

## What Motivates the Arming Process? The Internal and External Mechanisms of Rapid Military Buildups

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### Abstract

While the literature on military buildups seems fairly clear on the point that arms races contribute to the onset of international conflict, there is a debate as to what factors contribute to the onset of rapid buildups in first place. The theory and history suggest that either domestic factors or international factors motivate the onset of the arming process. Domestic factors such as internal threats, economic conditions, or government instability can lead to states seeking out weapons to protect the state. External factors such as international threats, rivals, or territorial disputes may also be important contributing factors to the arms process in that weapons theoretically should deter aggression. This paper seeks to resolve the debate and uncover the sources of accelerated spending programs that may later contribute to international war and general international instability. Our theory supports the idea that post-colonial states will arm to deter internal aggression and challenges to state leadership from within. External threats are often still relevant but the idea that internal factors, including economic conditions, are motivating the arming process cannot be ignored.

Keywords: Arms buildups, territorial disputes, rivalry, internal instability, defense burden

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## Introduction

What drives the arming policies of various international states? Most traditional international relations arguments hold that external threats are the sole motivation for the arming process, yet this perspective might tell only part of the story. Can we, in fact, predict rapid buildups or high levels of spending based on the level of internal stability, or lack thereof, in a state? Or is the key determinant of the arming process the external threat a state faces, as has traditionally been argued, such as a clear standing rival or an ongoing territorial question? These are the key questions that motivate this study.

While the literature on military buildups seems fairly clear on the point that dyadic arms races (or mutual military buildups) contribute to the onset of international disputes and the escalation of those disputes (Sample 1998, 2000, 2002; Gibler et al 2005, Senese and Vasquez 2008), there has been less attention paid to the question of what factors contribute to the onset of such buildups in first place.<sup>1</sup> Our theory suggests that past studies have unduly neglected domestic security components in the process, and that both domestic factors and international factors motivate the onset of accelerated arming processes. This point falls in line with current research in international relations that suggests internal factors can contribute to external outcomes. Domestic factors such as internal threats, leadership popularity, economic capacity, or government instability might lead states to seek out weapons to protect the state apparatus from domestic rivals. In public, the leaders of these states may suggest they are arming against an external enemy when in reality they are mainly concerned with regime stability. This argument is not intended to deny the relevance of external factors in relation to the arming process, but to suggest that internal security issues, particularly in the late 20<sup>th</sup> century, are also

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<sup>1</sup> We should note that this level of confidence in the relationship comes after years of debate about the impact of arms races on war (see Wallace 1979, Weede 1980, Diehl 1983, 1985).

likely to have an impact on arming processes which have already been demonstrated to have an impact on the likelihood of international conflict. Thus, this paper seeks to answer a key question that the field has largely ignored: to what extent are internal vs. external motivations driving the arming process? Our goal is to uncover the source of accelerated spending programs.

Our theory supports the idea that most states will arm in response to territorial threats, but non-European states, likely because of the challenges of post-colonial politics, will be particularly concerned with internal challenges to state leadership. In short, some states will arm to deter expected internal aggression. We test this theory with a large-N study that covers the post-Cold War era (1950-2000).

The question of what causes arms buildups is a politically important one. Having a better understanding of the real motivations that lay behind arms processes increases our chances of intervening in the process before arms buildups contribute to dyadic arms races and interstate war. Past research has clearly found that mutual military buildups are contributing factors to the onset of war (Sample 1997, 1998, Vasquez and Valeriano 2010, Senese and Vasquez 2008). The next step of is to determine why states arm in the first place so the international community can focus its conflict management strategies on these issues. Most would assume that the arms buildup process is motivated by external threats, but is this an accurate reading of the historical record? We examine this question through our model built on a post-1950 sample of state arms buildup data.

### **Past Research on the Sources of Military Buildups and Budgets**

International relations scholars have always been concerned in some way with the arms buildup process. Woodrow Wilson in his famous 14 Points speech noted that “adequate

guarantees given and taken that national armaments will be reduced to the lowest point consistent with domestic safety” must be a goal of the post-War peace. The literature on the *outcome* of arms races has fairly clearly demonstrated that rapid mutual military buildups increase both the likelihood the probability of getting into militarized confrontations with other states in the first place (Colaresi, Rasler & Thompson 2008; Gibler, Rider, & Hutchinson 2005) and the likelihood of disputes escalating to war (see Sample 2011 for a review of the extant literature).

This level of certainty does not exist with respect to the question of the motivation of arming processes. While much theoretical work on military buildups assumes that they are externally-driven, the empirical literature on the subject is not actually clear. Some studies find external threat perception as the motivation for arming; others see important and determining roles for bureaucratic funding models. None have really considered the importance of internal stability in determine the military buildup process. The instability of many regimes in the long wake of decolonization or after unsuccessful development projects would suggest that many governments faced greater threats from within their states than from external opposition.

The literature that explores the determinants of arms policies follows two interwoven threads, one relating to arms buildups themselves and the other related to the level of spending, of the defense burden, of a state. In this study, we will focus on the determinants for rapid arms buildups, which, when mutual, have typically been called arms races, though it is worth noting that in the area of determinants of the process, there is overlap in the literature. The work on arms races begins with the assumption of interactive and accelerated arming between enemy states, and then considers the extent to which that assumption can be validated empirically.

Those studies then open up the possibility that internal structural variables, whether issues of regime type or variables of financial constraint, might offer substantial explanatory value.

Historically, the decision to acquire arms, whether to rapidly increase a country's military or to have a particular level of arming has been seen through the general lens of foreign policy decision-making. As a type of foreign policy, arms policies are typically explained through the dominant theories that explain all foreign policy: the Rational Actor Model of foreign policy making, and the theoretical framework of realism. The Rational Actor Model assumes states are autonomous, unitary actors making policies that maximize their national interest (Allison 1971, Morgenthau 1948). In the realist configuration of the RAM, that national interest is determined by the anarchical structure of the system. The realist conceptualization of anarchy essentially means that states, in order to remain secure, must constantly seek ways to maintain and increase their power relative to others. The day-to-day decisions of foreign policy can be seen as reactions to specific opportunities and constraints offered to the state by the system at that moment, and estimations of what the system is likely to offer in the future. Arms buildups are one means of dealing with perceived security threats (Waltz 1979). Thus, arms buildups have been seen primarily as a result of external threat.

The bulk of the literature has focused on arms races as a particular manifestation of the natural reaction to security threats in the international system. An arms race typically implies that the countries involved are rivals reacting specifically to each other in a competitive and interactive buildup. They are not assumed to simply be reacting to a general or potential threat in the international environment. Rider (2009) argues that arms buildups are simply too costly to states to engage in them without a specific, highly salient motive such as a territorial conflict with another state. The assumption that arming policies are interactive also has led some to

suggest that we are unlikely to see rapid military buildups outside of rivalry (Rider 2009; Gibler, Rider & Hutchinson 2005).<sup>2</sup> Valeriano (2011), however, finds that arms races may occur outside of rivalries as well, and argues that there is risk associated with limiting our sample to only rivalries or dyadic processes in general when evaluating military buildups. We may be missing important and consequential arming behavior when we do.

The literature on both the causes and consequences of military buildups descends from the work of Lewis Richardson after World War I. Richardson's (1960) formal models of arms racing derived from his long-term consideration of the pre-World War arms races. His model of an arms race between two states incorporated three basic factors: the assumption that previous spending was likely to create fatigue (or domestic resistance to more spending), that states would react to the expenditures of the other state, and that their particular level of grievances against each other would be the determining factor in continued racing practices. Essentially, while fatigue is seen as a domestic brake on spending, the model itself is fundamentally an action-reaction system based on specific external threat perception by each unit.

