Keeping the Schools Open While the Troops are Away: Regime Type, Interstate War and Government Spending*

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Abstract

How and why do regime type and interstate war affect government spending? We argue that a political leader allocates scarce resources between social and military expenditures as a function of their relative efficiency in securing her political survival. We derive four hypotheses concerning how mobilization for and demobilization from interstate war affects government spending differently in democratic and autocratic regimes. Our analyses of all states in the international system from 1950 to 2001 yield strong support for our model's empirical implications. Contrary to existing scholarship, we find that, compared to democracies, autocracies increase military spending to a greater degree during war-time. We also find that, relative to democracies, autocracies cut social spending more during an interstate war and, as a result, increase social spending more during the process of demobilization from war.

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How a government distributes its resources is a function of political institutions, environmental factors and the policy preferences of its leadership (Jones et al. 2009). Consistent with this framework, a state's regime type and involvement in an interstate war exert strong influences on patterns of social and military spending (Brown and Hunter 1999, Goldsmith 2003, Fordham and Walker 2005). The recent analytical focus on the role of political leaders has greatly increased our understanding of comparative and international politics (*inter alia* Bueno de Mesquita et al. 1999, Przeworski et al. 2000, Goemans 2000, McGillivray and Smith 2008). The primary logic behind analyzing political leaders and the incentives and choices they face is straightforward: it is neither states nor governments but political incumbents that make policy decisions. Following this logic and our understanding of the determinants of government spending, in this article we analyze how regime type and interstate war interact to influence the incentives a political executive has to distribute scarce resources between social and military spending.

We argue that a political leader allocates resources to social and military spending as a function of their relative efficiency in securing her political survival. We argue that the comparatively larger role of the public in democratic winning coalitions makes social spending relatively more efficient, and military spending relatively less efficient, in guaranteeing a democratic leader's tenure.[1] We derive four hypotheses concerning the relationship between regime type, interstate war and government spending that are either novel, address an overlooked topic or run counter to the existing literature. Statistical analyses of all countries in the interstate system for the period 1950 to 2001 offer strong support for our hypotheses. We find that, compared to democracies, autocratic regimes cut education spending more during war-time and then increase education spending to a greater degree after the conclusion of an interstate war. Our analyses, to our knowledge, are the first to demonstrate that the processes of mobilization for

[1]The terms non-democracy, autocracy, dictatorship and their derivatives are used interchangeably throughout the article to refer to those forms of government that are not democratic.

and demobilization from interstate war affects social spending differently in democratic and non-democratic countries. We also find that, relative to democratic countries, autocracies increase military spending to a greater degree during an interstate war and then, upon the war's termination, cut military spending to a larger extent. The finding that non-democracies allocate more of their economic resources to waging interstate war runs counter to the theoretical predictions and empirical findings of the literature on democratic success in interstate wars (Reiter and Stam 2002, Bueno de Mesquita et al. 2003, Goldsmith 2007).

The remainder of the paper proceeds as follows. We first review existing explanations of social and military spending as a function of regime type and interstate conflict. We then present our formal model of decisions regarding government spending. The third section derives four hypotheses from the model. We then describe our empirical tests of the model's predictions before presenting the results of our statistical analyses. We conclude with a discussion of the larger implications of our findings.

1 Government Spending and War across Regime Type

A comprehensive review of the literature on the complex relationships among government spending, interstate war and regime type is far beyond the scope of this article. We therefore focus our attention on scholarship that has examined how and why military and social spending differ in democracies and dictatorships and the impact of war on these relationships.

1.1 Military Spending in Democracies and Autocracies

General agreement exists among scholars that, on average, autocracies allocate more of their economic resources to military spending during times of peace than do

democracies (Hewitt 1992, Sandler and Hartley 1995, Goldsmith 2003). Theoretical explanations for this empirical phenomenon vary. Sprout and Sprout (1968) argue that high military spending limits the resources available to finance social programs that are more popular among democratic publics. Using a slightly different logic, Garfinkel (1994) argues that military spending crowds out consumption opportunities for the public. Democratic politicians concerned with electoral outcomes consequently have an incentive to keep military expenditures low that autocrats do not. Drawing on Kant, Fordham and Walker (2005) echo Sprout and Sprout (1968) on the guns-and-butter trade-off but add that the importance of avoiding an intensification of the security dilemma could also explain why democracies spend less on the military than do non-democracies, implicitly assuming that it is more important for a democracy to avoid war than an autocracy.

The relationship between military spending and regime type during war is less clear. A number of scholars conclude that democracies allocate more of their economic resources to the military during times of war than do autocracies. Lake (1992) argues that due to their relative wealth and legitimacy democratic governments have access to greater resources and are thus able to outspend non-democracies during war. Schultz and Weingast (1998, 2003) posit that the greater transparency and accountability of liberal governments provide democracies access to credit on the international market at a lower interest rate than illiberal regimes. This differential borrowing power allows democracies to spend more on their militaries during interstate competitions and conflicts than their autocratic rivals. Bueno de Mesquita et al. (1999, 2003, 2004) argue that, due to the relative importance of providing public goods and private benefits across regime type, democratic (or large-W) leaders are more likely to be removed from office if they fail to win an interstate war than are autocratic (or small-W) leaders. Consequently, democratic incumbents have an incentive to win interstate wars regardless of their financial cost while a war's outcome has little influence on an autocrat's prospects for political survival. Largely a critique of selectorate theory, Gold-

smith (2007) claims that the greater political competition in democratic systems gives democratic politicians the incentive to increase military spending during war-time to a greater degree than their autocratic counterparts.

Other research, however, casts doubt on this conclusion. Examining major power participation in the global wars of the twentieth century (Russo-Japanese, WWI and WWII), Kugler and Domke (1986) find no relationship between a state's form of government and the material resources allocated to waging war. In their analysis of democratic success in interstate wars, Reiter and Stam (2002) fail to find a significant relationship between regime type and a country's defense burden in the population of war participants between 1816 and 1990.

1.2 Social Spending in Democracies and Autocracies

General agreement exists that democracies allocate more of their economic resources to social programs than do autocratic regimes (Huber, Mustillo and Stephens 2008, Haggard and Kaufman 2008). The early literature on the link between regime type and economic and political development argued that, at least among developing countries, the electoral incentives associated with democracy leads democratic political incumbents to spend their resources on policies that promote consumption over investment to a greater degree than autocrats (Huntington 1968, Huntington and Dominguez 1975, Rao 1984). More recently, Lake and Baum (2001) argue that the provision of public services is a function of the contestability of politics in a state. Democracies then should provide more social benefits to their citizens than autocracies. Because they are a type of public good, selectorate theory predicts that democratic leaders allocate a greater portion of their available resources to social spending than do autocratic incumbents. Consistent with this prediction, Bueno de Mesquita et al. (2003) find a positive relationship between the size of a leader's winning coalition and health care and education spending. Brown and Hunter (1999) offer a more condi-

tional view of the relationship between regime type and social spending. They find that social spending is increasing in economic development and economic growth to a greater degree in autocracies than in democratic regimes and that, conversely, social spending is increasing in a state's debt service and age of population to a greater degree in democracies than in autocracies.

While democracies are understood to spend more on social programs than are autocracies during peace-time, we are unaware of any systematic research that examines the relationship between regime type and social spending during times of interstate war. Existing scholarship on the relationship between regime type and mobilization efforts suggests that interstate war might have a differential affect on social expenditures in democracies and non-democracies. Bueno de Mesquita et al. (1999, 2003, 2004) and Goldsmith (2007) argue that, regardless of the financial costs, democratic leaders should be willing to spend as many of their resources as necessary to win an interstate war. Autocrats, however, have little incentive to do so as their political survival is relatively insensitive to interstate war outcomes. If this logic holds, democratic incumbents would be more willing to cut social spending to a greater degree in pursuit of victory than would autocratic leaders. We should therefore observe larger cuts in social spending during war-time in democracies than in autocracies.

