardless of her state’s political institutions, has an incentive to enact her constituents’ preferred policies. What much of this literature misses, though, is that politicians are not solely motivated by retaining office. Politicians also have personal preferences that influence the policies they pursue (e.g., Fenno 1978, Wittman 1977, Strøm 1990).<sup>3</sup> As both leaders and their constituents hold policy preferences, incumbents can face a trade-off between enacting their preferred policy and the policy that best ensures they remain in power (Strøm 1990, Bender and Lott 1996).<sup>4</sup> The concept of “shirking” nicely captures this dynamic. Shirking occurs when an incumbent’s policy preferences differ from her constituents’ preferences and she pursues her preferred policy (e.g., Kalt and Zupan 1984, Bender and Lott 1996, Rothenberg and Sanders 2000). As the logic underlying policy responsiveness would predict, incumbents are more likely to lose office when they deviate from their constituents’ preferences (Canes-Wrone, Brady and Cogan 2002).

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<sup>2</sup>For example, Dahl argues “a key characteristic of a democracy is the continuing responsiveness of the government to the preferences of its citizens” (1971, pg. 1; see also Putnam 1993).

<sup>3</sup>A leader’s policy preferences are related to his or her political ideology or partisanship, but are also inherently idiosyncratic (Clark and Nordstrom 2005, Clark, Nordstrom and Reed 2008, Arena and Palmer 2009).

<sup>4</sup>This trade-off only obtains if a leader and her constituents prefer different policy outcomes. When a leader and her constituents have the same ideal point, there is no tension between an incumbent pursuing her preferred policy versus her constituents’ preferred policy.

Two factors significantly increase a leader's incentive to ignore her constituents' preferences. The first is when an incumbent is not motivated by remaining in power. Consistent with this idea, scholars have found that shirking is greatest when an incumbent cannot be re-elected due to term limits, lame-duck status, or retirement (Persson and Svensson 1989, Carey, Niemi and Powell 1998, Rothenberg and Sanders 2000). The political accountability literature offers a related explanation for why an incumbent would pursue policies different from those preferred by her constituents. Politicians have greater information about the state of the world and the likely effect of policies than do their constituents, whom possess preferences over policy options and a politician's competence (e.g., Canes-Wrone, Herron and Shotts 2001, Woon 2012). An incumbent politician can be either a delegate or a trustee to her constituents (Fox and Shotts 2009). A delegate will ignore her own expertise and pursue the policies preferred by her constituents. A trustee is willing to ignore her constituents' preferences and enact welfare maximizing policies. Accordingly, delegates are responsive to their constituents' preferences while trustees enact their personally preferred policy.<sup>5</sup>

Second, a leader is more likely to deviate from her constituents' preferred policy as the structural cost to her winning coalition of replacing her increases. For example, McGillivray and Smith (2008) demonstrate that rulers whom are difficult to remove are more likely to defect from interstate cooperation agreements that benefit the public than leaders whom are easily replaced by their winning coalitions. Institutional explanations of the democratic peace often rely on a similar logic. Claims that democratic incumbents are constrained by electoral accountability implicitly argue that dictators are able to deviate from the public's preferences due to the relative difficulty of removing a dictator from power (e.g., Huth and Allee 2002). Incumbents therefore are more likely to ignore constituent preferences and pursue their preferred policies as they become less motivated by survival concerns or the structural cost of leader replacement increases.

The next section develops a model of leader survival and government spending that incorporates insights from the preceding discussion.

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<sup>5</sup>Although framed differently, Kartik and McAfee's (2007) model of how politicians with "character" will deviate from the policy preferences of the median voter yields a similar insight.

## 2 A Model of Leader Survival and Government Spending

I model the relationship between leader survival and government spending as a game between country  $i$ 's incumbent leader ( $L_i$ ) and her winning coalition ( $W_i$ ).  $L_i$ 's strategy set is  $x_i \in [0, 1]$ , where  $x_i$  represents the proportion of government spending dedicated to military spending.<sup>6</sup>  $L_i$  and  $W_i$  hold single-peaked, symmetric preference profiles over  $x_i$ . The valuations of  $x_i$  for  $L_i$  and  $W_i$  are defined as the strictly concave functions  $z(x_i)$  and  $v(x_i)$ , respectively. I define  $x_L$  as  $L_i$ 's ideal  $x_i \Rightarrow \operatorname{argmax}_x z(x_i) = x_L \forall L_i$ . The ideal policy of the member of  $W_i$  holding the median preference over  $x_i$  is defined as  $x_w \Rightarrow \operatorname{argmax}_x v(x_i) = x_w \forall W_i$ .

I assume incumbents prefer to remain in power ( $I_i$ ) over being ousted ( $O_i$ ) by their winning coalitions ( $I_i > O_i$ ). However, political leaders vary in the relative extent they care about retaining office and seeing their preferred policy implemented. The term  $\alpha_i \in [0, 1]$  identifies the relative degree a leader's political fate and her valuation of the mix of military and non-military spending contribute to her utility. I define  $\alpha_i$  as a function of a leader's motivation for implementing policy ( $m_i \in [0, 1]$ , where zero represents a purely survival-motivated incumbent and one represents a purely policy-motivated incumbent) and the structural cost of removing her from power to her winning coalition ( $s_i \in (0, 1]$ ). The cost of removal does not enter into the decision calculus of a leader motivated exclusively by securing her personally preferred policy or remaining in power, but will influence an incumbent motivated by policy and survival concerns. More formally,  $\alpha_i$  is written as

$$\alpha_i(m_i, s_i) = m_i + (1 - m_i)(s_i) \tag{1}$$

Weighting the influence of  $s_i$  on  $\alpha_i$  by  $(1 - m_i)$  captures the idea that leaders who obtain less utility based on whether they remain in power are less influenced by the relative ease with which they can be removed from office.  $W_i$ 's strategy set is  $d_i \in \{r, k\}$ , where  $r_i$  replaces  $L_i$  and  $k_i$  keeps  $L_i$ . The indicator variable  $p_i$  takes on a value of 1 if  $W_i$  plays  $r_i$  and 0 if  $W_i$  plays  $k_i$ . Replacing a leader brings a benefit ( $b_i$ ) to a winning coalition.  $b_i$  is an exogenous preference shock to the model unknown at the beginning of the game that follows the uniform distribution  $U[l, h]$ , where  $l \leq 0$  and  $h > 0$  and arbitrarily large. The cumulative distribution function of  $b_i$  is written as  $F$ . This benefit can be thought of as  $W_i$ 's relative preference for a political challenger

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<sup>6</sup>The model developed here analyzes the distribution of government spending and does not speak to issues of taxation. This is because my theoretical focus is on how leaders allocate the economic resources they control and not how many resources they control à la Acemoglu and Robinson (2006) and many others.

over the incumbent leader.