Richardsonian models then provided rich ground for other theorists who refined and reconsidered the factors built into the formal model, though with mixed results. Intriligator and Brito (1981) incorporated technological limits and bureaucratic competition belonged in the model. Ultimately, Richardsonian models provided the foundation for two kinds of studies: those attempting to assess the causes of arms buildups, and those attempting to determine whether, given Richardsonian models, there could be a stable equilibrium in the model short of

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<sup>2</sup> In spite of the clear theoretical focus on arms races, many of the empirical studies on the consequences of arms buildups do not explicitly use arms races as their variable, but rather mutual military buildups (Sample 1997). The latter does not require interaction to be demonstrated: the causes of the buildup are bracketed, but not assumed, and theoretically distinct from the consequences. The mutual military buildup may be an arms race; it may be a coincidental buildup.

war. The latter question was addressed, in the light of the ongoing Cold War, in an almost exclusively theoretical vein. On the former question regarding the motivation for arming, studies employing Richardsonian formal models did not lead to robust findings. Different studies sometimes concluded that the arming patterns of the same pair of countries were driven primarily by different factors, external or internal (Stoll 1982). Obviously, this lack of conclusive results was a problem for the models.

These insufficient findings, coupled with challenges to the Rational Actor Model of foreign policy making generally, led to inquiry over the question of whether interaction with rivals could really explain states' military acquisitions, or whether other, likely domestic political processes might better explain military spending. In keeping with his overall challenge to the dominant model of foreign policy making, Allison (1975) argued that the decisions to build particular types of weapons involved years of research and development that crossed presidential administrations in the US. With long lag times being the norm, he argued, it became clear that choices about spending must primarily be part of a bureaucratic and organizational process, not reflective of a unitary state reacting to specific security threats. With specific reference to the superpowers during the Cold War, Cockburn (1983) found that the Soviet Union had its own version of the "military-industrial complex." He argues that strategic concerns within the Soviet arms acquisition processes tended to justify whatever the person ultimately making the decisions wanted to spend money on, and was able to achieve in bureaucratic battles with other relevant decision-makers in the Soviet budgeting process.

Moving beyond the assumption that the state could be considered a truly autonomous decision-maker, Mbaku (1991) suggested that the military is a rent-seeking interest group like any other, but with a comparative advantage in the use of the external threat narrative, and

(especially in developing countries) its own potential use of violence to achieve its preferred outcomes over budget decisions. In a quite different vein, Suchman and Eyre (1992) argued that the weapons procurement of developing countries in particular owed more to the leaders' attempts to fit into particular narratives about what modern, sovereign states should do than they owed to rational calculations about the real threats facing the country. Acharya (2000) similarly has pointed out that arms acquisitions of Southeast Asian countries over the last twenty years or so have not been interactive, but possibly imitative rather than competitive, with the states wanting to demonstrate that they are "part of the game" they are all playing.

While some studies argue that external threat may be less determining than particular manifestations of domestic politics in the budgeting process, others have found evidence of interaction and direct response to external security threat in military procurement decisions. Berman and Baker (1982) argued that if you considered Soviet history and institutions and their consequences in shaping the Soviet Union's definition of the national interest, then Soviet decisions could be seen as rational responses to perceived external threat. Williams and McGinnis (1988) found evidence of spending interaction between the Soviet Union and the United States, as did Byers and Peel (1989) looking at NATO and the Warsaw Pact countries. Bolks and Stoll (2000), in a broader study, found a connection between the naval decisions of the major states and the arms stockpiling process. While domestic factors were present, the competition between countries dominated their arming decisions.

There can be little doubt that the potential threats inherent in the current anarchical system will have an impact on countries' decisions. The question becomes how those threats are actually captured in arming policy, and what other factors might have a significant impact on arming decisions. When we move from an exclusive focus on international factors driving

decision-making, and consider various possible institutional and structural factors the extant literature modeling the defense burden may also help determine what variables are likely to offer significant explanatory power for arms buildups generally.

The defense burden differs from a rapid military buildup in important ways: they are empirically different metrics, and the literatures treating their consequences focus on quite divergent questions. The defense burden is the proportion of resources a country spends on its military. Military buildups assume unusual and substantial increases in spending, not simply a particular level of spending. A country may then be spending a high proportion of its resources on the military without engaging in any sort of rapid buildup. Alternatively, a country may rapidly build up its military while still spending a fairly modest proportion of its resources on military functions. In addition to this empirical distinction, the consequences are theoretically separate in the literature. The literature on rapid military buildups (“arms races”) almost exclusively considers their impact on the likelihood of war. The literature on the defense burden is somewhat more varied.

While the conceptual distinctions are ultimately crucial in a number of ways, they are not so in the context of asking what drives states’ arming policies; in this case, the models overlap significantly in their discussion of determinants of arming, whether at a particular level or in the circumstance of rapid buildups, justifying discussing both in the context of this study. In particular, the economic modeling of the causes (and consequences) of the defense burden is significant. This literature orients around several different questions. While there are some studies that consider the consequences for war of (high) defense burdens (in the international relations literature, see Sample 2002; Diehl 1985), there is a more substantial literature on the economic opportunity costs of the money spent on the military (Abu-Baker & Abu-Qarn 2003;

DeRouen & Heo 2001). The orienting question of this research is the classic guns versus butter question, or the impact on economic growth and standard of living that comes with spending substantial proportions of the nation's resources on the military, a use of resources which is typically thought to be relatively unproductive. Because money spent on defense is not going to other potentially more productive uses, the variable of military spending is related to the overall question of wealth generation and maintenance.

There is a substantial literature on the determinants of military spending that takes the defense burden as its dependent variable. While we do not do a complete review of that literature here, there are notable intersections with the military buildup literature that are relevant. In these studies, the defense burden is modeled as a function of economic characteristics and domestic political structure variables, with some, typically fairly basic, consideration given to external security motives (Dunne, Nikolaidou, and Mylonidis, 2003; Hewitt 1992). Military spending is one form of general government expenditures, and as such, financial variables that attempt to delineate the economic constraints on spending decisions are predominant, though they do not always offer the most explanatory power in the model. Hewitt (1992) found common financial and economic variables, such as level of external debt, accounting for defense spending in a wide range of countries, though others have argued that a wide range of strategic and economic variables can be found influential in particular cases (Dunne & Perlo-Freeman, 2003). Economic variables employed in these models include a variety of potential structural limits on spending, like the availability of regime type, constitutional limits on spending, foreign exchange, ratio of foreign-owned to domestic-owned capital, net foreign capital inflows, and foreign aid.

There are two notable gaps in the extant literature modeling arms buildups. First, both the military buildup or arms race literature and the econometric models for the level of spending tend to look at small subsets of states rather than global samples. In the case of the studies expressly about rapid military buildups, they typically examined the determinants of buildups within specific rivalries, like the superpowers during the Cold War. The studies then seek to find the mechanism of interaction, as compared to other potential factors, in the arming policies of those countries. Essentially, by choosing rivals or groups that might be considered naturally rivalrous, they choose their cases on the assumption that arms policies are externally-driven, and may be choosing the cases where external factors are, in fact, most likely to be dominant.

Focusing the study of arms buildups solely on rival states eliminates the possibility of asking whether there are rapidly arming states that are not directly responding to a perceived external security threat. This distinction becomes relevant when you theoretically separate out the causes and consequences of arming: states may arm for reasons unrelated to particular external security threats, but then increase the likelihood of external conflict through their policies. To understand the full dynamic of arms buildups (as well as their potential consequence), we should not build a likely cause of the phenomenon (rivalry) into the case selection for evaluating those causes, rather than using the factor as an independent variable.

The other notable weakness in the extant literature is the nearly universal ignorance of domestic security threats as a possible determining factor for arms acquisition. While Dunne, Nikolaidou & Mylonidis (2003), in trying to explain high defense burdens, include a variable for civil war, the overwhelming majority of studies assume state decisions are being made in an apparently stable, autonomous state. There are certainly studies that eliminate the assumption of the unitary state, and invite examination of such determinants as bureaucratic infighting, but few

take seriously domestic conflict except in the context of specific case studies (Arias & Ardila, 2003).

Over the last half-century following decolonization, civil wars and unrest have been more common than international wars. The state itself, in many post-colonial countries, has been a locus of conflict, and violent changes of government and regime have been fairly common. From the perspective of state leaders, then, it would seem rational to consider those threats and prepare for them with as careful attention as has been paid to potential international risks. Levels of internal violence and the stability of the regime would seem likely logical candidates for explaining military buildups.

