2015

STRUCTURE MATTERS: HOW ORGANIZATIONAL CHARACTERISTICS AFFECT MILITARY EFFORTS

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STRUCTURE MATTERS: HOW ORGANIZATIONAL CHARACTERISTICS
AFFECT MILITARY EFFORTS

DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Arts and Sciences
at the University of Kentucky

By

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ABSTRACT OF DISSERTATION

STRUCTURE MATTERS: HOW ORGANIZATIONAL CHARACTERISTICS
AFFECT MILITARY EFFORTS

Military organizations develop a unique set of practices and procedures in response to their particular political, economic, and social circumstances. The characteristics of these organizations shape standardized behaviors, methods of training personnel, and the degree of stratification within their bureaucratic hierarchies. This study examines how organizational characteristics influence battlefield effectiveness, patterns of alliance formation, and the security of United Nations peacekeepers.

Chapter 2 evaluates how differences in personnel sophistication and bureaucratic stratification influence battlefield efficacy. A military may devote substantial resources to develop war plans and procure advanced technology, but these assets are of limited consequence in the absence of personnel and a bureaucratic configuration capable of translating political aims into military actions. Using battle-level data from the First World War, I find that military organizations with stratified bureaucratic hierarchies and relatively sophisticated personnel are significantly more effective on the battlefield.

Chapter 3 examines how characteristics of military organizations influence the likelihood of alliance formation. Previous literature argues that a cooperative relationship is essential for an alliance to form, but allied states must also coordinate military activities in order to operate as a cohesive unit. Recognizing the extensive interplay between cooperation and coordination, I contend that alliances form when states share common interests and have military organizations capable of coordinating actions. Through an analysis of alliance formation from 1816-2007, I find that states with similar military organizations are significantly more likely to create security alliances.

Chapter 4 investigates how organizational traits of United Nations peacekeeping coalitions influence the frequency and magnitude of deliberate attacks on peacekeepers. Peacekeeping missions occur in unstable conflict environments, so effective collaboration among peacekeepers is critical to achieve mandated objectives and protect UN personnel

drawn from harm. Operating as a cohesive unit presents a considerable challenge for peacekeeping forces because they are *ad hoc* coalitions of contingents from a variety of organizational cultures and professional backgrounds. Using annual data of UN peacekeeping operations from 1990-2013, I find that peacekeeping coalitions sharing similar organizational structures suffer fatalities at a significantly lower rate and magnitude.

KEYWORDS: Military Organizations, Military Effectiveness, Alliance Formation, Peacekeeping Operations

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STRUCTURE MATTERS: HOW ORGANIZATIONAL CHARACTERISTICS
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Chapter 1: Introduction

Due to the anarchic nature of the international system, political leaders rely on a

military organization to promote domestic order and project power beyond state borders

(Huntington 1957; Feaver 1999; Tellis 2000). Despite sharing common goals, each

state's armed forces develop unique practices and procedures in response to particular

political, economic, and social circumstances (Lewis and Roll 1990; Kadera 1998; Stam

1996).[1] An abundance of literature examines how characteristics of the state, such as

regime type, economic development, and geography, contribute to military capabilities;

however, these studies often overlook traits of the military organization itself.

Organizational differences occur because the armed forces must be capable of

deterring foreign and domestic adversaries, while remaining receptive to the interests of

political leaders (Huntington 1957; Feaver 1999; Tellis 2000). Striking this balance

between aptitude and servitude is a difficult endeavor because overemphasis in either

direction can create dire consequences for the state. Specifically, a military that has

limited resources and lacks political support signals weakness to the international

community, which invites foreign aggression (Bland 1999; Feaver 1999). Likewise, a

military with unchecked power can develop into a "parasitic" organization that

undermines political leadership and directs resources away from the general public

(Bland 1999; Feaver 1999). Where a particular military falls along this spectrum

influences essential features of the military organization, including methods of training

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[1] Military organizations often have to settle for suboptimal methods that not only compromise the ability to project power internationally, but also increase the risk of casualties and overarching ineffectiveness in the theater of war (Biddle and Long 2004; Kadera 1998; Reiter and Meek 1999; Stam 1996).