The model assumes replacing an incumbent imposes a cost ( $c_i > 0$ ) on a winning coalition. This cost is a function of two factors. First, the cost of leader replacement is assumed to be an increasing function of how pleased the winning coalition is with the spending distribution ( $v(x_i)$ ). This captures the idea that it is costlier to remove a leader when the winning coalition is relatively happy with the incumbent. Second, and as discussed above, there are structural costs ( $s_i \in (0, 1]$ ) to removing any ruler (McGillivray and Smith 2008, Debs and Goemans 2010). We can think of  $s_i$  as the cost of replacing an incumbent due to a regime's political institutions regardless of how a winning coalition values the allocation of government resources. Accordingly,  $c_i$  is increasing in  $v(x_i)$  and  $s_i$ :

$$\frac{\partial c_i(v(x_i), s_i)}{\partial v(x_i)} \geq 0 \quad \forall s_i \quad (2)$$

$$\frac{\partial c_i(v(x_i), s_i)}{\partial s_i} \geq 0 \quad \forall v(x_i) \quad (3)$$

The utility functions for a leader and her winning coalition are written as follows:

$$U_{L_i} = \alpha_i(m_i, s_i)z(x_i) + (1 - \alpha_i(m_i, s_i))[p(b_i, c_i(v(x_i), s_i))O_i + (1 - p(b_i, c_i(v(x_i), s_i)))I_i] \quad (4)$$

$$U_{W_i} = \begin{cases} v(x_i) & \text{if } k_i \\ v(x_i) + (b_i - c_i(v(x_i), s_i)) & \text{if } r_i \end{cases} \quad (5)$$

The timing of the game is as follows:

1. Incumbent leader  $L_i$  distributes  $x_i$ .
2. Uncertainty over  $b_i$  is lifted.
3. Winning coalition  $W_i$  decides to replace ( $r_i$ ) or keep ( $k_i$ )  $L_i$ .

## 2.1 Solution

The game is solved for pure strategy subgame perfect equilibria using backwards induction. Beginning with the winning coalition's decision, it keeps the incumbent if and only if the cost of replacing her is greater than the benefit of installing a new leader:

$$W_i \text{ chooses } k_i \text{ iff } b_i < c_i(v(x_i), s_i) \text{ and } r_i \text{ otherwise.} \quad (6)$$

Equation 6 indicates that whether an incumbent is removed from office depends on the relative cost and benefit of replacement to her winning coalition. An incumbent therefore influences the probability she retains office through government spending. As the cost of leader replacement is increasing in how much her winning coalition values the spending distribution, a leader minimizes the probability she is removed from office by allocating her winning coalition's preferred mix of spending ( $x_W$ ). However, this does not imply a leader's optimal play is always to distribute  $x_W$  as not all leaders are exclusively interested in maximizing their probability of retaining office. We can see how a leader's personal valuation of  $x_i$  and whether she remains in power contribute to a leader's utility by examining the partial derivative of Equation 4 with respect to  $\alpha_i$ :

$$\frac{\partial U_L}{\partial \alpha(m_i, s_i)} = z(x_i) - [p(b_i, c_i(v(x_i), s_i))O_i + (1 - p(b_i, c_i(v(x_i), s_i)))I_i] \quad (7)$$

As  $\alpha_i$  increases, a leader's utility is increasingly influenced by her personal preferences over government spending while whether or not she retains office has less of an effect on her utility (the first term of Equation 7 is positive while the second term is negative). The optimal  $x_i$  for an incumbent therefore is a function of her preferred distribution of spending ( $x_L$ ), the distribution of spending that maximizes her chances of survival ( $x_W$ ), and the extent to which she derives utility from the spending distribution directly and/or her political survival ( $\alpha_i(m_i, s_i)$ ). Specifically,

$$x_i^* = \alpha_i(m_i, s_i)(x_L) + (1 - \alpha_i(m_i, s_i))(x_W) \quad (8)$$

It is worth providing the intuition behind Equation 8. An incumbent can derive utility from government spending directly as a function of her personal valuation of the mix of military and non-military expenditures and/or indirectly based on how the spending distribution influences whether she stays in power. If she derives utility exclusively from her personal preferences over government spending ( $\alpha(m_i, s_i) = 1$ ), then she will allocate her preferred mix of expenditures ( $x_L$ ). If a leader derives utility exclusively from retaining office ( $\alpha(m_i, s_i) = 0$ ), then she will allocate the distribution of spending that maximizes her likelihood of staying in power ( $x_W$ ).

If an incumbent derives utility from both the enacted spending distribution and whether she remains in power ( $0 < \alpha(m_i, s_i) < 1$ ), then her optimal allocation is a function of her and her key constituents' preferred spending distributions, weighted by  $\alpha(m_i, s_i)$ .

To demonstrate how  $x_i^*$  varies with  $\alpha_i(m_i, s_i)$ ,  $x_L$ , and  $x_W$ , Figure 1 presents  $x_i^*$  across all possible combinations of  $m_i$  and  $s_i$  given that the leader's personal preference is to allocate seventy-five percent of spending to the military ( $x_L = 0.75$ ) and the median member of her winning coalition prefers twenty-five percent of spending be dedicated to the military ( $x_W = 0.25$ ). The optimal distribution of spending is increasing in the surface plot's location on the z-axis and is represented by progressively darker colors. The structural costs of leader replacement to a winning coalition and the incumbent's motivation for enacting a particular spending distribution are located on the x-axis and y-axis, respectively.

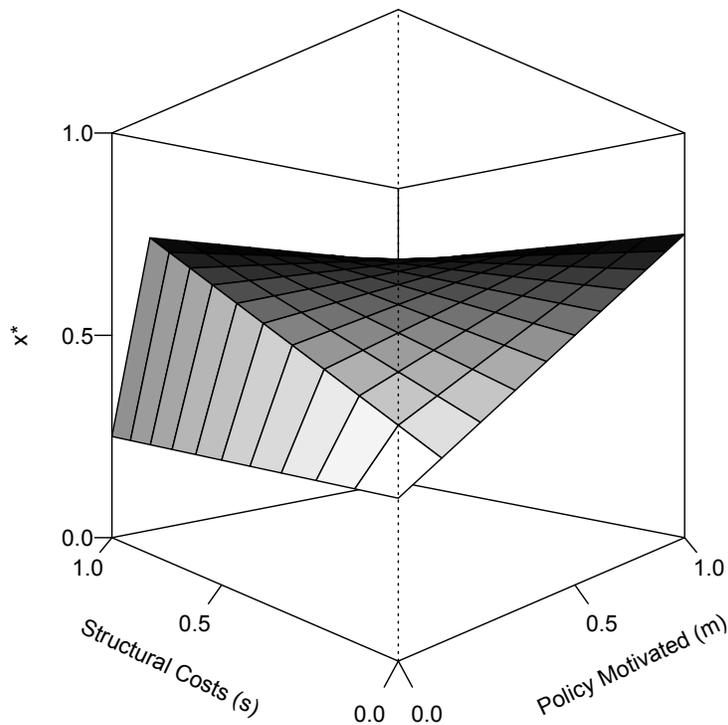


Figure 1:  $x^*$  as a function of  $x_L$ ,  $x_W$ , and  $\alpha(m, s)$ . Calculations assume  $x_L = 0.75$  and  $x_W = 0.25$ .