As the above discussion makes clear, the relationship between government spending, regime type and war has been explained using various theoretical perspectives. Further, none of the above accounts explain or predict patterns of social *and* military spending in democracies *and* dictatorships in times of peace *and* war.[2] We argue that focusing on the trade-off a leader faces in military and social spending and the policy preferences of an incumbent's winning coalition over government spending allows for such a theoretical argument. In order to make our assumptions and logic explicit, our

[2]Selectorate theory comes closest but, because it collapses the provision of all types of public goods into the variable x (Bueno de Mesquita et al. 2003, pg. 78), it cannot make an explicit prediction about the relative allocation of different types of public goods. Therefore, selectorate theory cannot formally capture the trade-off between social spending and military spending during war-time.

argument is presented as a formal model in the next section.

2 A Model of Government Spending

We argue that all political leaders use government spending as a way to retain the political support necessary to remain in power. We first present a simple model of this decision process. We then alter the model to predict variation in government spending as a function of regime type and involvement in interstate war.

Our argument rests upon five primary assumptions. First, we assume that all political incumbents seek to retain office. We further assume that all political executives require the support of a winning coalition to remain in power, where an incumbent's winning coalition is defined as the subset of those people who have a say in choosing a government's leadership whose support is necessary for an incumbent to retain office (Bueno de Mesquita et al. 1999, 2003). Third, we assume that a winning coalition decides whether to remove the incumbent in favor of a domestic challenger as a function of how a leader allocates the available economic resources. Fourth, we assume that all political incumbents implement those policies that most efficiently ensure her political survival. Last, we assume that all political leaders use government spending to distribute a package of benefits (X) to their constituents.

The package of benefits an incumbent distributes consists of some mix of government spending on military and social programs. That is, political leaders retain the support of their winning coalition through the allocation of guns and butter; $X = \{G, B\}$. We define the relative efficiency of military and social benefits in securing an incumbent's political survival as α and β, respectively; where $0 \leq \alpha \leq 1$, $0 \leq \beta \leq 1$ and $\alpha + \beta = 1$. We define the package of benefits a given political incumbent provides through government spending with the following neo-classical production function:

$$x_i = g_i^{\alpha_i} \times b_i^{\beta_i} \tag{1}$$

(We subsequently omit the subscript i for notational simplicity.) Subject to the economic resource constraint $E = G + B$, the package of benefits that most efficiently ensures an incumbent's political survival can be identified using the LaGrangian Multiplier. Taking the natural log for mathematical simplicity in optimizing the equation, we get the following LaGrangian function for a given incumbent:

$$\mathcal{L} = \alpha \ln g + \beta \ln b + \lambda(e - g - b) \tag{2}$$

Setting the partial derivatives of $\mathcal{L}$ with respect to g and b to zero and solving yields

$$\begin{aligned} \frac{\partial \mathcal{L}}{\partial g} &= \frac{\alpha}{g} - \lambda = 0 \\ \Rightarrow g^* &= \frac{\alpha}{\lambda} \end{aligned} \tag{3}$$

$$\begin{aligned} \frac{\partial \mathcal{L}}{\partial b} &= \frac{\beta}{b} - \lambda = 0 \\ \Rightarrow b^* &= \frac{\beta}{\lambda} \end{aligned} \tag{4}$$

Substituting Equations 3 and 4 into the budget constraint and solving for λ we get

$$\lambda = \frac{\alpha + \beta}{e} \tag{5}$$

Substituting Equation 5 into Equations 3 and 4 allows us to define the marginal provision of guns and butter in a given package of benefits in terms of the resources available to a political leader and the relative efficiency of each type of benefit in securing an incumbent's political survival.

$$g = \frac{\alpha e}{\alpha + \beta} \tag{6}$$

$$b = \frac{\beta e}{\alpha + \beta} \tag{7}$$

These two equations allow for predictions regarding government spending on social and military issues in a state. Formally, the ratio of α to β determines the marginal provision of guns to butter given e. Substantively, these results indicate that an incumbency-valuing leader will spend more of the economic resources available to her on the type of spending that more efficiently secures her political tenure. Holding resources constant, as one type of benefit becomes relatively more efficient in securing a leader's survival, the model predicts that government spending on that type of benefit will increase at the expense of the other type of benefit. Therefore, we can predict government spending as a function of regime type and interstate war by identifying how each factor affects the efficiency of social and military benefits in securing an incumbent's political survival.

2.1 Government Spending and the Winning Coalitions of Democratic and Autocratic Leaders

Our argument assumes that political leaders retain office by spending resources on the types of programs preferred by their winning coalitions. To understand how regime type affects social and military spending, we focus on who makes up the winning coalitions of democratic and autocratic leaders and what their preferences over government spending might be. We begin by dividing a nation's population into two groups: the public and the elite. A nation's elite consists of two separate groups. First, the civilian elite is that small subset of wealthy, and thus privileged and politically connected, members of a society. Second is the military elite. While not all members of the military are wealthy, the interests of the rich and the military often align. It is unsurprising, then, that the two groups frequently ally against the public (Linz and

Stepan 1978, O'Donnell and Schmitter 1986). In comparison to a nation's elite, the general public are more numerous and, on average, poorer.

The distinction between a nation's elite and general public is important for two reasons: spending policy preferences and their role in government across regime type. Members of each socio-economic group have individual incentives leading to different preferences over social and military spending. For analytical tractability, we assume that members of each social group all hold the same preference over spending policy. Regardless of social group, though, all citizens benefit from the public good of national defense (Samuelson 1954). Therefore, all citizens prefer that a government allocates some of its resources to military spending. Given the provision of national security, the public prefers greater social spending and less military spending than do the elite for three reasons. First, the civilian elite are independently wealthy and consequently gain little from a social welfare state largely funded by taxes on their personal estates (Przeworski et al. 2000, Boix 2003). Second, the poorer members of a society rely and benefit disproportionately from government spending on social programs (Ruggie 1982, Adserà and Boix 2002, Hays, Ehrlich and Peinhardt 2005). Third, beyond the provision of national defense, the public and the civilian elite benefit little from military spending while members of the military rely on it for their livelihood.

Moving from policy preferences to regime type, a state's form of government can be defined as a function of the relative influence of the public and the elite. Put succinctly, a democratic government is one in which the public has greater political power than the elite and an autocratic regime is one in which the opposite situation holds (Dahl 1971, O'Donnell and Schmitter 1986, Huntington 1991).[3] We do not contest that variation exists among democratic and autocratic regimes in terms of both sub-type (e.g. parliamentary vs. presidential, military junta vs. personalist dictator) and the

[3]It is important to recognize other differences between democratic and autocratic regimes exist. However, Dahl (1971) notes that the differences in the political and social rights of citizens, and the institutions that secure them, living under democratic and autocratic governments follow from the variation in who gets a chance to rule (contestation) and who gets to decide who rules (participation) across regimes.

relative "democraticness" of the government (Sweden vs. Turkey, Egypt versus North Korea). We argue merely that there is a systematic difference in the relative political power of the public and elites in democratic and autocratic governments (Acemoglu and Robinson 2006). Specifically, we argue that, as a proportion of their total, the winning coalitions of democratic leaders contain more members of the public and fewer elites than the winning coalitions of autocratic leaders. Given the spending preferences of the public and elite, the ratio of social to military spending that most efficiently secures an incumbent's political survival is greater in democratic regimes than it is in autocratic regimes.

2.2 Interstate War and Government Spending

Our model assumes that government spending on social and military programs is a function of how efficient each type of benefit is in securing a leader's political survival. There are two mechanisms by which interstate war affects the relative efficiency of social and military spending. First, all citizens benefit from the military expenditures required to provide the public good of national defense (Samuelson 1954). The cost of providing national security is increasing with the threat a state faces from its international rivals (Sandler and Hartley 1995). As the threat to a country is greater during war-time than peace, involvement in an interstate war makes military spending relatively more efficient for all leaders.