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and mobilization, development of standardized behaviors, and capacity to collaborate with other militaries (Fredrickson 1986; Millett *et al.* 1988; Soeters *et al.* 2010; Wilson 1989). This study investigates how characteristics of military organizations influence battlefield effectiveness, patterns of alliance formation, and peacekeeper security.

Chapter 2 evaluates how dissimilarities in organizational characteristics influenced battlefield effectiveness during the First World War. Organizational characteristics not only affect methods of mobilizing personnel, proliferating weapons, and developing strategies, but also change how a given military stratifies its bureaucratic hierarchy. These differences are important to recognize because structure defines patterns of intra-organizational relationships and institutes professional expectations for personnel (Feaver 1999; Fredrickson 1986; Huntington 1957). A military may devote substantial resources to develop war plans and procure advanced technology, but these assets are of limited consequence in the absence of personnel and a bureaucratic configuration capable of translating political aims into military actions (Hamilton and Herwig 2010; Millett et al. 1986; Millett et al. 1988; Murray 2011).

While most studies of militarized conflict focus on the ultimate winners and losers of a war, it is possible for the armed forces to be effective, even if they fall short of victory (Brooks 2007; Millett et al. 1986). Specifically, an effective military is one that is able to convert the resources at its disposal into an organization capable of conducting operations against a broad range of adversaries (Brooks 2007; Tellis 2000). Because state leaders tend to be sensitive to excessive economic and human losses (see Horowitz *et al.* 2011), an effective military organization is the one that achieves political aims with limited costs in terms of blood and treasure. The First World War provides an ideal

setting for this evaluation because it is well-known event comprised of numerous battles and involved participating militaries with considerable variation in organizational structure. By evaluating the influence of organizational structures on individual battle outcomes, this study offers novel insights for this historical case and indicates how organizational traits can influence battlefield efficacy in contemporary war. Using battle-level data from the First World War, I find that military organizations with stratified bureaucratic hierarchies and relatively sophisticated personnel are significantly more effective on the battlefield.

Chapter 3 examines how characteristics of military organizations influence the likelihood of alliance formation. Previous literature suggests that states form security alliances when they have similar domestic institutions, share foreign policy objectives, or are facing a common enemy. Military alliances require elements of cooperation and coordination in order to aggregate resources, conduct joint operations, and deter outside aggressors.[2] Cooperation occurs when states share common interests and adopt policies that benefit at least one of the actors, while not making others worse off (Gulati *et al.* 2012). The possibility for cooperation is an essential trait when identifying a potential alliance partner as state leaders are unlikely to pay the extensive costs created by formal alliances unless signatories share common interests and approaches to international problems. In order to translate mutual goals into action, alliance partners must also coordinate a military action, which requires a deliberate and orderly adjustment of practices and procedures to implement allied plans (Gulati *et al.* 2012).

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[2] Prior research suggests that alliances are most likely to deter outside aggression when the partnership signals a high degree of cooperation and coordination to the rest of the international system (Leeds and Anac 2005).

In the absence of perfect information, states partner with one another based on the perception that their interests are compatible and that mutual gains can be achieved by working together (Filson and Werner 2004; Keohane 2005; Reiter and Stam 2002;Weitsman 2003, 2014). Even if allies consider joint action as no more than a temporary marriage of convenience (see Mearsheimer 2001), miscalculations of other state's attributes and capabilities may create a poor selection of military partners, which could result in substantial material and human costs. Therefore, I theorize that allied militaries that have comparable organizational traits require less of a learning curve to reconcile their differences and work together effectively. Recognizing the roles of both cooperation and coordination, I investigate patterns of alliance formation from 1816-2007 and find that states with similar military organizations are significantly more likely to create security alliances. These results demonstrate that states evaluate the prospects of both cooperation and coordination with potential allies before forming alliances. This means that it is not enough for allies to agree on political and military objectives in a broad sense, but they must also develop compatible organizational practices, standardized procedures, and military acumen to execute joint operations.