### **Theoretical Expectations**

What then causes rapid military buildups? Past research has assumed generally that external threats were the sole motivating the arms race process, but that has not been adequately demonstrated, and it would see to ignore an important type of security threat facing many states characterized by internal instability or conflict. Our entry into the literature is to provide this empirical test and a theoretical pathway that evaluates the internal reasons for rapid military buildups in the absence of, or in coordination with, external threats. Can mutual military buildups really be explained only by examining the external security environment of a state? Are buildups even typically mutual?

Theoretically, the typical explanation for changes in arming policies has to do with either a desire to overturn or defend the international status quo, and the use of arms to signal resolve and manage power in that quest. This dynamic, however, ignores the likely consequences of internal instability in many states, particularly autocratic ones. For the leaders of such regimes,

the threat to the government or regime may easily be perceived as just as critical as any threat to the state itself. There have been more coups and civil wars in the last half century than there have been international wars. Leaders of regimes experiencing domestic insecurity can hardly be unaware of this fact and its existential threat to their governments. China spends more money on internal security than it does external security, and this spending has dramatically jumped in comparison to defense spending in recent years.<sup>3</sup>

After 1945, the international system changed in a profound way. The post colonial era ushered in a new system of state management and leadership. State legitimacy itself became an important question for leaders of many countries. No longer could leaders appeal to dynastic right to lend legitimacy to the regime. The power of a single colonial patron in any given state to assure domestic control was replaced with independence and different contesting external superpowers to whom contesting domestic actors could easily appeal. This process led to three mechanisms that could produce arms buildups: external threats, internal patronage or protection, and shifting economic capacity. Ultimately, all three elements are important factors in decisions made by states to rapidly buildup the military during the time frame under consideration here (1950-2000).

The first factor is external threats deriving from the anarchical international environment. In cases of clear and salient external threat, states can and often do typically engage in arms buildups to signal their resolve and/or prepare to prosecute their interests (Rider 2009). When faced with an apparent existential threat, such as a long term rival, the best option in the minds of many leaders is to participate in internal balancing operations (Waltz 1979). Increased spending

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<sup>3</sup> Leslie Hook, "Beijing raises spending on internal security." Financial Times, March 6, 2011. ([www.ft.com/cms/s/0/f70936b0-4811-11e0-b323-00144feab49a.html](http://www.ft.com/cms/s/0/f70936b0-4811-11e0-b323-00144feab49a.html) Accessed 3/6/2011) The fact that some states, like China, will hide their military spending directed internally in separate budgets so as to keep external defensive based expenditures separate should bias the results of this analysis against our theoretical expectations, but we do not believe that this happens in sufficient degree to impair the study.

is intended to deter other states from initiating disputes, while simultaneously increasing a country's power and consequent ability to maneuver in the international arena if disputes come. Thus, clear external threats such as unsettled territorial questions or the presence of long term rivalry should encourage states to engage in rapid military buildups.

*H1: As important external threats, ongoing territorial disputes and participation in rivalries will increase the probability of a rapid military buildup.*

The second factor is internal patronage and protection. While typically ignored in international relations, it is apparent in foreign policy interactions. States may easily build up their military to face internal, rather than external, threats. External threats may then be manufactured to justify the runaway arms production enterprise, while the buildups themselves can take the form of internal "protection rackets". Iraqi arms policies can be described like this in the 1990s and leading up to the 2003 invasion by the United States: Saddam Hussein told various military leaders that he was pursuing weapons of mass destruction because of the Iranian, Kuwaiti, or American threat. It was, however, easily arguable that he faced equal, if not greater threats from the majority marginalized Shiite population and his own disgruntled former internal allies. We can measure internal instability by looking at counts of riots, protests, and other sorts of expressions of dissatisfaction. Past coups, or violent leadership turnover events, should also motivate leaders to bolster military spending to both keep the military satisfied and to protect themselves against future challenges to their leadership. Further, the presence of armed internal opposition groups, such as rebels or terrorist actors, will likely motivate the rapid acquisition of weaponry.

*H2: As internal threats, a history of coups, general domestic instability, and violent armed opposition groups will increase the probability of a rapid military buildup.*

Economic variables explaining military spending are somewhat more common in the literature on defense burdens than the literature on rapid arms buildups, but the factor of economic capacity also appears in some arming models, and certainly creates a limiting framework in which states create their budgets. Bolks and Stoll (2000) suggest that arms races are determined both by external threat environments and domestic factors such as regime openness and societal budget considerations. This leads us to our third mechanism, state economic capacity. The economic growth rate will be an important factor in determining if states even have the ability to purchase arms, regardless of internal and external threats. Another important factor is level of the defense burden itself in the state. States with high defense burdens should be unlikely to participate in rapid military buildups because they may already be approaching likely limits in their capacity to spend. Regime type should also be a relevant variable (Bolks and Stoll 2000). More open democratic regimes have to answer to their constituents more directly for the opportunity costs foregone with large military spending increases. Autocratic regimes should be more likely to rapidly buildup the military because these leaders can more easily ignore demands for domestic social spending. Autocratic states in a closed economic system are free to pursue any spending priorities they deem necessary.

*H3: Economic and government factors such as high growth rates, high defense burdens, and the presence of autocratic regimes will increase the probability of rapid military buildups.*

In order to test these hypotheses, we examine the results of our model using three subsets of the state system. First, as basis of comparison, we test the model using all states in the international system. We then examine the model using non-European states as a subset, and the developing low-income states. The period of our study is 1950-2000. Theoretically, we believe that the instability characteristic of the post-colonial era is likely to make the non-European

states a relevant subgroup in our analysis of the arming process. States outside of the European system will likely have different arms acquisition processes than European states. European states have formalized and institutionalized means of securing regime stability, and while the first half of the 20<sup>th</sup> century was far from stable in the region, the latter half was relatively so even with the overarching occurrence of the Cold War centered in Europe. Non-European states had traditional forms of authority challenged or destroyed under imperialism, and had considerable trouble in establishing lasting institutions that were perceived as domestically legitimate. It is for these reasons that we believe that both external and internal considerations will motivate the arming process of the non-European state sample.<sup>4</sup> States outside of Europe should be more concerned with internal opposition groups than European states.<sup>5</sup> Further, given the focus on major states in much of the IR literature, and the predominance of European states in that group, it might well be that the European sample is driving the results in any pooled data analysis examinations conducted in the field.

Low income states are those that fall in the lower half of income-generating states according to World Bank data. For a variety of reasons, these states should be more susceptible to domestic unrest related in part to their economic state. Without the ability (willingness aside) to engage in significant social spending, low income states may be more likely to rely on the monopoly of violence to maintain domestic rule. Because of their comparative weak institutional mechanism, in order to deal with internal threats, and not just external ones, low income states will likely be forced to resort to what we typically consider “power politics

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<sup>4</sup> Clearly not all states will follow this pattern. The United States, Canada, and Japan might be examples of states that seem to act more like European established states while other states like Venezuela, Iraq, and Nigeria might be the norm in this sample.

<sup>5</sup> Modern history (2011) clearly illustrates this process. States like Belgium, Ireland, Greece, Spain, and Portugal have seen a rapid rise in dramatic protests and discontent, but these movements have not led to complete government turnover and a radical redistribution of power in the state. While other countries like Libya, Egypt, and Tunisia have been rocked by revolutionary movements that have changed entire government systems in these states.

strategies” (Vasquez 1993) of arms buildups and alliance seeking (while we do not deal directly with this, seeking external alliances to deal with internal threats was common to the Cold War among developing states). In short, we believe that rapid arms buildups will be less likely to be exhibited in European or developed states when compared to samples of non-European, less developed states.

## **Research Design**

Throughout this paper our dependent variable is a rapid military buildup as first suggested by Horn (1987) but modified by Sample (2002, 2011) to extend from 1950 to 2001. This version of the data is monadic in form since our question of interest is based on internal state processes. A state’s military expenditure growth rate is compared to its average growth rate over the century (1900-2000), controlling for inflation. In any given nation-year, a state is considered to have been engaging in a rapid buildup if its growth rate during the preceding ten years is higher than average and has been higher still in the five years immediately preceding the year (Sample 2002). We further lagged this by one year in one model to capture responses to immediate internal and external threats. We use logistic regression to test our expectations since the dependent variable is a binary.