Second, the outcome of an interstate war affects an incumbent's prospects for remaining in power. The probability a political leader is removed from office is greater after losing a war than after winning a war (Chiozza and Goemans 2004). Therefore, all political leaders have an incentive to increase military spending during war-time to the degree necessary to avoid losing an interstate war. Beyond the observation that losing a war is bad for an incumbent's job prospects, there is no consensus on the precise relationship between war outcomes, leadership survival and regime type. Theoretical ex-

planations for observed differences in conflict behavior across regime type often assume that democratic incumbents are more likely to be removed from office after performing poorly in an interstate conflict or war than are autocratic leaders (Goemans 2000, Reiter and Stam 2002, Bueno de Mesquita et al. 2003), with Bueno de Mesquita and Siverson (1995) frequently cited as providing empirical support for this claim. Research by Goemans and colleagues, however, demonstrates that the probability of losing office *conditional* on losing an interstate war is greater for autocratic leaders than it is for democratic incumbents (Chiozza and Goemans 2004, Goemans 2008, Debs and Goemans Forthcoming). Further, the probability of a leader losing office *conditional* on winning an interstate war is decreased for an autocratic leader but unchanged for a democratic leader. The implication of this result is that, counter Bueno de Mesquita et al. (2003) and Goldsmith (2007), autocratic leaders have a greater incentive to spend scarce resources in an effort to win a war than do democratic incumbents.

While interstate war increases the importance of military spending for all leaders, the relative influence of the public and elite in a leader's winning coalition influences the relative efficiency of social and military programs for an office-valuing incumbent even during times of war. Democratic incumbents require the support of the larger public that, compared to a society's elite, derives greater utility from social spending (Author 2010). Involvement in an interstate war then requires democratic leaders to thread the needle of increasing military spending to the degree necessary to avoid losing the war while avoiding drastic cuts to the social welfare state. The decision calculus is more straightforward for autocratic leaders. Like their democratic counterparts, autocrats are also more likely to be removed from power after losing an interstate war than if they had been victorious. However, unlike democratic incumbents, autocratic leaders remain in power by retaining the support of a small elite that places little value on receiving the benefits of a social welfare state. Thus, given their country's involvement in an interstate war, autocratic incumbents should be more willing to increase military spending at the expense of funding social programs than democratic leaders whom

require the support of a public that values social programs.

2.3 Regime Type, Interstate War and Government Spending

We can now modify the model in order to predict government spending as a function of regime type and interstate war. Let a state's regime type (R) be defined as a democracy (D) or an autocracy (A); $R = \{D, A\}$. Then, define a state's status (S) as either at peace (P) or involved in an interstate war (W); $S = \{P, W\}$. Recall that α and β represent the relative efficiency of social and military spending, respectively, in ensuring an incumbent remains in power. Accordingly, define α and β as functions of R and S; $\alpha(R, S)$ and $\beta(R, S)$ where $0 < \alpha \leq 1$, $0 \leq \beta < 1$ and $\alpha + \beta = 1$. The above discussion of the influence of regime type and interstate war on the efficiency of social and military spending in securing a leader's political survival suggests the following six functional characteristics for α and β.

$$\alpha(A, S) \ > \ \alpha(D, S) \quad \forall \quad S \tag{8}$$

$$\beta(D, S) \ > \ \beta(A, S) \quad \forall \quad S \tag{9}$$

$$\alpha(R, W) \ > \ \alpha(R, P) \quad \forall \quad R \tag{10}$$

$$\beta(R, P) \ > \ \beta(R, W) \quad \forall \quad R \tag{11}$$

$$\alpha(A, W) - \alpha(A, P) \ > \ \alpha(D, W) - \alpha(D, P) \tag{12}$$

$$\beta(A, P) - \beta(A, W) \ > \ \beta(D, P) - \beta(D, W) \tag{13}$$

Equations 8 and 9 formalize the ideas that, due to the relative influence of the public and elite in their respective winning coalitions, military spending is more efficient in securing the political survival of an autocratic leader than a democratic incumbent and

that social spending is more efficient in securing the political survival of a democratic leader than an autocratic leader. Taken together, Equations 10 and 11 capture two things. First, as the cost of providing national defense is increasing in the threat posed by a state's international rivals, involvement in an interstate war increases the importance of military spending. Second, an increase in the importance of military spending comes at the cost of a decrease in the relative efficiency of social spending in democracies and autocracies. While all leaders have the incentive to increase military expenditures in order to avoid losing an interstate war, democratic leaders must retain the support of a public that values social programs to remain in power even during an interstate war. This relatively greater constraint on democratic leaders is formally captured by Equations 12 and 13. The formal constraints on α and β imposed by Equations 8 - 13 allow us to use Equations 6 and 7 to predict social and military spending in democracies and autocracies in times of both peace and war.

3 Hypotheses

The model generates a number of predictions concerning the relationship between government spending, regime type and interstate war. We focus our attention on four hypotheses that are either novel, address an overlooked topic or run counter to the existing scholarship. The first two predict variation in military and social spending across regime type as a function of mobilization for interstate war.

Hypothesis 1 Autocracies should increase the portion of their resources allocated to military spending during an interstate war to a greater degree than democracies.

Hypothesis 2 Autocracies should decrease the portion of their resources allocated to social spending during an interstate war to a greater degree than democracies.

Compared to peace-time, interstate war should be associated with an increase in the efficiency of military spending and a decrease in the efficiency of social spending in

all countries (Equations 10 and 11). From Equations 6 and 7, we should therefore see greater military and less social spending during an interstate war. The relative changes in the efficiency of military and social spending, however, should vary across regime type. The increase in the efficiency of funding the military is greater for autocratic leaders than democratic incumbents (Equation 12) and, consequently, the decrease in the efficiency of social benefits is also greater in autocracies than in democracies (Equation 13). Given Equation 6 an interstate war should lead to a greater marginal increase in military spending in autocracies than in democracies (Hypothesis 1). Following the same logic, Equation 7 indicates that an interstate war would lead to a greater marginal decrease in social spending in autocratic regimes than in democratic countries (Hypothesis 2).

As noted above, scholars are divided over whether democracies allocate more of their resources to waging war than do autocracies (Bueno de Mesquita et al. 2003, Goldsmith 2007) or whether regime type has no effect on a state's economic war effort (Reiter and Stam 2002). The empirical relationship predicted by Hypothesis 1 then runs counter to existing scholarship on regime type and military spending during wartime. Hypothesis 2, to our knowledge, is the first prediction that explicitly spells out how war should affect social spending in democratic and non-democratic. It is worth noting though that Hypothesis 2 does run counter to the logical implications of arguments that democratic leaders are willing to spend more resources on an interstate war effort than are dictators (Bueno de Mesquita et al. 2003, Goldsmith 2007).

Where Hypotheses 1 and 2 predict how the shift from peace to war should affect government spending across regime type, Hypothesis 3 and 4 are concerned with the process of demobilization from war in democracies and autocracies.

Hypothesis 3 Autocracies should decrease the portion of their resources allocated to military spending after an interstate war to a greater degree than democracies.

Hypothesis 4 Autocracies should increase the portion of their resources allocated to

social spending after an interstate war to a greater degree than democracies.

These two hypotheses are logical extensions of Hypotheses 1 and 2. Given that interstate war should lead to greater increases in military spending and cuts in social spending for autocracies than it does for democracies, it follows that the return to the status quo should result in larger cuts in military spending and increases in social spending for autocracies than for democracies.

The process of demobilization from interstate war largely has been overlooked by scholars. Our prediction that autocracies should cut military spending after an interstate war to a greater degree than democracies is consistent with the argument and findings of Bueno de Mesquita et al. (2004), but follows from a substantially different logic. The expectation that the end of a war should be followed by greater increases in social spending in autocracies than in democracies is novel, to our knowledge.

4 Research Design

The above hypotheses are tested on a time-series cross-sectional data set of all countries included in the Correlates of War state list (2008) from 1950 to 2001. The country-year data set encompasses 27 wars involving 102 participants and was compiled using the EUGene software (Bennett and Stam 2000).