Chapter 4 investigates how organizational traits of United Nations peacekeeping coalitions influence the frequency and magnitude that belligerent actors deliberately target peacekeepers with violence. Potential problems and pathologies found within state military organizations are more acute within a coalition framework because a coalition is an informal and temporary agreement for common action among states and partner states rarely share the same overarching aims or methods to achieve their objectives (Silkett 1993). This places a considerable burden on military planners, who, while determining

coalition objectives and strategies, must reconcile varying political interests in order to achieve full unity of effort among the participating states (Morey 2015; Silkett 1993). In the absence of ample time to evaluate the military capacity of partner states, engender common practices, or coordinate joint operations, coalition forces have limited opportunities to develop organizational trust or strategic unity that is necessary for military success (Soeters *et al.* 2010; Weitsman 2003). Moreover, even if each member state shares a common perspective on coalition objectives, reconciling differences in organizational structure requires negotiation, experimentation, and time before effective joint maneuvers can occur (Biddle 2004; Soeters *et al.* 2010).

If belligerents perceive a peacekeeping coalition as detrimental to their policy objectives, they have incentives to purposefully and violently target peacekeepers in an attempt to destabilize the operation and remove the foreign presence (Ruggeri *et al.* 2012; Salverda 2013). A peacekeeping force that coordinates actions effectively is better able to aggregate its resources and deter violent acts from hostile parties. On the other hand, peacekeeping partners that are unable to work together or rapidly adapt to changing circumstances risk being perceived as inept and may be incapable of quelling violence, no matter how many "blue helmets" are involved (United Nations 2008). I theorize that coalition partners that function under similar organizational structures are able to collaborate and demonstrate the aptitude necessary to deter malicious violent attacks by belligerent parties. Through the analysis of UN peacekeeping operations from 1990-2013, I find that peacekeeping coalitions sharing similar organizational structures suffer fatalities at a significantly lower rate and magnitude.

This project examines diverse cases and that cover different temporal periods in order to identify the importance of organizational structure in a variety of military efforts. Chapter 2 uses a micro-level approach to evaluate how differences in bureaucratic stratification and personnel sophistication influence the battlefield efficacy of a given military organization. This chapter outlines the mechanism of how differences in organizational structure influences battlefield behavior, and in turn, affects the number of personnel killed in action. Chapter 3 expands the scope to include all states from 1816-2007, and investigates how state leaders recognize the role of organizational structures when choosing potential military allies. This chapter argues that state leaders recognize the influence of organizational differences and strategically choose allies that can cooperate politically and coordinate militarily. Chapter 4 focuses on organizational development and investigates how security forces with different practices and procedures work together within a coalition framework. Because the United Nations cannot strategically select its personnel, structural differences among national contingents affect the likelihood and magnitude of peacekeeper fatalities. This means that United Nations leadership must consider organizational characteristics before constructing peacekeeping operations and deploying personnel into a conflict zone

Because the concept of structure is multi-faceted, each chapter uses distinct measures of organizational characteristics. In chapter 2, I evaluate organizations in terms of bureaucratic stratification and personnel sophistication. These measures approximate size of military command chain as well as the capacity of personnel within the organization. In chapter 3, I consider the sophistication of personnel as well as the societal role of the military as organizational features. These measures represent the

proportion of the population involved in the military as well as their potential skill on the

battlefield. In chapter 4, I use the durability of the military organization to measure its

development of standard operating procedures. By capturing different aspects of military

organizations, these measures provide consistent support for the influence of

organizational structure on battlefield efficacy, alliance formation, and peacekeeper

security. These findings demonstrate that organizational structure matters, and that these

traits are not sensitive to a particular measure and are applicable to a number of military

efforts.