In measuring external threats, we include two measures of territorial claims. Such claims can call into question the legitimacy of a state: can the state protect its own actual and implied boundaries?<sup>6</sup> Rider (2009) argues specifically that territorial disputes are particularly important in causing arms races because of the salience of the issue. Our first measure of this issue comes

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<sup>6</sup> For a review of territory as a unit of interest, see Vasquez and Valeriano (2009)

from the Militarized Interstate Dispute (MID) dataset of the COW program (Ghosn et al. 2004).<sup>7</sup> With nation-years as our unit of analysis, we count an active territorial dispute if there is a MID with a territorial revisionist issue for the state during the given year.<sup>8</sup>

Our secondary measure of territorial claims comes from the Huth and Allee (2003) data on territorial issues. Their data includes all territorial claims from 1919 to 1995. If a state was engaged in a territorial claim as claimant or target in a given year, the variable is coded to reflect that. These variables are distinct in that the Huth and Allee data includes all claims during that era, and does not solely represent those years in which there was a militarized dispute over territory—states were involved in territorial claims in many years where there was no MID.

As previously noted, rivalry has been used in some studies as a selection device in the evaluation of arms races (Gibler et al. 2005, Diehl and Crescenzi 1998). This method has flaws, however, since it is not at all clear that all relevant military buildups occur during rivalries (see Valeriano 2011). Rivalry should be considered separately from an arms buildup. For our purposes, we would like to know if rivalry itself contributes to ongoing rapid arms buildups. In this paper we use the Thompson (2001) strategic rivalry dataset because it has both a clear conceptual definition, and it is operationally defined independently from the MID dataset, thus avoiding potential collinearity with territorial dispute data. A rivalry is considered ongoing if the elites of two states see themselves as part of a competitive relationship of enmity which requires attendant security policies (Thompson 2001).

Our domestic instability variable comes from the Banks (2001) Cross National Time Series dataset as utilized by Belkin and Schofer (2003). Domestic instability measures an annual

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<sup>7</sup> Militarized Interstate Disputes cover government sanctioned uses, threats, and displays of force between states.

<sup>8</sup> To code territorial disputes, the MID revision type code is used. We use both revision type 1, primary, and revision type 2, secondary, to judge if there is a territorial dispute for the state in question during the year of observation under examination.

count of strikes, riots, assassinations, revolutionary actions, purges, antigovernment protests, and acts of guerilla warfare (Banks 2001). We took the natural log of the value of instability since the effect of domestic instability can be non-linear. We also use Powell and Thyne (2011) data on internal coups to measure an extreme form of internal instability and state disunity. Internal armed opposition groups are coded from the Armed Conflict Dataset (Lacina and Gleditsch 2005). We measure battle deaths with deaths of soldiers and civilians resulting directly from “violence inflicted through the use of armed force by a party to an armed conflict during contested combat” within the country (Lacina 2009).

We include the Gross Domestic Product (GDP) growth rate as a variable,<sup>9</sup> as well as Government Expenditure, which measures a government’s total spending as a percent of the state’s total GDP. This value excludes government military expenditures that are part of government capital formation (World Bank 2010). Defense Burden is the percentage of total military expenditures as a percent of the GDP.

Beyond these variables, we controlled for others that might impact that outcome of the model. Major states should be more likely than non-major states to engage in rapid military buildups given the global reach of their interests and their higher propensity to be involved in wars. Major states were coded based on the Correlates of War distinction of the term (Correlates of War 2008). Democratic states should be less likely to respond to external or internal provocations with rapid buildups. The openness of a democratic system makes the budgetary process more responsive to social funding requests which should take a priority over leadership prerogative in most situations. Democratic states are coded based on the Polity IV dataset (Marshall and Jaggers 2002). Democracies have a value of 6 and above in the index. We control for alliances because alliances can be considered substitutes for arms buildups in dealing with

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<sup>9</sup> All GDP data comes from Gleditsch (2002).

security threats in most situations. We use the Gibler and Sarkees (2004) data to code whether there is an ongoing outside alliance for the state in question.

The subsets of interest are fairly simply calculate: the non-European sample was derived using a dummy variable for any state not coded as being part of the European system. Low income states are taken from the World Bank's (2010) classification of income groups, and we divide this into two groups: group 1 (low income states) includes those states with less than \$995 of GDP per capita while group 2 (lower middle income states) is those states with \$996 to \$3,945 GDP per capita.<sup>10</sup>

## **Results**

The goal of this study is to examine the internal and external motivations for rapid arms buildups after 1950. The first step is examining the entire population of states. This is done as both a comparison group for the rest of our statistical tests and so others can judge the impact of our variables on the total pooled population of states.

[Insert Table 1 Here]

Table 1 presents the results for the entire sample. As noted earlier, we have two dependent variables, a rapid military buildup in 'real time' and a rapid military buildup with a one year lag. We generally will focus on the results for the one year lag dependent variable.

Of note in Table 1 is that both the territorial variables have a positive impact on the probability of a rapid internal arms buildup, lagged by one year. The Correlates of war Territorial MID variable is highly significant ( $p=.013$ ), while the p-value of the Huth variable is .068, not quite significant at the .05 level, but clearly in the expected direction. In contrast, we

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<sup>10</sup> The World Bank Income Group was originally classified using Gross National Income (GNI) per capita. However, due to the limit of this data, we use GDP per capita to classify states although we borrow the thresholds from the World Bank indicator.

did not find what we expected with rivalry: participation in a rivalry in this era makes it less likely that a state will rapidly build up its military, this coefficient is statistically significant and also somewhat surprising given the expectations in the rivalry literature (see Rider, Findley, and Diehl 2011). This finding may be related to the fact that our time frame is dominated by the Cold War, an era that demonstrates a number of differences from what some refer to as the classical period of international relations (1816-1945) (Senese and Vasquez 2008).

As demonstrated in Table 1, our internal instability variables fail to have impact on the sample of all states from 1950 to 2000. Internal instability, coups, and internal battle deaths all fail to reach statistical significance. For the entire pooled sample, internal instability factors (including internal battle deaths and coups) do not seem to have an impact on the dependent variable.

Overall, our internal economic variables perform much better. The growth rate of a state's GDP appears to be an important factor that can predict arms buildups. When a state makes money, it is clear that it tends to spend this money on defense. This may be because states are, as Suchman and Eyre (1992) argues, trying to live up to constructed vision of what a modern state does, or simply because they now have the wherewithal to build power and potentially prosecute their interests. Total government expenditures also appear to do well in predicting buildups. When the government spends a great amount of money in relation to its GDP, it will spend even more money on defense.

The impact of having a high defense burden was contrary to our expectations. States with high defense burdens are more prone to rapid buildups even though these allocations take up a great proportion of the budget. We expected states with high defense burden to be less likely to participate in rapid buildups because they are already extensively committed. The

results report the opposite relationship; states already committed to heavy defense spending have no qualms with extending this spending even more.

Our control variables all have differing relationships with the dependent variable. Alliances are not significant predictors of whether states will then engage in a rapid buildup. Surprisingly, major states are less likely to participate in rapid military buildups. Our original expectation was that major states have global defense commitments and these commitments would drive further military spending in response to threats. This appears to not be the case, major powers do not seek offensive military conflicts (Valeriano 2009) and they also fail to expand their military budgets rapidly in response to threats. It is possible that this finding, too, is related to the 1950-2000 timeframe and would not hold over the whole Correlates of War period. Finally, democracies are less likely to rapidly buildup their military budgets in any given year. This result is as expected in that democracies can be presumed to be more beholden constituents' demands for domestic spending.

[Insert Table 2 Here]

Table 2 presents the results of the non-European subset of our data. Theoretically, we expect our findings to reflect the global phenomenon of decolonization in this era. As Senese and Vasquez (2008) demonstrate, many statistical results in our field are dependent on the time frame under examination and the subset sample under consideration. Given the historical peculiarities of the 1950-2000 timeframe, an extended examination of the non-European sample makes sense. The results from this table suggest that our theoretical instincts were justified.

For the lagged sample, territorial disputes based on MIDs have a positive and statistically significant effect on the probability of a rapid arms buildup. What is surprising is the Huth and Allee (2003) based territorial issue variable has no impact on the results at all. It appears that

outside of Europe, a standing territorial issue does not encourage states to ramp up military spending while an actual militarized territorial threat does have a strong impact on the dependent variable. Once again, rivalry makes it *less* likely that states will rapidly buildup their military.