Figure 1 nicely illustrates three characteristics of equilibrium spending distributions. First, increasing the degree to which an incumbent is motivated by her policy preferences moves the optimal spending distribution closer to her ideal policy. We can see this in Figure 1 by holding the structural cost of removal constant at any value and noting the height and color of the surface plot as the extent to which she is policy-motivated increases. For example, assuming the structural cost of removal is 0.2,  $x^*$  increases from 0.43 to 0.51 when  $m_i$  increases from 0.2 to 0.4. Thus, leaders increasingly allocate spending distributions that reflect their personal preferences to the extent they are motivated by policy.

Second, unless an incumbent is purely motivated by survival or policy concerns,  $x^*$  gets closer to her ideal spending distribution as the structural costs of leader replacement increases.<sup>7</sup> Consider how  $x^*$  changes when a leader is twice as motivated by a desire to remain in power than seeing her preferred mix of military and non-military spending enacted ( $m_i = 1/3$ ). In this scenario, a leader will distribute  $x^* = 0.52$  when  $s_i = 0.3$  and  $x^* = 0.65$  when  $s_i = 0.7$ . Holding her motivation for implementing policy constant, then, increasing the structural cost of removal is associated with  $x^*$  moving away from the distribution preferred by the winning coalition and closer to the incumbent's preferred allocation of government spending. Substantively, this implies that the harder it is for a winning coalition to remove a leader, the more likely she is to deviate from her constituents' policy preferences.

Third, Figure 1 nicely highlights that an incumbent not exclusively motivated by her political survival will pursue policies in equilibrium that increase the probability she will be removed from office. Indeed,  $x^* = x_W$  if and only if a leader's only concern when implementing policy is how the policy influences her probability of survival. If a leader is at least marginally motivated by policy concerns (i.e.,  $m_i > 0$ ), she will allocate a mix of military and non-military spending that deviates from the distribution preferred by her key constituents. The model therefore captures the behavior of leaders who knowingly pursue policies that damage their prospects for remaining in power.

The model developed here identifies the general relationship between leader survival and government spending when a leader and her winning coalition hold policy preferences and an incumbent can be motivated by her political survival and/or personal preferences. One cost of the model's generality is that it abstracts away from the influence of regime type. The next

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<sup>7</sup>Recall that the costs of removal do not influence  $\alpha_i(m_i, s_i)$ , and thus  $x^*$ , when an incumbent is exclusively survival-motivated or policy-motivated (Equations 1 and 8).

section addresses this issue.

### 3 The Influence of Regime Type

Two differences between democracies and dictatorships are of particular importance to the relationship between leader survival and government spending: the spending preferences of the members of democratic and non-democratic winning coalitions and the relative cost of removing democratic and non-democratic incumbents. These respective differences and their implications for the formal model are discussed in turn.

#### 3.1 Spending Preferences of Winning Coalitions

The winning coalitions of autocratic and democratic incumbents systematically differ in their size and socio-economic composition. The relationship between the size of a leader's winning coalition and regime type is well understood: democratic incumbents have larger winning coalitions, in both absolute terms and relative to the size of a country's selectorate, than autocratic incumbents (Bueno de Mesquita et al. 1999, 2003).<sup>8</sup> Less appreciated, though, is the relationship between regime type and *who* gets into a leader's winning coalition. The winning coalitions of democratic leaders consist of proportionately more members of the general public and fewer civilian elites and members of the military than do the winning coalitions of autocratic incumbents. The comparatively small winning coalitions of autocratic leaders are made-up almost exclusively by members of the civilian elite and/or military (Bueno de Mesquita et al. 2003), with the relative influence of the civilian elite and military varying across types of non-democracies (*e.g.*, civilian dictatorship vs. military junta).<sup>9</sup> The political institutions of contemporary democracies make it impossible for a democratic incumbent to retain office with only the support of her country's civilian elite and/or military. The relatively high levels of political participation and contestation associated with democracy result in democratic leaders requiring the support of a large portion of the general public to remain in power (among others, Dahl 1971, Boix 2003). It therefore follows that democratic winning coalitions are composed of proportionately more members of the general public and fewer members of a society's civilian

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<sup>8</sup>Bueno de Mesquita et al. (2003) are clear that "a large selectorate and a large winning coalition do not in themselves define a democracy" (pg. 72). However, a large winning coalition is viewed as a necessary condition for democratic government: "democracies require larger coalitions than autocracies or monarchies" (pg. 72).

<sup>9</sup>Space considerations prevent me from adequately investigating variation in the relationship between government spending and leader survival among types of non-democracies. I briefly return to this issue in the concluding section.

and military elite than are autocratic winning coalitions. This implies that the median voter in a democratic leader's winning coalition is a member of the general public while the median "voter" in a dictator's winning coalition is a member of the civilian elite or military.

This variation in the composition of autocratic and democratic winning coalitions has implications for the model developed above because, in general, a society's elite and public hold different preferences over patterns of government spending. Compared to the elite, members of the public prefer relatively more resources be allocated to social spending and fewer resources be allocated to military spending.<sup>10</sup> This claim follows from four observations. The first two concern the preferences of the public and civilian elite over social spending. First, the general public derives more direct benefits from social spending than do the wealthy civilian elite, whom can provide themselves with the services that the public receives via the welfare state.<sup>11</sup> It should be highlighted that this is the case with all means-tested social welfare programs by definition. Second, spending on social programs typically is 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 public. It then follows that the general public should prefer its government allocate more of its resources to social spending than the civilian elite. This claim is consistent with the overall negative relationship between income and support for the welfare state in the United States and Europe (Cook and Barrett 1992, Jæger 2006) and research on the respective preferences of the general public and the wealthy in the United States (Gilens 2009, Page, Bartels and Seawright 2013).

The third and fourth observations concern the preferences of the public and military over military spending. The third is that military training socializes members of a state's armed forces to value a stronger military and favor higher military spending than the civilian population (Huntington 1957). Fourth, the public and members of the military have reasons to assess military spending beyond what is required for national security differently. All citizens benefit from the military expenditures needed to provide the public good of national security. Military

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<sup>10</sup>To be clear, I am not claiming that all members of the general public prefer higher social spending and lower military spending than all members of the civilian elite and military. Instead, drawing on existing research, I argue that, in general, members of the public prefer more social spending and less military spending than the wealthy elite and members of the armed forces.