The present study challenges leading theories in international relations by

acknowledging idiosyncrasies among military organizations and examining the effect of

these characteristics on military efforts. Specifically, the realist/neorealist perspectives

along with the neoliberal school of thought tend to focus on attributes of the state and

continue to "black box" the armed forces.[3] This decision glosses over that military

organizations are distinct entities, minimizes that military organizations are microcosms

of the societies they serve in terms of professional norms and initiative on the battlefield

(Millet *et al.* 1986, 1988; Murray 2011; Reiter 2007; Reiter and Stam 2002; Soeters *et al.*

2010). Therefore, this project intends to identify key characteristics of military

organizations and explain how these traits influence military efficacy on the battlefield,

the likelihood of alliance partnerships, and personnel security within peacekeeping

coalitions.

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[3] Neorealists simplify military organizations to the greatest degree by conceptualizing the state a unitary actor (Measheimer 2001; Waltz 1979). While neoliberals recognize the influence of subnational and transnational factors to the development of state institutions, it does not address explicitly differences in the armed forces or the impact of these differences.

Chapter 2: Military Efficacy in the First World War

A series of conflicts involving territory, spheres of influence, and military supremacy plagued Europe during the early years of the 20th Century.[4] These clashes set the stage for a large-scale war by encouraging military alignments across the continent, such as the entente between Russia and France and the alliance between Germany and Austria-Hungary, along with arms races among competing states (Kennedy 1984; Tierney 2011; Van Evera 1985). Tensions between these factions reached a violent crescendo with the assassination of the Habsburg Archduke Franz Ferdinand in the summer of 1914 (Williamson 2011). Germany elected to support its ally in a military response against Serbia despite concluding that this would likely draw additional states into the fray, and could even result in a two-front war (Lieber 2007; Tierney 2011). Despite considerable military and industrial disadvantages when compared to their adversaries, war still became the selected course of action for the Central Powers (Hamilton and Herwig 2010; Kennedy 1984; Williamson 2011).

More than a century after the July Crisis, scholars continue to investigate why the Central Powers took a gamble for military victory and how this decision escalated into one of the bloodiest conflicts in modern history (Levy 2011; Snyder 1984; Tierney 2011; Van Evera 1984, 1985; Vasquez *et al.* 2011). Previous literature identifies adherence to offensive military doctrine (Snyder 1984; Stam 1996; Van Evera 1984), domestic political conditions (Shimshoni 1990-1991; Reiter and Stam 2002), and complex alliance

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[4] These conflicts included the Russo-Japanese War, the First and Second Moroccan Crises, the First and Second Balkan Wars, and a naval arms race between Germany and the United Kingdom. There were also a number of disputes that included a near Austro-Russian war in the winter of 1912-1913, two near Austro-Serbian military clashes, and a German-Russian crisis over advisers in Constantinople (Williamson 2011).

ties (Weitsman 2003, 2014; Williamson 2011) as potential factors behind the development and outcome of World War I. While these explanations are informative, existing research does not detail how traits of each military organization influenced differences battlefield performance.

Most political leaders charge their military organizations with the defense of the state and its interests, but idiosyncrasies within states determine the amount of resources and responsibilities granted to the military, which in turn changes how a given military structures its organization. These differences are important to recognize because structure defines patterns of intra-organizational relationships and institutes professional expectations for personnel (Feaver 1999; Fredrickson 1986; Huntington 1957). A military may devote substantial resources to develop war plans and procure advanced technology, but these assets are of limited consequence in the absence of personnel and a bureaucratic structure capable of translating political aims into military actions (Hamilton and Herwig 2010; Millett *et al.* 1986, 1988; Murray 2011). The present study concludes that the bureaucratic design of the military as well as the sophistication of its personnel significantly shaped the battlefield performance of World War I participants. This finding indicates that political decisions regarding the allotment of resources to the armed forces and the stratification of authority within its ranks influence how effectively military personnel perform on the field of battle.