The non-European sample does lead us to find a positive and statistically significant relationship between internal instability and rapid military expenditure buildups. The fact that this variable only works outside of Europe gives us confidence that there is a relevant relationship with instability outside of the typical sample of well established nation-states. The leaders of developing states and mostly post-colonial states seem to be particularly wary of internal threats in the form of strikes, protests, and other forms of instability, and respond to them with rapid military increases. In contrast, the variables for coups and internal opposition battle deaths exhibit no relationship with the dependent variable.

Once again, the economic variables tend to all be positive and have a statistically significant relationship with the dependent variable. Those states with high growth rates, those that spend vast amounts of money in relation to their total budget, and those states that have a high defense burden are all likely to participate in rapid arms buildups.

Alliances once again have no established relationship with internal spending increases. In this sample, democracy barely exhibits statistical significance in the model with territorial MIDs and is not significant in the model using the Huth data. This finding would suggest that democracy tends to have less of an impact on the relationship with military buildups outside of Europe.

[Insert Table 3 Here]

Table 3 presents results for the sample of low income states. The results here are similar to those from the non-European sample with one important difference: once again, domestic

instability does not correlate with rapid military buildups. This would suggest that those very poor states with very restricted economic capacity are unable to respond to instability in the expected way. The economic variables all work in a positive and statistically significant direction which supports our contention that domestic processes are important to understand when rapid spending increases occur. Defense burden has a particularly strong impact on the dependent variable suggesting it is those states like North Korea that are likely to rapidly buildup their military while other states that do not contribute much spending to defense are unlikely to ramp up spending in light of any threat.

In this model, we once again find that territorial disputes increase the probability of rapid buildups while rivalry decreases the probability. Coups have no relationship with the dependent variable.<sup>11</sup> What is interesting is that democracy has no statistically significant relationship in the low income sample suggesting that democracy holds little sway on those states that fail to generate income.

## **Analysis**

Table 4 provides a summary of the findings discussed in this article. There are some clearly emerging patterns. Militarized territorial disputes are associated with rapid buildups, but territorial issues alone do not have a consistent impact on the dependent variable. This would suggest that a territorial dispute must first become militarized before a state chooses to arm itself in response to an external threat. Having a contentious territorial issue alone does not increase the probability of enacting the security dilemma.

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<sup>11</sup> We are unsure what the dynamic really is with the internal battle death variable (coefficient of 0.000) at this point and we need to explore the variable more.

[Insert Table 4 Here]

Domestic instability works as a variable of interest only for the non-European sample. Given the 1950-2000 timeframe, we argue that this finding reflects to peculiarities of both the post-colonial era and the way that the Cold War was mediated through newly independent, and frequently, unstable states. States outside of the European system had much different concerns than states in the established European system of states. States outside of Europe had to deal with internal challenges to state leadership in less institutionalized (and more likely to be regime-threatening) ways than European states in this era, which tended to focus more on social safety nets rather than military buildups given their relative security protection under the superpower umbrellas. Coups as a factor universally fail to have an impact on rapid buildups suggesting that extreme forms of internal disunity do not have an impact on military buildups. Democracy, on the other hand, makes it less likely that states will rapidly buildup their militaries, conforming to our expectation that democratic leaders are less free to spend on the military compared to other domestic agenda items.

Overall, most of our internal economic variables work as suggested. It is very clear that ignoring the economic determinants of arms buildups is folly. Arms buildups and arms races are not exclusively external threat processes. States can only seek to rapidly buildup their militaries if they have the economic capacity to do so. There have to be high levels of GDP growth in a state for it to even afford to explore military adventures. The state needs to have both the willingness and the capacity to spend for a military buildup to occur.

We found some interesting results for the defense burden variable. Our expectation was that states that have high defense burdens would be unlikely to rapidly buildup their militaries even more because they are already taxed on this issue. We found the complete opposite and this

makes sense from the gambling perspective/sunk costs perspective. Once a state already commits to a large military budget, what is to stop it from continuing this process? What good would it do North Korea now to stop its defense industry and focus on internal development? To a leader, this would be admitting failure. Even in the United States, this dynamic is in operation. If the state were to decrease defense spending and focus more on domestic capacity, critics would suggest we are sending a message of weakness to our 'enemies.' Political "weakness" of a leader may be a key issue for states that spend much their budgets on military equipment. Once you start the buildup process there is little point in stopping it the threat is resolved. Doing so may lead to internal challenges and removal from office. Obviously these are not normative concerns but empirical realities. It is hoped by pointing out the dynamics of the military buildup process we can seek to move towards more effective mechanisms to stop this process in the future.

It is clear here that rivalry, at least strategic rivalry (Thompson 2001), actually makes it less likely that states will rapidly build up their military in this period. This finding represents a sharp departure from the work and assumptions of some scholars in the field. The question for us is what is driving this outcome? Why are rivalries likely to decrease the probability of arms buildups when all along most scholars believed that arms buildups only occur during times of rivalry?

The first answer to the question might be that arms buildups occur both before and after rivalries start. The question is not if we should confine our sample to rival dyads, but what contributes to the onset of rivalry in the first place (Valeriano 2011). Valeriano (2003) suggested early on that arms races occur early in the life of a rivalry. This empirical result did not hold when one considered dyadic arms races but it does appear to hold when one considers arms

buildups at the monadic level. There is more that needs to be explored regarding state choices to build up the military. This is not a ‘real time’ dyadic process as most contend, but an internal process that we have made dyadic in the literature. Timing issues may be more important than heretofore believed. Arms buildups might not occur during the same year for each side. State A might build up their military in year one and State B might not respond until year three. These considerations are determined by external threats, internal threats, and economic capacity.

[Insert Table 5 Here]

Table 5 presents some early results that support our explanation. Here the dependent variable is a strategic rivalry (Thompson 2001) lagged by one year so as to capture the development of a rivalry. It is evident that most of the variables of interest work in the expected direction and are statistically significant. Most interesting for us is that rapid buildups correlate very well with strategic rivals when the latter is the dependent variable. The process appears to be backwards, arms buildups lead to rivalries but rivalries do not lead to arms buildups. More work needs to be done on this factor, particularly with the more accurate start dates represented in the Klein, Goertz, and Diehl (2006) data.

Also of note is that territorial MIDs, major powers, coups, large defense burdens and alliances all contribute to the rivalry outcome. These findings are consistent with much of the literature on rivalry (Colaesi et al 2008, Diehl and Goertz 2000, Valeriano 2011). Also, democratic states are less likely to become rivals (Diehl and Goertz 2000).

## **Conclusion**

It seems clear by this analysis that one cannot exclude internal factors in the examination of the determinants of rapid military buildups. While territorial disputes are relevant factors that

predict rapid buildups, domestic instability and economic considerations are also important to the arming process. As a variable, external rivalry consistently fails to account for the onset of internal arms buildups suggesting that, at least in the post-1950 sample, states are not arming against general threats, but only specific territorial threats. It is also of note that this result would suggest that arms buildups (at least monadic ones) do not exist solely in relation to rivalries processes. The relationship is much more complicated than that.

Future research efforts will proceed on two fronts. First we would like to compare the 1815-1945 to the post 1945 period. This enterprise would give us added confidence that the theoretical expectations are borne out by the data. The limitation is clearly the unreliable economic data critical to many of our models for the 1815-1900 periods. The second task is to further examine the processes of defense burdens in international affairs. Typically this is a question limited to the domain of economists but their research efforts have been hampered by the lack of accounting for external and internal threats.

In general, there is no benefit to a rapid arms buildup. Internally, some actors might make money and the leader of a regime might feel more secure, but mutual military buildups consistently correlate with the onset of international violence. In addition, rapid military buildups might prolong the lifecycle of authoritarian regimes. Instead of providing butter, the leader provides guns. Instead of spending on social safety nets and jobs programs, states actors will deal with general instability by supporting the military industrial complex. Now that we have a better handle on the reasons for rapid military buildups it hoped that these processes can be targeted and eliminated in the future, like Wilson suggested so long ago. Only by understanding the causes of an event, can the event be eliminated.