<sup>11</sup>Members of the 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 have a longer life-expectancy due to government spending on social programs.

spending beyond this level can crowd out consumption spending popular among the public (Fordham and Walker 2005). However, military expenditures over and above what is necessary for national security finances private benefits and club goods for members of the military.<sup>12</sup> These private and club goods include, but are not limited to, higher salaries for members of the military, the ability to purchase goods and services at reduced prices at base exchanges, and free or subsidized housing.

Public opinion research supports the claim that the public and members of the military have different preferences over military spending. Bachman, Blair and Segal (1977) find that members of the military prefer higher military spending than do members of the public. Addressing a guns-versus-butter trade-off, Holsti (1998, 2001) and Szayna et al. (2007) find that members of the public are more likely than members of the military to think that military spending should be decreased in order to increase education spending. Considered jointly, these observations imply that, in general, members of the public prefer lower military spending and higher social spending than members of the military and/or the wealthy civilian elite.

Due to variation in the political representation of the elite and public across regime type and their spending preferences, the median member of a democratic winning coalition prefers his government allocate fewer resources to military spending and more resources to social spending than the median member of a dictator’s winning coalition. It is straightforward to incorporate this insight into the model. Define a state’s form of government as  $g_i \in \{A, D\}$ , where  $A$  represents an autocracy and  $D$  represents a democracy. As the distribution of spending preferred by the median member of an incumbent’s winning coalition is defined as  $x_W$ , variation in the preferred spending distribution of the median members of autocratic and democratic leaders’ winning coalitions is represented by the following inequality:

$$x_W^D < x_W^A \tag{9}$$

### 3.2 The Cost of Leader Removal

The relative cost of removing an incumbent leader from power systematically varies as a function of regime type. Replacing a democratic leader with a domestic challenger requires that the incumbent be defeated in her re-election bid. Voting for the opposition in an election

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<sup>12</sup>See Smith and Bueno de Mesquita (2011) and Arena and Nicoletti (2014) on the relationship between club goods and leader survival.

is a relatively costless act of political participation in a democracy (Lake and Baum 2001). Non-democratic incumbents, in contrast, commonly are removed from power through irregular events like a coup or revolution (Chiozza and Goemans 2011). Participation in such events is much riskier and costlier than voting for a domestic challenger in a democracy (McGillivray and Smith 2008). Thus, the structural cost of leader replacement is lower for democratic winning coalitions than it is for the winning coalitions of non-democratic leaders.

The importance of this variation in the cost of removing a leader is hard to overstate. Debs and Goemans (2010) argue that the “costliness of replacing rulers is a significant, if not the most significant, difference between dictatorship and democracy” (pg. 435). This fundamental difference in autocratic and democratic politics is overlooked in the model presented in the previous section. However, it can be incorporated into the model by constraining the structural cost of leader replacement to a winning coalition for a given valuation of  $x_i$  to be higher in non-democracies than in democracies:

$$s_i^D < s_i^A \forall v(x_i) \tag{10}$$

### 3.3 Formal Results

Accounting for variation in the spending preferences of winning coalitions and the relative cost of removing an incumbent across regime type yields a number of insights concerning the relationship between leader survival and government spending. I focus on three here. Following the logic of backwards induction, I begin with the winning coalition’s decision to remove a leader.

**Proposition 1**  $\operatorname{argmin}_x F(c_i(v(x_i), s_i)) \mid g_i = D < \operatorname{argmin}_x F(c_i(v(x_i), s_i)) \mid g_i = A$ .

*Proof.*  $L_i$  minimizes  $F(c_i(v(x_i), s_i))$  with the  $x_i$  that maximizes  $c_i(v(x_i), s_i)$ . From Equation 2,  $c_i(v(x_i), s_i)$  is increasing in  $v(x_i) \forall s_i$ . As  $\operatorname{argmax}_x v(x_i) = x_w$ , then  $\operatorname{argmax}_x c_i(v(x_i), s_i) = x_w \forall s_i \Rightarrow \operatorname{argmin}_x F(c_i(v(x_i), s_i)) \forall s_i$ . Given Equation 9,  $\operatorname{argmax}_x v(x_i) \mid g_i = D < \operatorname{argmax}_x v(x_i) \mid g_i = A \Rightarrow \operatorname{argmin}_x F(c_i(v(x_i), s_i)) \mid g_i = D < \operatorname{argmin}_x F(c_i(v(x_i), s_i)) \mid g_i = A$ .

□

Proposition 1 indicates the distribution of spending that minimizes the probability a democratic leader is removed from power contains relatively more social spending and relatively less

military spending than the distribution of spending that minimizes the probability a dictator is removed from office. While she might rationally allocate a different mix of military and social spending (see Equation 8 and Figure 1), a leader minimizes her probability of being replaced by providing her winning coalition with their preferred distribution of government spending. Members of the public generally prefer more social spending and less military spending than do the civilian elite or military and the median member of democratic winning coalitions is drawn from the general public while the median member in an autocratic winning coalition hails from the military or civilian elite. Accordingly, the spending distribution that maximizes the probability a democratic leader remains in power contains more social spending and less military spending than the analogous combination of spending for a dictator. This result is consistent with the observation that, at least during times of war, increases in military spending and decreases in social spending increases the probability a democratic leader is removed from power but not the probability a dictator is removed from power (Carter Forthcoming).

Proposition 2 concerns how variation in the preferences of a leader's winning coalition influences optimal spending in democracies and dictatorships.

**Proposition 2** If  $0 \leq m_i < 1$ , then  $(x_i^* | g_i = D) < (x_i^* | g_i = A) \forall s_i$ .

*Proof.* From Equations 8 and 1,  $x_i^* = \alpha_i(m_i, s_i)(x_L) + (1 - \alpha_i(m_i, s_i))(x_W) \Rightarrow x_i^* = (m_i + (1 - m_i)(s_i))(x_L) + (1 - (m_i + (1 - m_i)(s_i)))(x_W)$ . From Equation 9,  $x_W^D < x_W^A \Rightarrow (x_i^* | g_i = D) < (x_i^* | g_i = A) \forall s_i$  if  $0 \leq m_i < 1$ . □

Proposition 2 claims that, as long as they are not exclusively motivated by policy outcomes, democratic incumbents will allocate more resources to social spending and fewer resources to military spending than dictators in equilibrium. The logic underlying this result is that optimal distributions of government spending will be influenced by the preferences of a leader's winning coalition as long as an incumbent is at least marginally motivated by a desire to remain in power (i.e.,  $0 \leq m_i < 1$ ). Given variation in the spending preferences of democrats' and dictators' key constituents, it follows that, as long as they care about their political survival, optimal distributions of government spending will be biased towards more military and less non-military spending for dictators and less military and more non-military spending for democrats. Substantively, Proposition 2 provides a rational explanation for the empirical observations that, compared to autocracies, democracies generally spend less on the military and more on social

spending (among others, Brown and Hunter (1999), Fordham and Walker (2005), and Huber, Mustillo and Stephens (2008)).