This chapter begins by introducing prior literature on conflict outcomes and discussing how these connect to existing explanations of events in the First World War. Second, I examine the structure of military organizations and discuss how professional attributes of personnel along with bureaucratic design determine how decisions are made

and how troops respond to changing circumstances in conflict. Next, I develop a theoretical explanation of how differences in structure critically influence military efficacy on the battlefield. Then, I use statistical analyses to identify how organizational structure factored into battle outcomes in World War I. I conclude by integrating organizational structures into explanations for the development and outcome of the First World War and considering how variation in organizational structures affect battlefield efficacy in both unilateral and multilateral military efforts.

Conventional Wisdom about the Great War

Among the explanations for the initiation, escalation, and outcome of World War I, numerous scholars contend that offensive doctrines dominated military organizations of belligerent states. This "cult of the offensive" emerged because military professionals were fighting for the societal position of the armed forces and argued that aggressive military solutions were the best method to reach political objectives (Snyder 1984; Van Evera 1984, 1985). As a result, military leaders emphasized an active role for the defense apparatus in order to obtain a greater share of state resources and maintain relevance among other government agencies.[5] An attempt to preserve the professional nature of the military was evident in France where political pressures to shorten the tenure of military service caused the armed forces to fear for the traditions of their organization (Snyder 1984; Van Evera 1985). To ensure the survival of the armed forces, many military officials began promoting the merits of offensive actions, which they argued could only be performed by well-trained, active-duty troops (Sagan 1986; Snyder 1984; Van Evera

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[5] States operate with a finite amount of distributable goods, so a continual competition for resources emerges between the military and other government agencies to maintain organizational relevance and vitality (Allison 1971; Barnett and Finnemore 2004).

1985). As a bureaucratic organization, this bias toward offensive actions spread through the chain of command in order to create a clear organizational mission for all military personnel to follow.[6]

Beyond doctrine, influence of standardized organizational behavior was evident in terms of mobilizing military personnel. After political and military leaders decided to begin war preparations, the mobilization "machines" had too much bureaucratic inertia to stop once activated (Trachtenberg 1990-1991; Sagan 1986). In other words, orders to mobilize the armed forces served as a tipping point, from which the state could not back down. Scholars contend that the decision to mobilize spurred a security dilemma across Europe, creating a chain-reaction of arming and military preparation (Levy 1990-1991; Trachtenberg 1990-1991). Snyder (1984: 119) recognizes the power of organizational momentum when stating,

> Organizations like to work according to a plan that ties together the
> standard operating procedures of all the subunits into a prepackaged script.
> So that they can stick to this script at all costs, organizations try to
> dominate their environment rather than react to it. Reacting to
> unpredictable circumstances means throwing out the plan, improvising,
> and perhaps even deviating from standard operating procedures.

While some decisions can be credited to organizational inertia, it was in the hands of military leaders to develop specific strategies and war plans that would overpower the adversary (Shimshoni 1990-1991). The string of European conflicts in the early 20th

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[6] Some scholars challenge the dominance of offensive doctrine, noting that military leaders can justify aggressive military force through either offensive or defensive doctrine (Leiber 2007; Sagan 1986).

century encouraged states to act as coalitions instead of relying on unilateral action. Political tensions alongside the complex alliance commitments increased both the probability and magnitude of the First World War (Tierney 2011; Vasquez *et al.* 2011). These extensive alliance ties emboldened state leaders to engage in aggressive action, with states under the impression their allies would provide military support if necessary (Pressman 2008; Stevenson 2011; Tierney 2011).[7] For example, Austria-Hungary understood that Germany would provide its assistance if the war were to draw in a third party, which motivated the decisions to send an ultimatum to Serbia and eventually elect to initiate war against Russia (Levy 2011). In the absence of the strong alliance agreement, and Germany's "blank check" support, the Dual Monarchy may not have pursued such an aggressive policy (Levy 2011; Tierney 2011; Williamson 2011). Many scholars argue that Austria-Hungary's decision led to an immediate escalation of conflict by activating agreements between Russia and France, and eventually Great Britain (Tierney 2011; Williamson 2011).