4.1 Dependent Variables

The model predicts variation in the portion of economic resources allocated to military and social spending. These hypotheses are tested using two dependent variables. The first tests our predictions on patterns of military spending. *Military Spending* is operationalized as the percent of a country's nominal gross domestic product (GDP) allocated to nominal military spending in year *t*. *Military Spending* then identifies a state's defense burden, the traditional indicator of national military spending in the

defense economics literature (for a small sample, see Olson and Zeckhauser 1968, Sandler and Hartley 1995, Fordham and Walker 2005). Military expenditure and GDP data were taken, respectively, from the national material capabilities (NMC) data set version 3.02 (Singer, Bremer and Stuckey 1972) and the Penn World Tables, version 6.2 (Heston, Summers and Aten 2006). We standardize a state's military expenditures over its GDP because the theoretical concept of interest is how much a leader spends on military programs out of the total resources allocated to government spending. Specifying the dependent variable as $\frac{MilitarySpending}{GrossDomesticProduct}$ better captures this concept than a gross measure of a state's military expenditures. We operationalize the theoretical concept of social spending as the percentage of a country's nominal GDP allocated to nominal education spending in year *t*. *Education Spending* is taken from the World Development Indicators project (2001) and covers the period from 1970 to 1999. As with *Military Spending*, we standardized education expenditures over a country's GDP.

4.2 Explanatory Variables

Our primary analyses are conducted using only the explanatory variables necessary to assess empirically the relationships predicted by our theoretical model (Achen 2002, Clarke 2005). The first explanatory variable identifies a state's regime type. *Democracy* is a dichotomous measure coded *1* if a state has a value of *7* or greater on the twenty-one point *Polity2* index in the Polity IV data set (Marshall and Jaggers 2005) in a given year, and *0* otherwise. We use a dichotomous indicator of regime type for two reasons. First, our hypotheses are framed explicitly in terms of a democratic/autocratic divide. A dichotomous indicator of regime type, therefore, is theoretically more appropriate. Second, it makes interpretation more straightforward. A dichotomous measure of regime type allows us to accurately discuss the results in terms of democracies and autocracies instead of the effect of a single-unit change on a twenty-one point scale on the value of the dependent variable. The robustness of our results to alternate

operationalizations of a state's regime type are presented below.

The second explanatory variable indicates a country's involvement in an interstate war. *Interstate War* is a dichotomous variable coded *1* if a state is involved in an interstate war in a given year per the Militarized Interstate Dispute (MID) data set (Ghosn, Palmer and Bremer 2004) and *0* otherwise. The explanatory variable *Post-War* is coded *0* in the years before and during a country's participation in an interstate war and as the decay function $\frac{1}{(1+YearsSinceConclusion)}$ in the years following involvement in a war. We use a decay function because demobilization is likely greatest in the first year after a war but not completed for several more years. That is, demobilization is expected to be monotonic but is likely non-linear.[4] States that did not participate in an interstate war during the period from 1950-2001 were coded as a *0* throughout the data set.

The model predicts that the influence of interstate war on a state's military and social spending is conditional on its regime type. Modeling these conditional relationships appropriately requires the use of multiplicative interaction terms (Braumoeller 2004, Brambor, Clark and Golder 2006, Kam and Franzese 2007). Therefore, the interaction terms *Interstate War*Democracy* and *Post-War*Democracy* are used to model the differential processes of mobilization for and demobilization from interstate war across regime type.

Our statistical models include one-year lags of the respective dependent variables as explanatory factors for three related reasons. First, including a one-year lag of the dependent variable allows the models to identify how much a state's military and education spending has changed from year *t-1* to year *t*. Second, although some have raised objections to the use of lagged dependent variables (most notably Achen 2000), models specified with a lagged dependent variable are generally superior to models without a lagged dependent variable when the underlying data generating process is dynamic

[4]To ensure that our results were robust to alternative specifications of the decay function, we tried several other operationalizations of *Post-War*. The results yielded by models with these alternate codings of *Post-War* led to the same substantive conclusions as those presented below.

(Keele and Kelly 2006). Third, lagged dependent variables can remove, or at least mitigate, the existence of serial autocorrelation among the errors. Diagnostics revealed the existence of statistically significant AR-1 processes in both the *Military Spending* and *Education Spending* series. The inclusion of *Military Spending*$_{t-1}$ and *Education Spending*$_{t-1}$ in our statistical models, therefore, is methodologically appropriate.

Table 1 presents a set of descriptive statistics about the indicators used to test our hypotheses.

[Table 1 about here]

4.3 Estimator

The analysis of time-series cross-sectional data present several methodological challenges (for an overview see Beck 2008). Two of the most relevant for international relations scholars are unit heterogeneity and accurate estimation of time-invariant or rarely-changing explanatory variables. Unit heterogeneity exists when the value of the dependent variable varies among units given the same values on the explanatory variables (*inter alia,* King, Keohane and Verba 1994). Failing to account for unit heterogeneity can result in biased point estimates (Cameron and Trivedi 2005, Beck 2008). The standard way unit heterogeneity is dealt with in quantitative studies of international politics is through the use of a fixed effects estimator. The fixed effects estimator accounts for unit heterogeneity while allowing parameters in the model to vary over time through either a de-meaning process or a set of dummy variables (Cameron and Trivedi 2005). Unfortunately, there are two inherent flaws with fixed effects models that are directly related to the estimation of time-invariant or rarely-changing explanatory variables. First, fixed effects models cannot estimate the effect of time-invariant variables because they use only within-panel variance and not between-panels variance (Cameron and Trivedi 2005, Beck 2008). Second, fixed effects models are inefficient in estimating the effect of variables that have little within variance (Plümper and

Troeger 2007). If the within variation of an indicator is low, a fixed effects estimator will yield unreliable point estimates and be less likely to yield the true coefficient than an efficient estimator (Plümper and Troeger 2007). As many of the concepts international relations scholars are interested in vary little over time within the same unit (e.g., political institutions, contiguous neighbors and international rivals of any single state over a fifty year period), the inability of fixed effects models accurately to estimate the effect of time-invariant and rarely changing explanatory variables is highly problematic.

The *fixed effects vector decomposition* (FEVD) estimator (Plümper and Troeger 2007) allows for efficient estimation of time-invariant and rarely changing explanatory variables while accounting for unit heterogeneity through a three-step process. A standard fixed effects model is estimated using all of the explanatory variables in the first stage of the process. This accounts for systematic unit effects that could bias point estimates if left un-modeled. In stage two, the estimated unit-effects from the first stage (i.e. the estimated effect of being country i) are regressed on the observed time-invariant and rarely-changing indicators in order to obtain the residuals of the unit-specific effect. This second stage decomposes the estimated unit-effect into "unexplained" and "explained" parts. The third stage reruns the full model without the fixed effects but with the "unexplained" portion of the unit-effect using pooled OLS. As the residuals of the unit-effects are by definition uncorrelated with the observed time-invariant and rarely-changing indicators, the true effect of these variables on a dependent variable can be accurately and efficiently estimated. Plümper and Troeger (2007) show that the FEVD estimator generally performs at least as well as fixed effects models in all circumstances and tends to outperform fixed effects models when there is more between-units variance than within-unit variance. Diagnostics revealed there is more between-variance than within-variance in *Democracy*. Therefore, the hypotheses outlined above were tested using a *fixed effects vector decomposition* estimator and *Democracy* was treated as a low-variance indicator.

The next section presents the results of our statistical analyses.

5 Empirical Results

Our statistical analyses offer strong support for the hypotheses derived from the model. We present the results of our analyses of military spending first and then turn to our analyses of the relationship between regime type, interstate war and social spending.

5.1 Regime Type, Interstate War and Military Spending

Hypotheses 1 and 3 predict that, compared to democracies, autocracies will increase military spending to a greater degree during war-time and then decrease military spending to a greater degree after the conclusion of hostilities. Our statistical estimates of these relationships are presented in Model 1 in Table 2.