Propositions 1 and 2 follow from the assumption that the median member of a democratic leader's winning coalition prefers less military spending and more social spending than the median member of an autocrat's winning coalition. It is instructive to consider what happens if this assumption is changed. If we assume the median members of autocratic and democratic winning coalitions do not vary in their spending preferences, then the model implies no variation in the mix of spending that maximizes an incumbent's probability of survival or the spending distribution allocated by survival-motivated leaders as a function of regime type. Alternatively, we could assume the public prefers lower social spending and higher military spending than the civilian elite and military. The model implies two things given this assumption. One, the mix of spending that maximizes the probability a democratic leader retains office contains relatively less social spending and more military spending than the corresponding spending distribution for an autocratic leader. Two, survival-motivated dictators should allocate more resources to social spending and fewer resources to military spending than survival-motivated democrats, an expectation that runs counter to the empirical research cited above. Thus, the model is consistent with a set of known empirical regularities given the assumption that the public prefers more social and less military spending than the civilian elite or military, but not when this assumption is changed.

Proposition 3 addresses how the structural cost of removing a democratic leader and a dictator from power influences the spending distributions allocated by leaders motivated by policy and survival concerns.

**Proposition 3**  $(|x_i^* - x_L| |g_i = A) < (|x_i^* - x_L| |g_i = D) \forall 0 < m_i < 1$

*Proof.* From Equation 1,  $\alpha_i(m_i, s_i) = m_i + (1 - m_i)s_i$  if  $0 < m_i < 1 \Rightarrow \frac{\partial \alpha_i(m_i, s_i)}{\partial s_i} \geq 0 \quad \forall 0 < m_i < 1$ . From Equation 10,  $s_i^D < s_i^A \Rightarrow \alpha_i(m_i, s_i^D) < \alpha_i(m_i, s_i^A) \forall 0 < m_i < 1$ . Given Equation 8, it follows that  $(|x_i^* - x_L| |g_i = A) < (|x_i^* - x_L| |g_i = D) \forall 0 < m_i < 1$ .

□

Proposition 3 indicates a dictator will allocate a distribution of government spending closer to his ideal spending mix than will a democratic leader when both are motivated by policy and survival concerns. This result is driven by how the structural costs of leader replacement and an incumbent's motivation for enacting policy influence equilibrium behavior. A leader

driven by policy and survival considerations is constrained by her winning coalition's preferences to the extent they can easily remove her from power. Accordingly, the equilibrium spending distribution will be closer to a leader's ideal point as the structural cost of replacement increases (recall Figure 1). The cost of removing an incumbent across regime type therefore implies that dictators will allocate spending distributions closer to their ideal points than democrats when leaders are motivated by survival and policy outcomes.

## 4 Empirical Analysis

The previous section derives three empirical implications from the formal model. Existing research documents that relatively higher military spending and relatively lower social spending is 1) more likely to result in a democratic leader being removed from office than a dictator (Carter Forthcoming); and 2) more likely to be observed in dictatorships than in democracies (among others, Bueno de Mesquita et al. 2003, Fordham and Walker 2005, Huber, Mustillo and Stephens 2008). The remainder of the paper, therefore, is focused on analyzing Proposition 3: dictators' preferences have a larger effect on allocations of government spending than do democratic leaders' preferences.

Empirically assessing Proposition 3 requires four variables. The first is a measure of the resources a state allocates to military spending. I operationalize *Military Spending* as a state's defense burden, or the percent of a country's gross domestic product (GDP) allocated to the military in year  $t$ . A state's defense burden is the traditional indicator of national military spending in the defense economics literature (e.g., Sandler and Hartley 1995).<sup>13</sup> *Military Spending* uses the National Material Capabilities data set (Singer, Bremer and Stuckey 1972) for expenditure data and GDP data from Gleditsch (2002).

The second required variable is a measure of leaders' preferences regarding the distribution of government spending. Empirically identifying actors' preferences is notoriously difficult. One of the principle issues is that preferences are not directly observable; rather, they are latent. Motivated by this insight, the measure of leader preferences used here was developed using latent variable modeling techniques. Latent variable models are used increasingly in political science to measure concepts that are not directly observable; including legislators'

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<sup>13</sup>By explicitly accounting for variation in gross levels of economic resources across countries, standardizing spending over GDP reflects the idea that government spending mirrors the relative preferences and priorities of a state's leadership better than a measure of raw expenditures (Sandler and Hartley 1995).

ideology (Poole and Rosenthal 1991), judges' ideology (Martin and Quinn 2002), regime type (Pemstein, Meserve and Melton 2010), states' preferences over the international status quo (Reed et al. 2008), and standards of human rights accountability (Fariss 2014). The measure used here was developed by Carter and Smith (2016) to model leaders' latent hawkishness with respect to using military force. Carter and Smith use a hierarchical Rasch model implemented with Bayesian methods in Stan (Carpenter et al. 2016) to estimate leaders' latent preferences based on twenty-six personal attributes and background experiences drawn from the leader-level version of the LEAD data (Ellis, Horowitz and Stam 2015).<sup>14</sup> The resulting measure, *Leader Hawkishness*, has a mean of 0.1 and ranges from minimum of -2.35 to a maximum of 2.16. While this measure was not developed to proxy leaders' preferences over government spending, leaders with hawkish preferences likely prefer relatively higher military spending and lower social spending than leaders with dovish preferences. Figure 2 presents a histogram and density plot of *Leader Hawkishness* for the universe of political leaders in the interstate system between 1950 and 2004.

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<sup>14</sup>A full list of the attributes used to estimate *Leader Hawkishness* is included in the appendix. The leader-level LEAD data is available at <https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/ZK3FYV>.