It is possible that alliance commitments led to the entrapment of major European powers, but these agreements were not comprehensive and did not involve all members of the respective coalitions. Leeds *et al.* (2000) indicate that scholars should not treat all alliances in the same manner because the specific terms of an agreement have a substantial impact on decision-making. For instance, the formal agreement between Great Britain and France simply entailed a lack of fighting over colonial claims, but contained

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[7] Scholars refer to these types of relationships as "chain-gang alliances" (Pressman 2008; Tierney 2011). For example, Lieber (2007) argues that Germany chose to provoke a major conflict as a way to capitalize on its waning power advantage. This was a viable strategy because alliance commitments would bring Austria-Hungary into the fray (Kennedy 1984).

no promise of military coordination in the event of war (Leeds *et al.* 2002). Moreover, rather than creating alliance networks that tied all of these states into a collective security system, these coalitions were comprised of a number of bilateral agreements (Chong and Hall 2014; Tierney 2011; Williamson 2011). Instead of creating a single, multilateral alliance, each pair of states established a unique degree of commitment, and in many cases alliance terms did not include provisions for military preparation or assistance.

When considering military doctrine and the accumulation of capabilities through alliances, the Central Powers lacked a military advantage at the start of the First World War.[8] The Entente outnumbered their adversaries in terms of population and military personnel, while also exhibiting superior manufacturing and heavy industrial capabilities (Kennedy 1984). Nevertheless, the absence of central planning or a combined staff, along with minimal interstate communication, inhibited the Entente from developing a common allied strategy or cohesion on the battlefield until the latter stages of the war (Hamilton and Herwig 2010; Millett *et al.* 1986, 1988).[9] In contrast, Germany and Austria-Hungary formed a solid territorial bloc, established an infrastructure for interstate communication, and benefited from the superior fighting qualities of German soldiers (Hamilton and Herwig 2010; Kennedy 1984; Tierney 2011). Considering the vast differences in resources, it is puzzling as to why the Central Power elected for war. The answer to this

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[8] The alliance of Germany and Austria-Hungary had an initial advantage in terms of manufacturing and heavy industry, but lost this lead after Great Britain entered the conflict in August 1914 (Kennedy 1984).

[9] The British and French armies eventually created a supreme allied commander who could construct a grand strategy for the allies, but only after Germany made substantial offensive gains in March 1918 (Millett *et al.* 1988).

question may be found by examining the relative efficacy of each participating military. This notion is supported by Brooks (2007a: 3) who explains,

> Resources are important in assessing potential power, but effectiveness tells how well a state can translate those resources into actual power in war. Effectiveness is the difference between what a state's raw resources suggest it could potentially do, and what it is actually capable of doing in battle.

Rather than focusing on the outcome of the war, it is beneficial to examine the performances of each belligerent state on the battlefield. While the results of a war are instructive, they aggregate information from individual battles and gloss over the specific contributions of each participant to the overarching war effort. Using a lower level of analysis makes it possible to examine the idiosyncrasies of each military organization and evaluate their respective ability to transform resources into military assets and implement these assets in conflict.

Characteristics of Military Organizations

As the coercive arm of the state, the military must be equipped to defend the population from foreign and domestic adversaries while also being attentive and receptive to the interests of political state managers (Feaver 1999; Huntington 1957; Tellis 2000). This means that members of the armed forces seek access to necessary technologies, such as rifles and artillery, while also learning advanced techniques to employ these assets, but are constrained by the share of resources and responsibilities allotted to them by the government (Brooks 2007b; Feaver 1999; Horowitz 2011; Huntington 1957). State leaders determine the level of investment in the military by

assessing the salience of present threats and considering if the armed forces are appropriate to overcome these challenges (Feaver 1999; Tellis 2000).[10] The share of resources dedicated to the military not only shapes the proliferation of weapons systems, but also methods of training personnel (Brooks 2007b; Burk 2001; Huntington 1957; Tellis 2000).