[Table 2 about here]

Unfortunately, we are unable to test our hypotheses using the information reported in Table 2 for two reasons. First, the standard errors of interaction terms reported in traditional results tables do not account for the covariance among the constituent and interaction terms (Brambor, Clark and Golder 2006, Kam and Franzese 2007). Second, as the coefficients indicate the effect of a given explanatory variable on the dependent variable relative to that of an autocracy in the years before an interstate war, we are unable to test whether the difference between war-time and post-war military spending across regime type is statistically significant. Following King, Tomz and Wittenberg (2000), we tested our hypotheses using a set of post-estimation simulations of Model 1.[5]

[5]The simulations were conducted through the following steps using Stata 11. First, we took 10,000 draws from a multivariate normal distribution based on the estimated coefficient and variance-covariance matrices of Model 1. Second, we calculated the mean predicted values, first differences and appropriate standard errors of the defense burden of an autocratic country during pre-war peace-time, during an interstate war

More precisely, we calculated the expected value of *Military Spending* for democratic and autocratic countries before, during and after an interstate war based on simulations of the coefficient and variance-covariance matrices of Model 1. By doing so, we are able to determine whether the processes of mobilization for and demobilization from interstate war vary across regime type. If Hypotheses 1 and 3 are empirically accurate, the unit effect of *Democracy* should become more negative in the shift from peace to interstate war and then shrink in the years following a conflict. Figure 1 presents the results of our analysis graphically while Table 3 allows us to assess their statistical significance.

[Figure 1 about here]

Hypotheses 1 and 3 predict that the differences between peace and war-time military spending and war-time and post-war military spending will be greater in autocracies than it is in democracies. Figure 1, then, is consistent with the model's predictions. Compared to democratic countries, autocracies appear to increase military spending to a greater extent given an interstate war and decrease their defense burden to a greater degree after the conclusion of a war. The results presented in Figure 1, however, are only suggestive. We test the statistical significance of these differences in Table 3.

[Table 3 about here]

Table 3 provides strong evidence for the model's predictions. While war increases military spending for all states, interstate war is associated with greater increases

and during each of the first five years after the conclusion of an interstate war. Third, we repeated step two for a democratic country. Fourth, we calculated the unit effect and appropriate standard error of *Democracy* during pre-war peace-time, war-time, and the first five years after the conclusion of an interstate war by subtracting the predicted defense burden of an autocracy at each stage in the conflict process by the predicted defense burden of a democracy at each stage. Fifth, we then calculated the first difference of the unit effect of *Democracy* and its standard errors in the transition from peace to war. Sixth, we calculated the first difference of the unit effect of *Democracy* and its standard errors between its war-time level of *Military Spending* and the value of *Military Spending* in the fifth year after a war. Steps five and six allow us to assess whether the degree to which democracies and autocracies mobilize for and demobilize from interstate war are statistically distinct from one another. See King, Tomz and Wittenberg (2000) on the utility of post-estimation simulations for hypothesis testing.

in autocratic defense burdens than in democratic defense burdens (38.5% to 25.4%). This result is consistent with Hypothesis 1 but not with previous scholarship on the link between regime type and military spending during war time (*inter alia,* Reiter and Stam 2002, Bueno de Mesquita et al. 2003, Goldsmith 2007). This differential mobilization effort across regime type results in a statistically significant 164% increase in the autocratic advantage in *Military Spending*; that is the unit effect of *Democracy* decreased from -0.25 to -0.66.

The results in Table 3 also are consistent with the prediction that autocracies demobilize after the conclusion of an interstate war to a greater degree than democracies (Hypothesis 3). Where democracies decrease their defense burden by 19% in the five years following an interstate war, the portion of resources allocated to military spending in non-democracies falls by 23.6% in the five years after the cessation of hostilities. These different degrees of demobilization across regime type leads to a 44% reduction in the unit effect of *Democracy* during this period; from -0.66 to -0.37.

5.2 Regime Type, Interstate War and Social Spending

Respectively, Hypotheses 2 and 4 predict that, compared to the democratic experience, autocracies reduce social spending to a greater degree during an interstate war and then increase social expenditures to a greater degree following the war's conclusion. Our statistical estimates of these relationships are presented in Model 2 in Table 2. As with our analysis of military spending, the use of interaction terms and the dynamic nature of the hypotheses limits the utility of Table 2. We therefore conducted a set of post-estimation simulations in order to test Hypotheses 2 and 4.[6] If Hypotheses 2 and 4 accurately describe the data generating process, the unit effect of *Democracy* should increase during an interstate war and then decrease in the years following a war's conclusion. We present the relationship between regime type, interstate war and

[6]See footnote 5 for a description of the simulations.

education spending graphically in Figure 2 before testing the statistical significance of the relationships in Table 4.

[Figure 2 about here]

Figure 2 is consistent with the model's empirical predictions. Where education spending appears to vary little as a function of interstate war in democracies, autocratic regimes seem to cut education spending significantly during war-time and then increase it after hostilities end. We test the differences in these relationships in Table 4.

[Table 4 about here]

The results presented in Table 4 are consistent with Hypotheses 2 and 4. Given their involvement in an interstate war, autocracies cut the portion of resources allocated to health care spending by a statistically significant 3.74% (3.67 to 3.53). Interstate war, though, appears to have no statistically significant effect on education spending in democratic states. Indeed, democracies are estimated to increase their education spending by 0.12% during war-time, although we stress that this difference in democratic spending is statistically indistinguishable from zero. These respective democratic and autocratic changes in *Education Spending* result in the unit effect of *Democracy* during an interstate war increasing by a statistically significant 73.7% over its peace-time level (0.19 to 0.33).

Table 4 is also consistent with Hypothesis 4: autocracies increase social spending to a greater degree than do democracies in the years following an interstate war. Autocratic states increase the percentage of their economic resources allocated to education spending by a statistically significant 3.8% in the five years following the conclusion of an interstate war (from 3.53 to 3.66). Democracies, however, increase education spending by only 0.2% in the five years after an interstate war. The results of these two differential demobilization processes is that the unit effect of *Democracy* shrinks by a statistically significant 42.3% (0.33 to 0.19).

Overall, our statistical analyses strongly support the empirical predictions of our theoretical model. It is possible, however, that these results are merely artifacts of our modeling decisions. To investigate this possibility, we examined the robustness of our findings to alternate measures of regime type and the inclusion of control variables for a set of potentially confounding factors.

5.3 Robustness Checks

We check the robustness of our findings by estimating the relationships predicted in Hypotheses 1-4 using two different measures of regime type and controlling for the potentially confounding effects of a state's economic development and material capabilities. Our primary analyses used the dichotomous *Democracy* to identify a state's regime type. To ensure our results are not simply a function of this coding decision, we re-estimated Models 1 and 2 using the 21-point *Polity2* scale (Marshall and Jaggers 2005). We also estimated a pair of models using a dichotomous measure coded *1* if a state is a democracy and *0* otherwise based on Alvarez et al.'s (1996) classification of regimes. *Democracy Alternate* was taken from Cheibub, Gandhi and Vreeland (2010).

Quantitative researchers often add a number of control variables to their statistical models that are correlated with their explanatory variable of interest and/or dependent variable in an attempt to mitigate the negative consequences of omitted variable bias (Achen 2002, Clarke 2005). Analysts often miss, though, that the omitted variable bias result derived in econometric textbooks typically assumes that either only one or two factors that account for all of the un-modeled variation in the dependent variable have been omitted from the statistical model (Clarke 2005, 2009). This is rarely the situation empirical researchers face in practice. As such, "any set of control variables added to multivariate models merely to reduce the risk of omitted variable bias constitute, in the absence of a fully specified theory [of the dependent variable], a random and

arbitrary portion of those variables whose omission might potentially bias the results" (Ray 2003, pg. 15). Indeed, Clarke formally proves that "short of knowing *all omitted relevant variables*" (emphasis added) researchers cannot know whether including an additional relevant variable to a statistical model will increase or decrease the bias on the coefficient of the theoretically interesting explanatory variable (Clarke 2005, pg. 344).