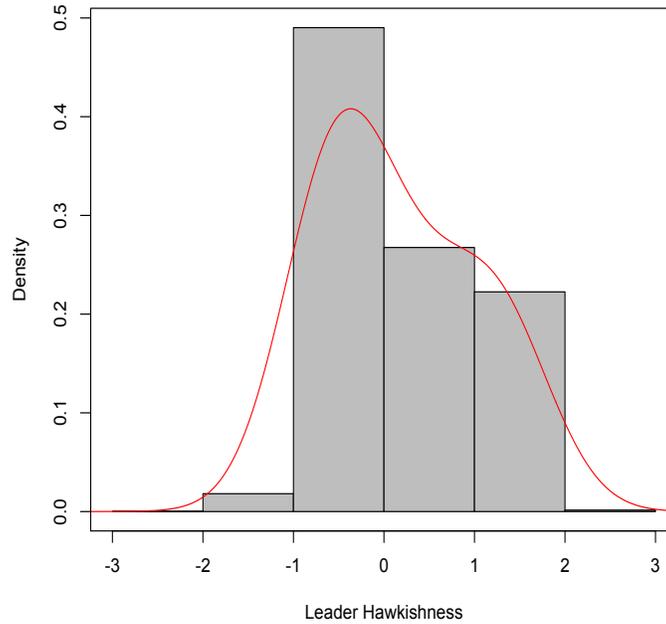


Figure 2: Latent Leader Hawkishness

The third measure required to assess Proposition 3 is an indicator of regime type. *Democracy*, is coded 1 in year  $t$  if a leader's government has a value of  $+7$  or greater on the 21-point *Polity2* index (Marshall and Jaggers 2005) and 0 otherwise. *Democracy* takes on a value of 1 in approximately 32% of the observations in the data set. I pool types of non-democracies for three reasons. First, my theoretical argument distinguishes between democracies and non-democracies, not among democracies and types of authoritarian regimes. Empirically discriminating between democracies and non-democracies, therefore, more closely fits with my theoretical argument and demonstrates greater construct validity than an approach that distinguishes among non-democracies. Second, pooling non-democracies does not bias my statistical analyses in favor of my argument. My statistical estimates reflect mean differences in spending between all democracies and all non-democracies. If the relationship varies among autocracies, pooling dictatorships could weaken my statistical results by increasing inefficiency (King, Keohane and Verba 1994). In this scenario, disaggregating types of authoritarian regimes would improve the efficiency of the statistical estimates, but would come at the price of moving the empirical analyses further away from the theoretical argument. Third, disaggregating authoritarian regimes

would substantially complicate my statistical analyses due the number of interaction terms that would be required to produce unbiased estimates (e.g., Braumoeller 2004, Brambor, Clark and Golder 2006).<sup>15</sup>

The fourth variable required to assess Proposition 3 is an interaction term between *Democracy* and *Leader Hawkishness*. This allows me to identify whether the effect of a leader’s preferences on a state’s defense burden varies across regime type. If leaders’ preferences have a stronger effect on military spending in dictatorships than they do in democracies, we should observe more variation in the predicted values of *Military Spending* across the range of *Leader Hawkishness* in non-democracies than in democracies.<sup>16</sup>

In addition to the theoretically relevant explanatory variables, the statistical model accounts for a set of factors that influence military spending. I control for a state’s involvement in an *Interstate War* or a *Civil War* using a pair of a dichotomous indicators, respectively based on the ICB project (Brecher and Wilkenfeld 1997) and the UCDP/PRIO Armed Conflict Database (Gleditsch et al. 2002). I control for *GDP per capita* as, all else equal, a state’s defense burden is generally decreasing in its economic development given that military spending is an inferior good. *Trade Openness* often is associated with larger states (Cameron 1978), suggesting a positive relationship between *Trade Openness* and military spending. I do not include a state’s CINC score (Correlates of War 2001) in the model because the numerator of *Defense Burden* (annual military expenditures) is part of the CINC index. Using a state’s CINC score to proxy resources therefore could result in a spurious relationship as increases in a state’s military spending would necessarily result in increases in both the dependent variable and a state’s CINC score.

Time-series cross-sectional data present multiple methodological challenges concerning temporal dynamics and unit heterogeneity. I focus first on issues related to modeling dynamics. Panel unit root tests indicate that *Military Spending* is not integrated; however, its value at time  $t$  is correlated with its value at  $t - 1$  at 0.84 with a state-year unit-of-analysis. Diagnostics indicate that statistically significant autocorrelation exists even after including a one-year lag of the dependent variable in the models. However, after including both a one-year lag and a two-year lag of the dependent variable no significant autocorrelation remains among the errors.<sup>17</sup>

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<sup>15</sup>The most precise treatment of this issue is given by Braumoeller (2004), who writes that “In any interaction of  $k$  independent variables, a full set of  $\sum_{k=1}^n \binom{n}{k}$  coefficients must be estimated to avoid forcing the estimated hyperplane to assume a shape that may not conform to the general tendency of the pointcloud that it is intended to describe” (pg. 811).

<sup>16</sup>Put differently, the slope associated with *Leader Hawkishness* should be more positive when *Democracy* is equal to 0 than when *Democracy* is equal to 1.

<sup>17</sup>More specifically, errors at  $t - 1$  are a statistically significant predictor of the errors at  $t$  when only

The statistical models therefore include  $MilitarySpending_{t-1}$  and  $MilitarySpending_{t-2}$  as explanatory variables.

Concerning cross-sectional issues, failure to account for unit heterogeneity in the dependent variable can lead to faulty inferences. Scholars commonly model unit heterogeneity with fixed-effects or random effects estimators (Cameron and Trivedi 2005). Random effects models are ill-suited for time-series cross-sectional analyses because they rely on the assumptions that unit effects are uncorrelated with the explanatory variables and are independently and identically distributed, both of which are violated by time series cross-sectional data (Cameron and Trivedi 2005). I therefore estimate a linear regression model with fixed country effects to address unmodeled unit heterogeneity. Additionally, the models use robust standard errors clustered by country in order to account for within-panel correlation among the errors.

*Amelia II* was used to address concerns about missing data (Honaker, King and Blackwell 2007). Multiple imputation of missing observations helps avoid the inefficiency and selection bias associated with listwise deletion and is more accurate than single imputation (King et al. 2001, Honaker, King and Blackwell 2007). The multiple imputation model was specified with one-year lags, one-year leads, and logical or empirical upper and lower bounds of variables with missing observations in order to improve the predictive performance of the imputation model (Honaker, King and Blackwell 2007, Honaker and King 2010). Further details about the imputation process are available in the appendix. The multiple imputation model produced five data sets of 7,935 leader-year observations (1,431 leaders from 162 countries) that I then converted to state-year data sets of 6,684 observations in order to deal with the autocorrelation in *Military Spending*.

Table 1 presents the mean coefficients and corrected standard errors yielded by the estimation of identically specified fixed effects models on each of the five imputed data sets.<sup>18</sup> Unfortunately, the interaction terms limit Table 1's utility for assessing Proposition 3 for two reasons. First, the coefficient associated with any variable tells us the impact of an increase in that variable when other constituent terms and interaction terms are equal to zero (Braumoeller 2004). Second, the standard error associated with a coefficient reflects the uncertainty around the estimated effect of

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$MilitarySpending_{t-1}$  is included in the models but are a statistically insignificant predictor of the errors at  $t$  when  $MilitarySpending_{t-1}$  and  $MilitarySpending_{t-2}$  are included in the models.