## **References**

- Abu-Baker, Suleiman and Aamer S. Abu-Qarn. 2003. "Government Expenditures, Military Spending, and Economic Growth: Causality Evidence from Egypt, Israel, and Syria." *Journal of Policy Making* 25: 567-583.
- Allison, Graham T. (1971). *Essence of decision; explaining the Cuban missile crisis*. Boston: Little Brown.
- Allison, Graham T. and Frederic A. Morris. 1975. "Armaments and Arms Control: Exploring the Determinants of Military Weapons." *Arms, Defense Policy, and Arms Control* 104 (): 99-129.
- Amitav, Acharya. 2000. *An Arms Race in Post-Cold War Southeast Asia?* Singapore: Institute of Southeast Asian Studies.
- Arias, André F. and Lara Ardila. 2003 "Military Expenditure and Economic Activity: the Colombian Case." *Revista Desarrollo y Sociedad*.
- Banks, A. S. 2001. Cross-national time-series data archive (data set). Binghamton, NY: Computer Systems Unlimited.
- Batchelor, Peter, Paul Dunne, and Guy Lam. 2002. "The Demand for Military Spending in South Africa." *Journal of Peace Research* 39: 339-354.
- Belkin, Aaron and Evan Schofer. 2003. "Toward a Structural Understanding of Coup Risk." *Journal of Conflict Resolution* 47(5): 594-620
- Berman, Robert P. and John C. Baker. 1982. *Soviet Strategic Forces: Requirements and Responses*. Washington, DC: Brookings.
- Bolks, Sean and Richard Stoll. 2000. "The Arms Acquisition Process: The Effect of Internal and External Constraints on Arms Race Dynamics." *Journal of Conflict Resolution* 44: 580-603.
- Byers, J. D. and D. A. Peel. 1989. "The Determinants of Arms Expenditures of NATO and the Warsaw Pact: Some Further Evidence." *Journal of Peace Research* 26: 69-77.
- Cockburn, Andrew. 1983. *The Threat: Inside the Soviet Military Machine*. New York: Random House.
- Colaresi, Michael, Karen Rasler, & William Thompson. 2008. *Strategic Rivals in World Politics: Position, Space, and Conflict Escalation*. New York: Cambridge University Press.
- Correlates of War Project. 2008. "State System Membership List Codebook, Version 2008.1." Online, <http://correlatesofwar.org>.

Diehl, Paul. (1983). "Arms Races and Escalation: A Closer Look." *Journal of Peace Research* 20(3): 205-212.

Diehl, Paul F. 1985. "Arms Races to War: Testing Some Empirical Linkages." *Sociology Quarterly* 26: 331-349.

Diehl, Paul and Mark Crescenzi. (1998). "Reconfiguring the Arms Race-War Debate." *Journal of Peace Research* 35(1): 111-118.

DeRouen, Karl Jr. and Uk Heo. 2001. "Modernization and the Military in Latin America." *British Journal of Political Science* 31: 475-496.

Dunne, J. Paul, Eftychia Nikolaidou, and Nikolaos Mylonidis. 2003. "The Demand for Military Spending in the Peripheral Economies of Europe." *Defense and Peace Economics* 14: 447-460.

Dunne, J. Paul and Sam Perlo-Freeman. 2003. "The Demand for Military Spending in Developing Countries: A Dynamic Panel Analysis." *Defense and Peace Economics* 14: 461-474.

Ghosn, Faten, Glenn Palmer, and Stuart A. Bremer. 2004. "The MID3 Data Set, 1993–2001: Procedures, Coding Rules, and Description." *Conflict Management and Peace Science* 21(2):133-154.

Gibler, Douglas M., Toby J. Rider, and Marc L. Hutchison. 2005. "Taking Arms against a Sea of Troubles: Conventional Arms Races during Periods of Rivalry." *Journal of Peace Research* 42: 131-147.

Gibler, Douglas M. and Meredith Sarkees. 2004. "Measuring Alliances: The Correlates of War Formal Interstate Alliance Data set, 1816-2000." *Journal of Peace Research* 41(2): 211-222.

Gleditsch, Kristian S. 2002. "Expanded Trade and GDP Data." *Journal of Conflict Resolution* 46(5): 712-724.

Hewitt, Daniel. 1992. "Military Expenditures Worldwide: Determinants and Trends, 1972-1988." *Journal of Public Policy* 12: 105-152.

Horn, Michael Dean. 1987. "Arms Races and the International System." Ph.D. Dissertation, University of Rochester.

Huth, Paul and Todd Allee. 2003. *The Democratic Peace and Territorial Conflict in the Twentieth Century*. NY: Cambridge University Press.

- Intriligator, M.D. and D. L. Brito. 1981. "Strategic Arms Limitations Treaties and Innovations in Weapons Technology." *Public Choice* 37: 41-59.
- Klein, James P., G. Goertz, et al. (2006). "The New Rivalry Dataset: Procedures and Patterns." *Journal of Peace Research* 43(3): 331-48.
- Lacina, Bethany and Nils Petter Gleditsch, 2005. 'Monitoring Trends in Global Combat: A New Dataset of Battle Deaths', *European Journal of Population* 21(2-3): 145-166.
- Lacina, Bethany. 2009. "Battle Death Dataset 1946-2008: Codebook for Version 3.0" Center for the Study of Civil War, International Peace Research Institute (PRIO), Oslo.
- Marshall, Monty G. and Keith Jaggers. 2002. 'Polity IV Project: Political Regime Characteristics and Transitions, 1800-2002, Dataset User's Manual' (<http://www.cidcm.umd.edu/inscr/polity>)
- Mbaku, John M. 1991. "Military Expenditures and Bureaucratic Competition for Rents." *Public Choice* 71: 19-31.
- Morgenthau, Hans J. (1948). *Politics Among Nations*. New York: Knopf.
- Powell, Jonathan M., and Clayton L. Thyne. 2011. "Global Instances of Coups from 1950 to 2009: A New Dataset." *Journal of Peace Research*.
- Richardson, Lewis F. 1960. *Arms and Insecurity*. Pacific Grove, CA: Boxwood Press.
- Rider, Toby J. 2009. "Understanding Arms Race Onset: Rivalry, Threat, and Territorial Competition." *Journal of Politics* 71: 693-2009.
- Sample, Susan. (1997). "Arms Races and Dispute Escalation: Resolving the Debate." *Journal of Peace Research* 34(1): 7-22.
- Sample, Susan. (1998). "Military Buildups, War, and Realpolitik: A Multivariate Model." *Journal of Conflict Resolution* 42(2) 156-175.
- Sample, Susan G. 2000. "Military Buildups: Arming and War," in *What Do We Know About War?* edited John A. Vasquez, 165-195. New York: Rowman & Littlefield, 2000.
- Sample, Susan. (2002). "The Outcomes of Military Buildups: Minor States vs. Major Powers." *Journal of Peace Research* 39(6): 669-692.
- Sample, Susan G. 2011 "Arms Races: A Cause or a Symptom," in *What Do We Know About War? 2<sup>nd</sup> Edition*, ed. John A. Vasquez. New York: Rowman & Littlefield.
- Senese, Paul D. and John Vasquez. (2008). *The Steps to War: An Empirical Analysis*. Princeton: Princeton University Press.