Control variables, therefore, should be used with care and an appreciation of what their affect, or lack thereof, on the coefficient of a theoretically interesting variable actually means. In assessing the robustness of our findings, we control for a pair of potentially confounding but not intervening factors (King, Keohane and Verba 1994, Ray 2003). We control for a state's economic development because it is possible that more developed, efficient governments are better at translating economic resources into war materiel than are less developed countries. This would allow highly developed countries to obtain the same degree of benefits from a smaller percentage of their overall resources as less efficient states that allocate proportionally more of their resources to a war effort. *Economic Development* is operationalized as a state's annual GDP per capita in constant 1992 U.S. dollars and is drawn from Gleditsch (2002). The control variable *Capabilities* is operationalized as a state's Composite Index of National Capability (CINC) score in year t and is taken from the National Material Capabilities data set, v.3.02 (Correlates of War 2001). We control for a state's national capabilities because it is plausible that more powerful states would be able to wage war with a smaller mobilization effort without as large of a disturbance in their patterns of relative social and military spending. As both *Economic Development* and *Capabilities* had relatively greater between-variation than within-variation, they were treated as low-variance explanatory variables in the *fixed effects vector decomposition* estimator.

Table 5 reports our robustness checks of the predicted relationships between regime type, war and military spending.

[Table 5 about here]

As with our primary analyses, the results in Table 5 are of limited utility in assessing Hypotheses 1 and 3. Figure 3 graphically report the relationship between regime type, interstate war and military spending, with Panels A, B, C and D corresponding to Models 3, 4, 5 and 6, respectively.[7] Due to space constraints, for our robustness checks we do not present a set of tables that report the predicted *Military Spending* and *Education Spending* of democratic and autocratic states during times of peace and interstate war.[8]

[Figure 3 about here]

While the levels of and changes in military spending vary, the four graphs reported in Figure 3 are all substantively similar and offer further support for Hypotheses 1 and 3. That is, the effects of mobilization for and demobilization from interstate war on the portion of GDP allocated to military spending are greater in autocracies than in democracies. Panel A illustrates these relationships for a full democracy (+10) and a full autocracy (-10) as designated by the 21-point *Polity2* scale. The support for our hypotheses is greatest in these limiting cases. Full autocracies are expected to increase military spending by 56.7% (2.80% to 4.39%) during mobilization and then decrease military spending by 33.7% in the five years following an interstate war (from 4.39% to 2.91%), with both changes achieving statistical significance at the 95% level. Full democracies, on the other hand, are expected on increase military spending only 9.17% during the process of mobilization (2.28% to 2.49%) and then decrease military spending by 11.6% (from 2.49% to 2.21%). Neither of these changes is statistically significant. Based on Model 4 in Table 5, Panel B reports the results of our analysis using the alternate, dichotomous measure of regime type provided by Cheibub, Gandhi and Vreeland (2010). While statistically significant in both cases, the increases and

[7]Figures 3 and 4 were generated using the process described in footnote 5.
[8]These tables are available from the authors upon request.

decreases in military spending as a function of mobilization and demobilization, respectively, are again greater in autocracies than they are in democracies; +39.3% and -23.6% in the autocratic case compared to +24.2% and -18.7% for democracies. The same pattern emerges when controlling for a state's *Economic Development* and *Capabilities*, Panels C and D respectively: mobilization and demobilization bring about statistically significant changes in the portion of GDP allocated to military spending in all countries but the magnitude is significantly greater in autocracies than it is in democracies. The results in Figure 3 then demonstrate that support for Hypotheses 1 and 3 is robust to alternative measures of regime type and controlling for the confounding factors of a state's economic development and material capabilities.

Table 6 reports the models estimated to check the robustness of our findings that, compared to democratic regimes, autocracies cut social spending more during wartime and then increase social spending to a greater degree in the years following the conclusion of an interstate war.

[Table 6 about here]

For the reasons noted above, we use the four graphs in Figure 4 to illustrate the relationship between regime type, interstate war and education spending estimated by Models 7-10.

[Figure 4 about here]

Figure 4 offers further support to Hypotheses 2 and 4. Based on Model 7 in Table 6, Panel A shows that mobilization for interstate war is associated with a statistically significant 6.1% cut in education spending for full autocracies, those countries that receive a value of -10 on the *Polity2* index. In the five years after a war's conclusion, full autocracies then increase the portion of GDP allocated to education spending by a statistically significant 6.4%. The effects of mobilization for and demobilization from an interstate war on the education spending of a full democracy (+10) are statistically

indistinguishable from zero. The same pattern emerged in our other robustness checks of Hypotheses 2 and 4. Using Cheibub, Gandhi and Vreeland's (2010) alternative measure of regime type (Model 8 and Panel B), involvement in an interstate war led to a statistically significant 4.2% decrease in autocratic education spending, which then increased a statistically significant 3.8% over the five years following the conclusion of a war. Based on Model 9 in Table 6, Panel C shows that, after controlling for a state's economic capabilities, the processes of mobilization and demobilization are associated with a statistically significant 3.7% decrease and then a statistically significant 3.8% increase in the portion of an autocratic regime's annual GDP allocated to education spending. We obtain similar results after controlling for a state's material capabilities (Model 10 and Panel D). Specifically, autocracies cut their education spending by a statistically significant 3.7% during mobilization for interstate war and then increase education expenditures by 3.8% in the five years after a war's conclusion. In contrast, our robustness checks reveal no statistically significant changes in the portion of GDP democratic regimes allocate to education spending as a function of mobilization for or demobilization from interstate war.

6 Discussion and Conclusion

An increased focus on political leaders and the incentives and constraints they face has been one of the salient trends in recent international relations scholarship. Consistent with this approach we model the package of goods a leader provides to her constituents through government spending as a function of the relative efficiency of social and military benefits in securing a leader's survival in office. Based on existing scholarship, we argue that regime type and interstate war significantly influence the relative importance of social and military programs in guaranteeing an incumbent remains in power. We derive and quantitatively test four hypotheses from our model concerning the relationship between regime type, interstate war and government spending. Sta-

tistical analyses of all countries in the interstate system during the period from 1950 to 2001 offer strong support for the empirical implications of our model. We find that, compared to democracies, autocracies increase military spending to a greater degree for an interstate war and then cut military spending to a greater degree after a conflict ends. Our analyses also indicate that, relative to democratic regimes, autocracies are able to cut social spending (as proxied by education spending) to a greater extent during a war and then increase social spending to a larger degree upon the conclusion of interstate wars.

We would like to stress five ideas in our concluding remarks. First, our analyses conclude that that guns-and-butter trade-off exists; those states that allocate more resources to military spending allocate fewer resources to social spending. Second, consistent with our model's predictions, the guns-to-butter ratio is greater in autocratic countries than in democratic regimes. Third, democracies not only spend more on education and less on the military during peace-time than do non-democracies, they also alter those allocations less than autocracies during times of war. From our perspective, this is because democratic leaders provide social benefits to their constituencies to a greater extent than autocratic leaders do and are constrained from reducing those benefits out of concern for maintaining their constituents' support. The schools must be kept open even while the troops are away. This implies, fourth, that the concern democratic leaders have for retaining their offices in war-time is not exclusively a function of the war's outcome or duration; democratic leaders evidently act to ensure that the supply of social benefits is not excessively disrupted. Last, these findings are consistent with one answer to the question of why democracies win such a higher proportion of their wars. Specifically, our implications are consistent with the "selection" argument, that claims democratic leaders choose their wars with greater care, knowing that their ability to retain office will be largely affected by the war's outcome. We see democratic leaders as wanting to minimize the domestic cost of war, while winning; accomplishing this requires that wars be chosen with an eye to those costs.