<sup>18</sup>The standard errors are computed by taking the square root of  $T = \bar{U} + (1 + \frac{1}{m})B$ , where  $T$  is the total variance associate with the mean coefficient estimate,  $\bar{U}$  is the within-imputation variance of the estimated coefficient [ $\bar{U} = \frac{1}{m} \sum_{i=1}^m U_i$ ],  $B$  is the between-imputation variance [ $B = \frac{1}{m-1} \sum_{i=1}^m (\hat{Q} - \bar{Q})^2$ ], and  $1 + \frac{1}{m}$  is a correction factor to account for simulation error in  $\bar{Q}$  (Rubin 1987).

Table 1: Leader Hawkishness, Regime Type, and Military Spending, 1950-2001

<i>Military Spending</i>	$\beta$	s.e.
Leader Hawkishness	0.11	0.01**
Democracy	-0.19	0.04**
Leader Hawkishness*Democracy	-0.13	0.02**
Interstate War	1.37	0.29**
Civil War	0.12	0.01**
GDP per Capita	0.01	0.06
Trade Openness	0.44	0.10**
Defense Burden <sub>t-1</sub>	0.78	0.02**
Defense Burden <sub>t-2</sub>	-0.12	0.03**
Constant	0.83	0.10**
Observations	6,318	
Overall R <sup>2</sup>	0.72	
F-statistic	120.83	
Prob > F	< 0.01	

Two-tailed: \*:  $p \leq 0.05$ ; \*\*:  $p \leq 0.01$ .

a variable when other constituent terms are equal to zero and does not take into consideration the covariance among that variable, the other constituent terms, and the interaction terms (Brambor, Clark and Golder 2006). These two issues preclude us from accurately identifying the effect of leaders' preferences on government spending in democracies and dictatorships using Table 1. I therefore focus my discussion on a set of post-estimation simulations. The simulations are based on 1,000 draws from multivariate normal distributions based on the coefficient and variance-covariance matrices of each model estimated on each of the five imputed data sets. Continuous control variables were set to their mean values while nominal control variables were set to their median values for the simulations. The results of the simulations are reported in Figure 3.

Figure 3 presents the mean predicted defense burden of a democracy (dashed red line) and a dictatorship (solid blue line) across the range of *Leader Hawkishness*, with shaded 95% confidence intervals. The rug plot at the bottom of the figure represents the distribution of *Leader Hawkishness*. The results in Figure 3 are consistent with the model's claim that leaders' preferences should have a larger effect on government spending in dictatorships than in democracies. In a democracy, an extreme dove is expected to allocate 2.1% of GDP (95% CI = 1.74-2.47) to military spending while an extreme hawk is predicted to have a defense burden of 2.01% (1.59-2.44). This 0.09 reduction is statistically insignificant. In contrast, an extreme dove in

a dictatorship is expected to have a defense burden of 2.77% (2.34-3.22) while an extremely hawkish dictator is predicted to allocate 3.24% (2.98-3.51). This 0.48 percentage point increase in *Military Spending* across *Leader Hawkishness* in non-democracies is statistically significant at the 0.05 level.

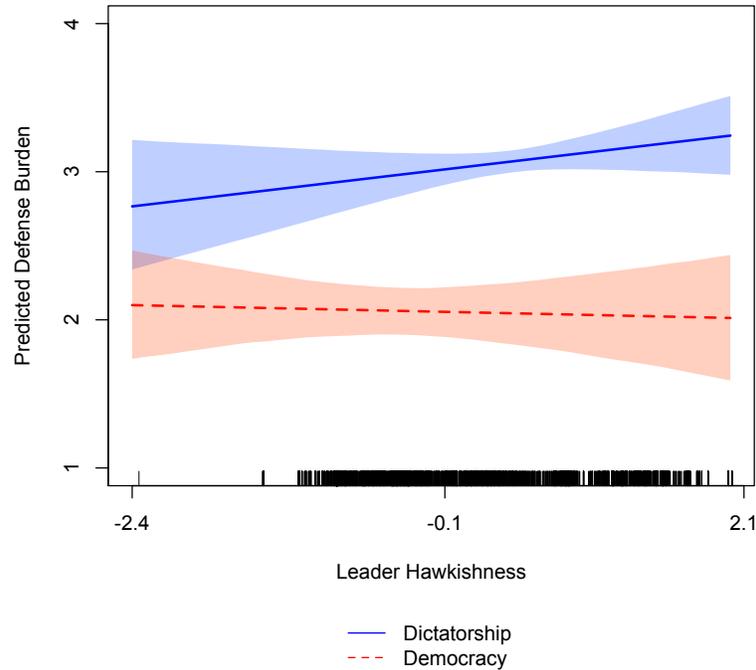


Figure 3: Military Spending in Democracies and Dictatorships across Leader Hawkishness

Figure 3 is also consistent with the formal model's expectation that dictatorships should generally allocate more of their resources to military spending than democracies (see also Fordham and Walker 2005, Carter and Palmer 2015). This point is made more explicit in Figure 4, which plots the difference in the predicted defense burdens of democracies and dictatorships as a function of *Leader Hawkishness*. Figure 4 indicates democracies spend less on their military than dictatorships across the full range of *Leader Hawkishness*, but that the difference grows as leaders hold increasingly hawkish preferences over the use of force. Specifically, the expected difference in democratic and authoritarian defense burdens doubles across the range of *Leader Hawkishness*, from -0.66% [-1.22,-0.12] given extreme dovish leaders to -1.23% [-1.71,-0.76] given

extreme hawkish leaders.

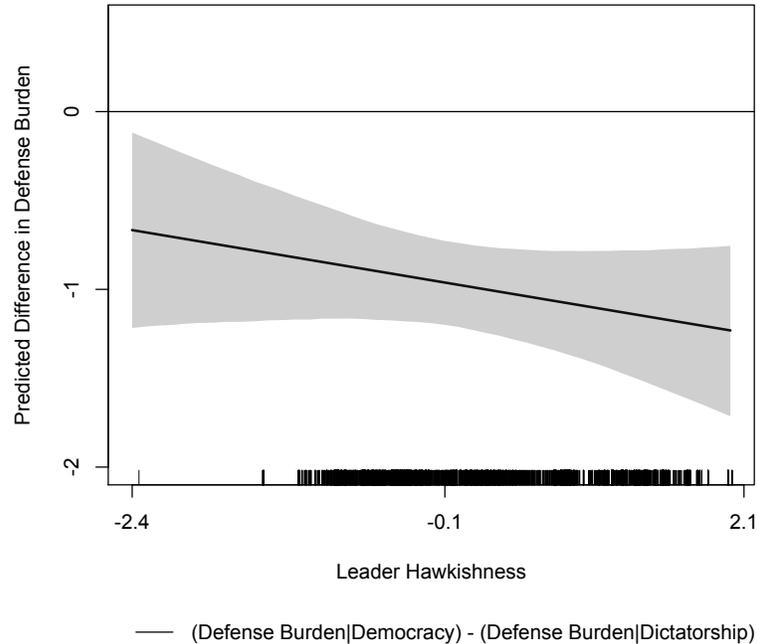


Figure 4: Differences in Military Spending across Leader Hawkishness.