- Snider, L. W. 1994. "The Political Economy of Military Expenditures in Developing Countries: Establishing Some Empirical Norms." In *Seeking Security and Development: The Impact of Military Spending and Arms Transfers*, edited by Norman A. Graham. Boulder and London: Lynne Rienner Publishers.
- Stoll, Richard J. 1982. "Let the Researcher Beware: The Use of the Richardsonian Equations to Estimate the Parameters of a Dyadic Arms Acquisition Process." *American Journal of Political Science* 26 (1982): 77-89.
- Suchman, Mark C. and Dana P. Eyre. 1992. "Military Procurement as Rational Myth: Notes on the Social Construction of Weapons Proliferation." *Sociological Forum* 7: 137-161.
- Thompson, William. (2001). "Identifying Rivals and Rivalries in World Politics." *International Studies Quarterly* 45: 557-586.
- Valeriano, Brandon. 2009. "The Tragedy of Offensive Realism: Testing Aggressive Power Politics Models." *International Interactions*. 35(2): 179-206.
- Valeriano, Brandon. 2011 "Becoming Rivals," in *What Do We Know About War? 2<sup>nd</sup> Edition*, ed. John A. Vasquez. New York: Rowman & Littlefield.
- Vasquez, John A. (1993). *The War Puzzle*. Cambridge ; New York: Cambridge University Press.
- Vasquez, John A. and Brandon Valeriano (2009) "Territory as a Source of Conflict and a Road to Peace," In Jacob Bercovitch, Victor Kremenyuk, and I. William Zartman (eds.) *Handbook of Conflict Resolution*, London: Sage Publications, pp. 193-209.
- Vasquez, John and Brandon Valeriano. (2010). "Classification of Interstate Wars." *Journal of Politics* 72(2): 292-309.
- Wallace, Michael. (1979). "Arms Races and Escalation: Some New Evidence." *Journal of Conflict Resolution* 23(1): 3-16.
- Werner, Suzanne and Jacek Kugler. 1996. "Power Transitions and Military Buildups: Resolving the Relationship between Arms Buildups and War," in *Parity and War: Evaluations and Extensions of the War Ledger*, ed. Jacek Kugler and Douglas Lemke, 187-207. Ann Arbor, MI: University of Michigan Press.
- Williams, John T. and Michael D. McGinnis. 1988. "Sophisticated Reaction in the U.S.-Soviet Arm Race: Evidence of Rational Expectation." *American Journal of Political Science* 32: 968-995.
- The World Bank. 2010. World Developmental Indicators (WDI) 2010. World Bank. Online, <http://data.worldbank.org/data-catalog>.

**Table 1. Rapid Military Buildup, Entire Sample**

	<b>Model with COW Territorial MID</b>			<b>Model with Huth's Territorial Issue</b>		
	<u>Coef</u>	<u>SE</u>	<u>P Value</u>	<u>Coef</u>	<u>SE</u>	<u>P Value</u>
<b>DV: Rapid Military Buildup</b>						
COW Territorial MID	0.049	0.235	0.835	*	*	*
Huth Terr_Issue	*	*	*	<b>0.473</b>	<b>0.172</b>	<b>0.006</b>
Rivalry	-0.189	0.140	0.177	<b>-0.344</b>	<b>0.159</b>	<b>0.031</b>
ln(instability)	<b>0.263</b>	<b>0.074</b>	<b>0.000</b>	<b>0.203</b>	<b>0.076</b>	<b>0.008</b>
Coup	-0.077	0.205	0.707	-0.063	0.206	0.760
Battle Death	0.000	0.000	0.226	0.000	0.000	0.199
GDP Growth Rate	<b>1.752</b>	<b>1.024</b>	<b>0.087</b>	1.210	1.063	0.255
Total Gov't Expenditure	<b>0.035</b>	<b>0.011</b>	<b>0.002</b>	<b>0.042</b>	<b>0.012</b>	<b>0.000</b>
Defense Burden	<b>6.514</b>	<b>2.960</b>	<b>0.028</b>	<b>5.381</b>	<b>3.057</b>	<b>0.078</b>
Alliances	0.095	0.170	0.575	-0.024	0.179	0.892
Major Power	<b>-3.097</b>	<b>0.721</b>	<b>0.000</b>	<b>-3.110</b>	<b>0.725</b>	<b>0.000</b>
Democracy	<b>-0.456</b>	<b>0.139</b>	<b>0.001</b>	<b>-0.452</b>	<b>0.145</b>	<b>0.002</b>
Constant	-2.060	0.254	0.000	-2.152	0.289	0.000
Log pseudolikelihood	-738.0770			-678.6544		
Obs.	1256			1429		
Wald chi2(d.f.)	67.7500			69.3100		
Prob > chi2	0.0000			0.0000		
Pseudo R2	0.0617			0.0673		

	<b>Model with COW Territorial MID</b>			<b>Model with Huth's Territorial Issue</b>		
	<u>Coef</u>	<u>SE</u>	<u>P Value</u>	<u>Coef</u>	<u>SE</u>	<u>P Value</u>
<b>DV: Rapid Military Buildup with 1yr Lag</b>						
COW Territorial MID	<b>0.537</b>	<b>0.216</b>	<b>0.013</b>	*	*	*
Huth Terr_Issue	*	*	*	<b>0.290</b>	<b>0.159</b>	<b>0.068</b>
Rivalry	<b>-0.333</b>	<b>0.143</b>	<b>0.020</b>	<b>-0.382</b>	<b>0.152</b>	<b>0.012</b>
ln(instability)	0.102	0.075	0.175	0.053	0.077	0.487
Coup	-0.247	0.215	0.252	-0.290	0.214	0.175
Battle Death	0.000	0.000	0.210	0.000	0.000	0.151
GDP Growth Rate	<b>2.261</b>	<b>1.077</b>	<b>0.036</b>	1.682	1.056	0.111
Total Gov't Expenditure	<b>0.020</b>	<b>0.012</b>	<b>0.093</b>	<b>0.020</b>	<b>0.012</b>	<b>0.092</b>
Defense Burden	<b>8.040</b>	<b>2.953</b>	<b>0.006</b>	<b>7.118</b>	<b>3.006</b>	<b>0.018</b>
Alliances	0.246	0.175	0.159	0.122	0.178	0.494
Major Power	<b>-3.096</b>	<b>0.732</b>	<b>0.000</b>	<b>-3.099</b>	<b>0.730</b>	<b>0.000</b>
Democracy	<b>-0.306</b>	<b>0.138</b>	<b>0.027</b>	<b>-0.260</b>	<b>0.141</b>	<b>0.066</b>
Constant	-1.939	0.260	0.000	-1.791	0.282	0.000
Log pseudolikelihood	-740.1414			-697.7857		
Obs.	1591			1447		
Wald chi2(d.f.)	53.4100			47.6600		
Prob > chi2	0.0000			0.0000		
Pseudo R2	0.0567			0.0535		

**Table 2. Rapid Military Buildup, Non-European Countries**

	<b>Model with COW Territorial MID</b>			<b>Model with Huth's Territorial Issue</b>		
	<u>Coef</u>	<u>SE</u>	<u>P Value</u>	<u>Coef</u>	<u>SE</u>	<u>P Value</u>
<b>DV: Rapid Military Buildup</b>						
COW Territorial MID	0.045	0.244	0.854	*	*	*
Huth Terr_Issue	*	*	*	0.245	0.186	0.188
Rivalry	-0.190	0.153	0.215	-0.253	0.176	0.151
ln(instability)	<b>0.291</b>	<b>0.081</b>	<b>0.000</b>	<b>0.253</b>	<b>0.084</b>	<b>0.002</b>
Coup	-0.056	0.212	0.791	-0.025	0.212	0.906
Battle Death	0.000	0.000	0.243	0.000	0.000	0.190
GDP Growth Rate	1.324	1.099	0.228	0.862	1.132	0.446
Total Gov't Expenditure	<b>0.038</b>	<b>0.012</b>	<b>0.001</b>	<b>0.043</b>	<b>0.012</b>	<b>0.000</b>
Defense Burden	<b>6.473</b>	<b>3.093</b>	<b>0.036</b>	<b>5.839</b>	<b>3.218</b>	<b>0.070</b>
Alliances	0.134	0.185	0.468	0.019	0.192	0.922
Major Power	Perfect Indicator of Failure			Perfect Indicator of Failure		
Democracy	<b>-0.443</b>	<b>0.155</b>	<b>0.004</b>	<b>-0.441</b>	<b>0.163</b>	<b>0.007</b>
Constant	-2.177	0.270	0.000	-2.184	0.302	0.000
Log pseudolikelihood	-622.8511			-569.7992		
Obs.	1255			1142		
Wald chi2(d.f.)	48.1500			47.6300		
Prob > chi2	0.0000			0.0000		
Pseudo R2	0.0411			0.0445		