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Table 1: Summary Statistics

	Observations	Mean	Std. Deviation	Minimum	Maximum
Military Spending	6,710	2.57	4.74	0	140.22*
Education Spending	3,259	3.71	1.68	0.36	10.48
Democracy	6,693	0.31	0.46	0	1
Interstate War	7,406	0.04	0.20	0	1
Post-War	7,406	2.46	7.13	0	47
Interstate War*Democracy	6,693	0.02	0.13	0	1
Post-War*Democracy	6,693	1.59	6.30	0	47

*There are two observations in our data in which a country spends more on its military than its GDP: North Korea in 1958 and Kuwait in 1992. Models estimated without these observations yielded the same conclusions as those presented below.

Table 2: Regime Type, Interstate War and Government Spending

	Model 1	**Model 2**
Dependent Variable	*Military*	*Education*
Democracy	-0.25**	0.19**
	(0.06)	(0.02)
Interstate War	1.01**	-0.14**
	(0.14)	(0.05)
Interstate War*Democracy	-0.41†	0.14†
	(0.24)	(0.08)
Post-War	-0.95*	-0.02
	(0.40)	(0.12)
Post-War*Democracy	-0.73	0.001
	(0.66)	(0.20)
Constant	0.68**	0.55**
	(0.04)	(0.03)
Dependent Variable$_{t-1}$	0.76**	0.84**
	(0.01)	(0.01)
Adjusted R^2	0.84	0.94
F-Statistic	4,357.83	7,548.82
Probability $> F$	0.00	0.00
Observations	5,945	3,080

Model 1: 1950-2001; Model 2: 1970-1999

Standard Errors in Parentheses

Two-tailed: † : p $\leq$ 0.1; * : p $\leq$ 0.05; ** : p $\leq$ 0.01

Table 3: Regime Type, Interstate War and Military Spending†

	Democratic		Non-Democratic		Unit Effect	
	Defense Burden	Percent Δ	Defense Burden	Percent Δ	of Democracy	Percent Δ
Peace	2.38	–	2.63	–	-0.25*	–
Interstate War	2.98	25.4*	3.64	38.5*	-0.66*	164.0*
Post-1	2.49	-16.5	3.10	-14.8*	-0.61*	–
Post-2	2.45	-1.5	2.94	-5.2*	-0.49*	–
Post-3	2.43	-0.7	2.86	-2.6*	-0.43*	–
Post-4	2.42	-0.5	2.82	-1.7*	-0.40*	–
Post-5	2.41	-0.4	2.78	-1.3*	-0.37*	-43.9*

†Values are based on post-estimation simulations of Model 1.
One-Tailed: *: $p < 0.05$.

Table 4: Regime Type, Interstate War and Education Spending†

	Democratic		Non-Democratic		Unit Effect	
	Defense Burden	Percent Δ	Defense Burden	Percent Δ	of Democracy	Percent Δ
Peace	3.86	–	3.67	–	0.19*	–
Interstate War	3.86	0.12	3.53	-3.74*	0.33*	73.7*
Post-1	3.85	-0.32	3.66	3.63*	0.19*	–
Post-2	3.85	0.07	3.66	0.08*	0.19*	–
Post-3	3.85	0.03	3.66	0.04*	0.19*	–
Post-4	3.86	0.02	3.66	0.02*	0.19*	–
Post-5	3.86	0.02	3.66	0.02*	0.19*	-42.3*

†Values are based on post-estimation simulations of Model 2.
One-Tailed: *: $p < 0.05$.

Table 5: Regime Type, Interstate War and Military Spending: 1950-2001

	Model 3	**Model 4**	**Model 5**	**Model 6**
	Polity2	*Dem Alt*	*Development*	*Capabilities*
Interstate War	0.90**	1.05**	1.00**	1.02**
	(0.12)	(0.16)	0.15	(0.14)
Post-War	0.68*	1.06**	0.94*	0.86*
	(0.32)	(0.44)	0.40	(0.41)
Polity2	-0.03**			
	(0.001)			
Interstate War*Polity2	-0.07**			
	(0.02)			
Post-War*Polity2	-0.12**			
	(0.04)			
Democracy Alternate		-0.36**		
		(0.05)		
Interstate War*Democracy Alternate		-0.49†		
		(0.26)		
Post-War*Democracy Alternate		-0.92		
		(0.66)		
Democracy			-0.50**	-0.33**
			(0.06)	(0.06)
Interstate War*Democracy			-0.43†	-0.62*
			(0.24)	(0.24)
Post-War*Democracy			-0.76	-0.68
			(0.66)	(0.65)
Economic Development			4.10e-05**	
			(4.50e-06)	
Capabilities				11.62**
				(1.06)
Military Spending$_{t-1}$	0.75**	0.76**	0.76**	0.45**
	(0.01)	(0.01)	(0.01)	(0.01)
Constant	0.61**	0.72**	0.53**	0.64**
	(0.03)	(0.04)	(0.04)	(0.04)
Adjusted R^2	0.84	0.82	0.84	0.84
F-Statistic	4,380.55	4,121.68	3,813.14	3,853.05
Probability $> F$	0.00	0.00	0.00	0.00
Observations	5,945	6,373	5,945	5,945

Standard Errors in Parentheses

Two-tailed: † : p $\leq$ 0.1; * : p $\leq$ 0.05; ** : p $\leq$ 0.01

Table 6: Regime Type, Interstate War and Education Spending: 1970-1999

	Model 7	**Model 8**	**Model 9**	**Model 10**
	Polity2	*Dem Alt*	*Development*	*Capabilities*
Interstate War	-0.08*	-0.15**	-0.14**	-0.14**
	(0.04)	(0.05)	(0.05)	(0.05)
Post-War	-0.04	-0.10	-0.02	-0.01
	(0.10)	(0.17)	(0.12)	(0.13)
Polity2	0.01**			
	(0.001)			
Interstate War*Polity2	0.01**			
	(0.004)			
Post-War*Polity2	0.022			
	(0.01)			
Democracy Alternate		0.11**		
		(0.02)		
Interstate War*Democracy Alternate		0.18**		
		(0.08)		
Post-War*Democracy Alternate		0.16		
		(0.20)		
Democracy			0.12**	0.20**
			(0.19)	(0.02)
Interstate War*Democracy			0.14†	0.12
			(0.08)	(0.08)
Post-War*Democracy			0.001	0.001
			(0.20)	(0.20)
Economic Development			1.02e-05**	
			(1.31e-06)	
Capabilities				-0.83*
				(0.41)
Education Spending$_{t-1}$	0.84**	0.84**	0.84**	0.84**
	(0.01)	(0.01)	(0.01)	(0.01)
Constant	0.61**	0.57**	0.51**	0.55**
	(0.03)	(0.03)	(0.30)	(0.03)
Adjusted R^2	0.94	0.95	0.94	0.94
F-Statistic	7,551.04	7,749.24	6,602.98	6,607.18
Probability $> F$	0.00	0.00	0.00	0.00
Observations	3,080	3,119	3,080	3,080