## 5 Conclusion

Arguably the most salient trend in the contemporary study of international relations and comparative politics has been the increased theoretical and empirical focus on political leaders and the choices they make. Some of the most important decisions facing a leader concern choosing which government programs and policies to finance with the scarce economic resources available to her. I developed a model of the relationship between leader survival and government spending when both the incumbent and her winning coalition hold preferences over how a government allocates resources and a leader can be motivated by securing her political survival and/or the distribution of government spending. The model indicates that whether a leader will rationally deviate from her constituents' policy preferences is a function of her motivation

for enacting policy and the structural costs her winning coalition must pay to remove her from power. Variation across regime type in the preferences of winning coalitions and the structural costs of leader replacement result in different equilibrium behavior for democratic and non-democratic leaders and winning coalitions. I found statistical support for a pair of the model's empirical implications during the period from 1950 to 2001. I close with a brief discussion of two implications of the findings presented here and avenues for future research.

First, the article demonstrates the fruitfulness of allowing variation in citizens' policy preferences and leaders' motivation for enacting policy. Selectorate theory assumes that all citizens hold the same policy preferences and winning coalitions vary only in their size (Buono Mesquita et al. 2003). These assumptions imply that the citizens whom can determine whether an incumbent remains in power are perfectly substitutable. In contrast, I argue socio-economic status influences policy preferences, which implies the policies that best secure a leader's political survival vary as a function of the composition of her winning coalition. If incumbents are at least partially motivated by their political survival and retain office through policy responsiveness, allowing for variation in their constituents' policy preferences provides substantial leverage in predicting political behavior.

One natural extension to the argument presented here is to consider the relationship between government spending and leader survival among types of non-democracies. It is straightforward to differentiate non-democracies by whether the civilian elite or military have greater influence in determining whether a dictator remains in power. Weeks (2012) argues that current and former members of the armed forces place a higher value on having a strong military than the civilian elite. Given these respective spending preferences and the equilibrium results reported here, we would expect military dictatorships to allocate proportionately more resources to the military than civilian-led dictatorships, on average. We also would expect that lower levels of military spending should be more likely to threaten the survival of military dictatorships than civilian-led dictatorships. Further analysis of the relationship between government spending and leader survival among non-democracies must be left to future research.

The idea that equilibrium policy outcomes are a function of a leader's preferences and her motivation for implementing policy has implications beyond patterns of government spending. For example, a growing literature is beginning to investigate how lame ducks differ from democratic leaders constrained by the prospects of re-election (e.g., Zeigler, Pierskalla and Mazumder 2013). Electoral accountability therefore represents a dynamic constraint on democratic leaders' be-

havior (Clark and Nordstrom 2005). The approach taken here suggests that removing electoral accountability should reduce the extent to which a leader is concerned with survival and allow her to pursue her preferred policies. This implies that the effect of term limits on policy should be conditional on a leader's preferences. Accordingly, we might expect conservative and liberals to behave differently with respect to patterns of taxation and spending, protectionists and free traders to behave differently with respect to trade behavior, and isolationists and internationalists to behave differently with respect to honoring interstate agreements when they are no longer constrained by the desire to be re-elected. More generally, the results presented here suggest considering variation in preferences and a leader's motivation for enacting policy is useful for understanding political behavior within and across leaders, governments, and regime type.

Second, and related to the previous point, the formal model indicates that policy responsiveness is a function of an incumbent's motivation for implementing policies and the structural cost of replacement. Leaders motivated by retaining office and those leaders whose winning coalitions can easily remove them from power will be more responsive to their constituents' preferences. Given variation in the cost of leader replacement across regime type, this implies that democratic leaders should be more responsive than dictators, a finding consistent with most people's intuition. However, this result only holds when a leader cares about retaining office. A leader unconcerned with her political survival will ignore her constituents and implement her preferred policies regardless of the cost of removal. This implies that a dictator who wants to remain in power will be more responsive to her constituents' preferences than a democratic incumbent unconcerned with her survival. While this claim might seem unreasonable at first blush, I would argue that a lame duck democrat has less of an incentive to enact her constituents' preferred policies than a dictator who likely will be killed or jailed if his winning coalition decides to remove him from power (see Debs and Goemans (2010) on the perils of being an ex-dictator). Thus, the model's equilibrium results call into question scholarship that argues policy responsiveness is a defining feature of democracy (e.g., Dahl 1971, Putnam 1993).

The relationship between political survival and government spending is complex. This paper demonstrates how patterns of spending and leader survival affect one another when an incumbent and her constituents have preferences over how a government spends its resources and leaders are not exclusively motivated by remaining in power. The theoretical and empirical findings presented here have implications for how we interpret existing scholarship and suggest several avenues for future research.

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## 6 Appendix

As noted in the main text, *Leader Hawkishness* was developed in Carter and Smith (2016) using twenty-six leader attributes and background experiences drawn from the LEAD data set (Ellis, Horowitz and Stam 2015). The twenty-six attributes are provided in Table 2. A description of their coding can be found in the codebook associated with the LEAD data, available at <https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/ZK3FYV>. The variables in the first column of Table 2 were used to estimate *Leader Hawkishness* based on theoretical grounds. The remaining nineteen variables were included based on empirical grounds. Specifically, Carter and Smith (2016) estimated a set of bivariate logit models in which interstate conflict initiation (per the MID 3.1 data (Ghosn, Palmer and Bremer 2004)) was modeled as a function of every leader attribute or background experience included in the LEAD data set. If an attribute was a statistically significant predictor of conflict initiation, it was included in the Rasch model used to estimate *Leader Preferences*. Variables were recoded to ensure that 1) they were dichotomous (e.g., Older Leader instead of an age variable) and 2) higher values corresponded to more hawkish preferences/positive relationship with conflict initiation.

Table 2: Personal Attributes and Experiences Used to Estimate *Leader Hawkishness*

Military Service	Non-Combat	Lawyer	Science/Engineer
Rebel Service	Combat	Medicine	Parental Status
Level of Education	War Win	Religion	Illegitimate
Military Education	War Loss	Activist	Royalty
Male Leader	Rebel Win	Creative	Business
Older Leader	Rebel Loss	Aristocrat/Landowner	
Irregular Entry	Teacher	Military Career	