	<b>Model with COW Territorial MID</b>			<b>Model with Huth's Territorial Issue</b>		
	<u>Coef</u>	<u>SE</u>	<u>P Value</u>	<u>Coef</u>	<u>SE</u>	<u>P Value</u>
<b>DV: Rapid Military Buildup with 1yr Lag</b>						
COW Territorial MID	<b>0.520</b>	<b>0.226</b>	<b>0.022</b>	*	*	*
Huth Territorial MID	*	*	*	0.071	0.172	0.681
Rivalry	<b>-0.354</b>	<b>0.154</b>	<b>0.022</b>	<b>-0.320</b>	<b>0.166</b>	<b>0.054</b>
ln(instability)	<b>0.186</b>	<b>0.082</b>	<b>0.024</b>	<b>0.151</b>	<b>0.084</b>	<b>0.073</b>
Coup	-0.267	0.227	0.239	-0.297	0.227	0.189
Battle Death	0.000	0.000	0.189	0.000	0.000	0.124
GDP Growth Rate	<b>2.070</b>	<b>1.128</b>	<b>0.066</b>	1.682	1.101	0.127
Total Gov't Expenditure	<b>0.025</b>	<b>0.012</b>	<b>0.040</b>	<b>0.025</b>	<b>0.012</b>	<b>0.045</b>
Defense Burden	<b>7.120</b>	<b>3.020</b>	<b>0.018</b>	<b>6.606</b>	<b>3.097</b>	<b>0.033</b>
Alliances	0.128	0.183	0.486	0.033	0.185	0.859
Major Power	Perfect Indicator of Failure			Perfect Indicator of Failure		
Democracy	<b>-0.250</b>	<b>0.151</b>	<b>0.099</b>	-0.178	0.156	0.251
Constant	-2.012	0.273	0.000	-1.822	0.292	0.000
Log pseudolikelihood	-623.4442			-585.0674		
Obs.	1281			1160		
Wald chi2(d.f.)	39.6200			31.7700		
Prob > chi2	0.0000			0.0004		
Pseudo R2	0.0353			0.0302		

**Table 3. Rapid Military Buildup, Low-Income Countries**

	<b>Model with COW Territorial MID</b>			<b>Model with Huth's Territorial Issue</b>		
	<u>Coef</u>	<u>SE</u>	<u>P Value</u>	<u>Coef</u>	<u>SE</u>	<u>P Value</u>
<b>DV: Rapid Military Buildup</b>						
COW Territorial MID	-0.053	0.251	0.832	*	*	*
Huth Terr_Issue	*	*	*	0.323	0.196	0.100
Rivalry	-0.139	0.162	0.391	-0.259	0.179	0.147
ln(instability)	<b>0.218</b>	<b>0.088</b>	<b>0.014</b>	<b>0.173</b>	<b>0.089</b>	<b>0.054</b>
Coup	0.064	0.216	0.768	0.072	0.215	0.738
Battle Death	0.000	0.000	0.204	0.000	0.000	0.244
GDP Growth Rate	<b>1.925</b>	<b>1.135</b>	<b>0.090</b>	1.832	1.159	0.114
Total Gov't Expenditure	<b>0.058</b>	<b>0.012</b>	<b>0.000</b>	<b>0.061</b>	<b>0.012</b>	<b>0.000</b>
Defense Burden	<b>11.071</b>	<b>3.882</b>	<b>0.004</b>	<b>9.711</b>	<b>3.804</b>	<b>0.011</b>
Alliances	<b>-0.311</b>	<b>0.179</b>	<b>0.082</b>	<b>-0.350</b>	<b>0.186</b>	<b>0.061</b>
Democracy	<b>-0.373</b>	<b>0.167</b>	<b>0.025</b>	<b>-0.370</b>	<b>0.171</b>	<b>0.031</b>
Constant	-2.202	0.273	0.000	-2.274	0.300	0.000
Log pseudolikelihood	-568.2914			-541.5544		
Obs.	1162			1093		
Wald chi2(d.f.)	65.8900			65.1300		
Prob > chi2	0.0000			0.0000		
Pseudo R2	0.0567			0.0587		

	<b>Model with COW Territorial MID</b>			<b>Model with Huth's Territorial Issue</b>		
	<u>Coef</u>	<u>SE</u>	<u>P Value</u>	<u>Coef</u>	<u>SE</u>	<u>P Value</u>
<b>DV: Rapid Military Buildup with 1yr Lag</b>						
COW Territorial MID	<b>0.434</b>	<b>0.234</b>	<b>0.063</b>	*	*	*
Huth Terr_Issue	*	*	*	0.211	0.181	0.243
Rivalry	<b>-0.407</b>	<b>0.161</b>	<b>0.011</b>	<b>-0.457</b>	<b>0.169</b>	<b>0.007</b>
ln(instability)	0.094	0.087	0.281	0.054	0.089	0.547
Coup	-0.159	0.225	0.479	-0.206	0.224	0.357
Battle Death	<b>0.000</b>	<b>0.000</b>	<b>0.099</b>	<b>0.000</b>	<b>0.000</b>	<b>0.097</b>
GDP Growth Rate	<b>2.008</b>	<b>1.116</b>	<b>0.072</b>	1.749	1.129	0.122
Total Gov't Expenditure	<b>0.042</b>	<b>0.012</b>	<b>0.000</b>	<b>0.040</b>	<b>0.012</b>	<b>0.001</b>
Defense Burden	<b>10.305</b>	<b>3.652</b>	<b>0.005</b>	<b>9.890</b>	<b>3.650</b>	<b>0.007</b>
Alliances	-0.165	0.178	0.352	-0.252	0.182	0.166
Democracy	-0.187	0.161	0.245	-0.201	0.164	0.220
Constant	-1.923	0.266	0.000	-1.763	0.284	0.000
Log pseudolikelihood	-581.6815			-558.6132		
Obs.	1189			1111		
Wald chi2(d.f.)	52.5300			49.4100		
Prob > chi2	0.0000			0.0000		
Pseudo R2	0.0446			0.0428		

**Table 4: Direction of Findings for Variables of Interest**

<b>All States, 1950-2000</b>		<b>Non-European States</b>		<b>Low Income States</b>	
<u>Variable</u>	<u>Direction</u>	<u>Variable</u>	<u>Direction</u>	<u>Variable</u>	<u>Direction</u>
<b>Terr MID</b>	<b>+</b>	<b>Terr MID</b>	<b>+</b>	<b>Terr MID</b>	<b>+</b>
<b>Terr Issue</b>	<b>+</b>	Terr Issue	+	Terr Issue	+
<b>Rivalry</b>	<b>-</b>	<b>Rivalry</b>	<b>-</b>	<b>Rivalry</b>	<b>-</b>
Instability	+	<b>Instability</b>	<b>+</b>	Instability	+
Coup	-	Coup	-	Coup	-
Battle Death	+	Battle Death	+	<b>Battle Death</b>	<b>+</b>
<b>GDP Grow</b>	<b>+</b>	<b>GDP Grow</b>	<b>+</b>	<b>GDP Grow</b>	<b>+</b>
<b>Gov Expend</b>	<b>+</b>	<b>Gov Expend</b>	<b>+</b>	<b>Gov Expend</b>	<b>+</b>
<b>DefBurden</b>	<b>+</b>	<b>DefBurden</b>	<b>+</b>	<b>DefBurden</b>	<b>+</b>
Alliance	+	Alliance	+	Alliance	-
<b>Democracy</b>	<b>-</b>	<b>Democracy</b>	<b>-</b>	Democracy	-
<b>MajorPower</b>	<b>-</b>				

\*Bold Equals Statistically Significant

**Table 5. Correlates of Rivalry**

	<u>Coef</u>	<u>SE</u>	<u>P Value</u>
<b>DV: Strategic Rivalry Lagged 1 Year</b>			
COW Territorial MID	2.265	0.164	0.000
Rapid Buildup	0.228	0.078	0.004
Major	1.002	0.151	0.000
Coup	0.800	0.139	0.000
Battle Death	0.000	0.000	0.002
Defense Burden	8.442	0.906	0.000
Alliances	0.521	0.069	0.000
Democracy	-0.925	0.063	0.000
Constant	-0.834	0.071	0.000
Log pseudolikelihood	-3291.683		
Obs.	5619.000		
Wald chi2(d.f.)	814.430		
Prob > chi2	0.000		
Pseudo R2	0.138		