Standard Errors in Parentheses

Two-tailed: † : p $\leq$ 0.1; * : p $\leq$ 0.05; ** : p $\leq$ 0.01

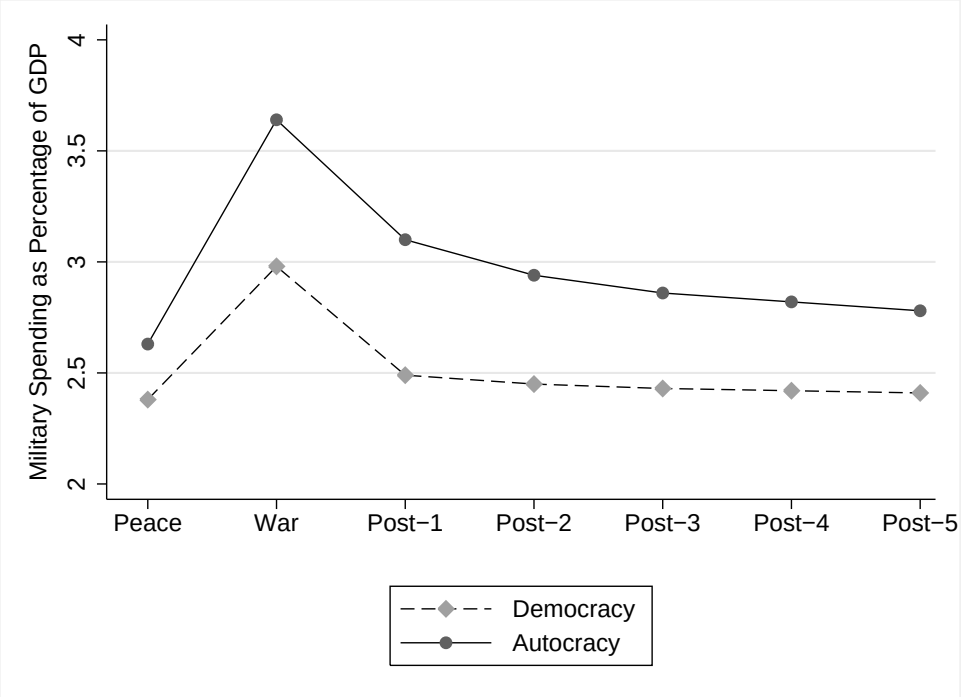

Figure 1: Regime Type, Interstate War and Military Spending, 1950-2001

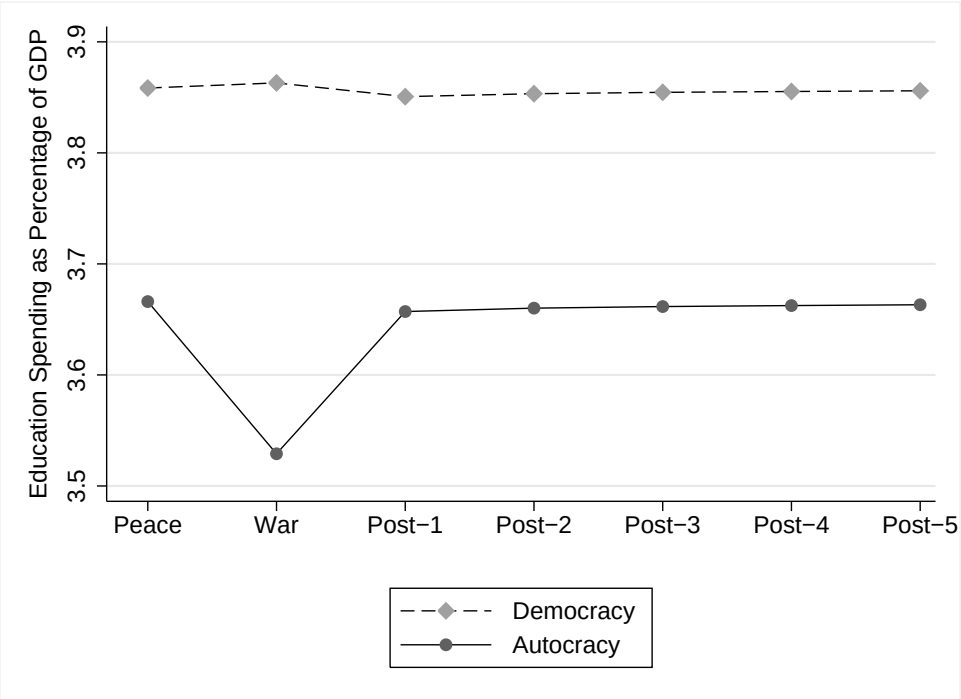

Figure 2: Regime Type, Interstate War and Education Spending, 1970-1999

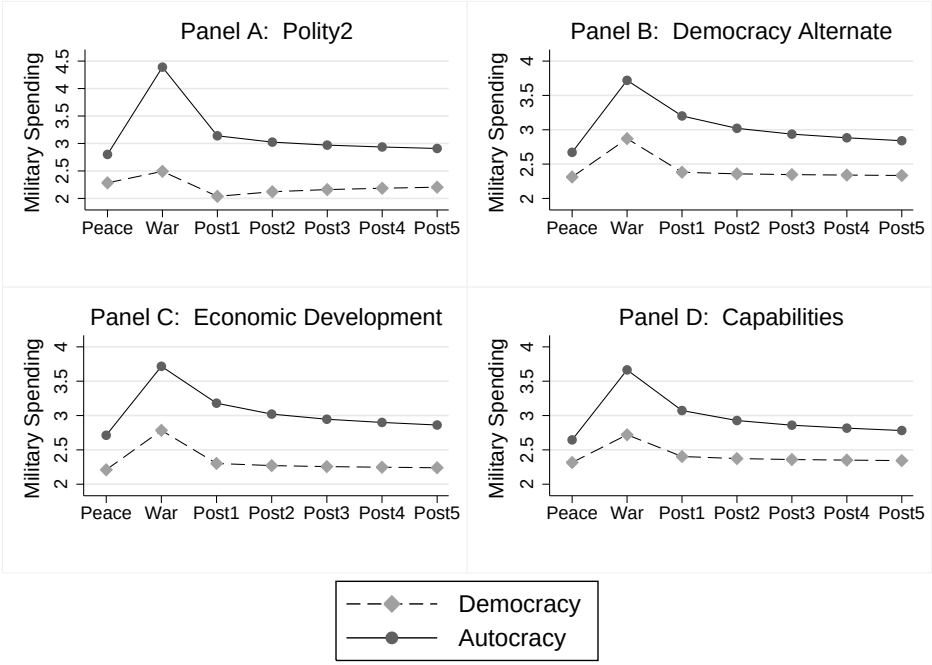

Figure 3: Regime Type, Interstate War and Military Spending, 1950-2001

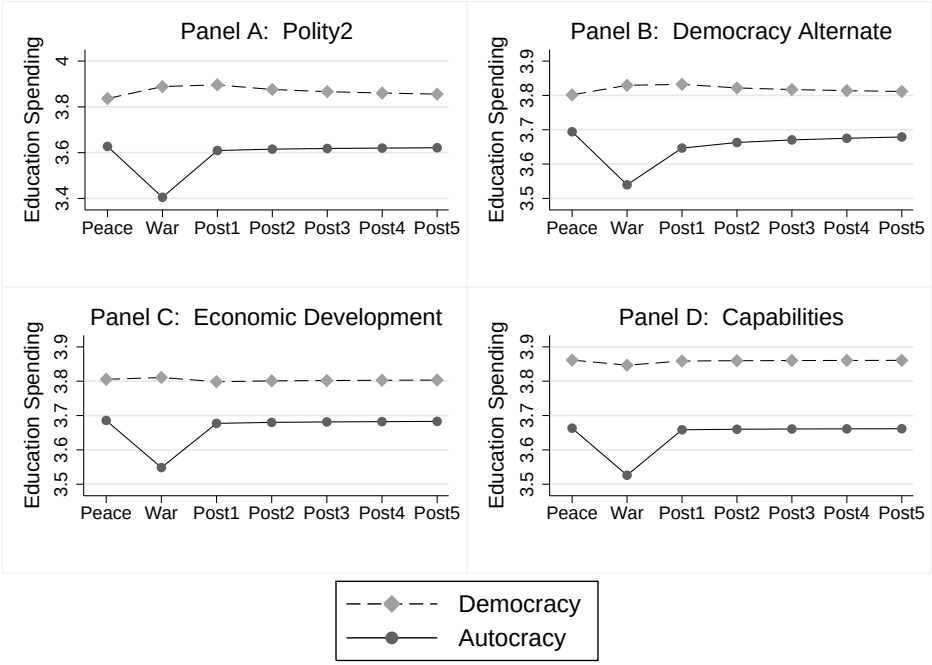

Figure 4: Regime Type, Interstate War and Education Spending, 1970-1999