While the budget and total size of a military indicates the potential power a state could elicit to conduct a war, resources alone do not predict military effectiveness (Tellis 2000). Previous research suggests that an effective military is one that can transform raw materials into an organization capable of conducting operations against a variety of adversaries (Brooks 2007a; Millett *et al*. 1986; Tellis 2000). To become an effective organization, a military must be able to utilize its available resources and create strategies that can diffuse its opponents' capabilities (Brooks 2007a). This trait carries over to individual personnel, who develop skill and quality by learning how to exploit opportunities on the battlefield (Brooks 2007a). In order for personnel to cultivate these abilities, leaders should prioritize the training and equipping of individual personnel, so that they are able to integrate military hardware, labor, and other supporting assets appropriately (Reiter and Stam 1998, 2002; Tellis 2000). Put differently, militaries that prepare individual personnel to take initiative, display leadership in battle, and utilize logistical technologies are more likely to have sophisticated troops capable of performing effectively on the battlefield (Reiter and Stam 1998; 2002; Szayna et al. 2001)

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[10] Huntington (1957: 65) notes that, "the causes of war are always political. State policy aimed at continuing political objectives precedes war, determines the resort to war, dictates the nature of the war, concludes the war, and continues after the war".

Hypothesis 1: As military personnel become more sophisticated, a military organization will perform more effectively on the battlefield.

The preparation and execution of war requires coordinating actions among a large number of personnel, so militaries often use bureaucratic hierarchies to "replace the uncertain expectations and haphazard activities of voluntary endeavors with the stability and routine of organized relationships" (Wilson 1989, 221).[11] The bureaucratic design shapes means of command and control by defining the internal pattern of relationships, shaping perceptions and respect for authority, and establishing norms of communication among different positions (Millett *et al.* 1988; Soeters *et al.* 2010; Wilson 1989).[12] To foster support and obedience for the hierarchy of command, military organizations rely on standard operating procedures (SOPs) and rules of engagement (ROEs) to codify acceptable actions and behaviors (Wilson 1989). Military organizations commonly engender standardized practices and procedures through "drills and skills," which train service members to execute certain actions in an instinctual manner, even when under immense amounts of stress (Soeters *et al.* 2010).

Despite fervent emphasis on establishing predictable behavior, opportunities for deviant action emerge because sanctioned policies simply do not exist for all situations (Avant 2007; Barnett and Finnemore 2004). As a result, high-ranking officials (i.e., principals) disseminate general information and vague strategic objectives, but rarely specify the means by which these goals must be accomplished (Barnett and Finnemore

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[11] A military bureaucracy achieves organizational efficiency through institutionalizing rational, technocratic control embedded within a clearly defined command structure (Adler and Borys 1996; Aoki 1986; Fredrickson 1986; Glenn 2011; Soeters *et al.* 2010).
[12] Scholars also refer to these characteristics as measures of organizational structure (Fredrickson 1986; Soeters *et al.* 2010; Wilson 1989).

2004; Wilson 1989). Some leaders may attempt to micro-manage decisions throughout the chain of command, but are often inclined to trust the expertise and motives of subordinates (i.e. agents) and in turn allow lower-ranking officials to exercise varying degrees of decision-making authority (Barnett and Finnemore 2004: Wilson 1989). Each division in the bureaucratic hierarchy represents a "zone of discretion" in which personnel have an opportunity to act as information editors and develop self-serving policies in response to a single set of orders (Avant 2007; Barnett and Finnemore 2004).

In addition to establishing standards of behavior, the distribution of decision-making authority in a bureaucracy influences how they prepare their approach for the battlefield. Prior research indicates that there are two ideal types of bureaucratic designs: coercive and enabling (Adler and Borys 1996). Coercive bureaucracies emphasize the need to formalize and codify acceptable behaviors and centralize decision-making authority to the heights of the chain of command (Adler and Borys 1996; Wilson 1989). This hierarchical design creates compliance among the rank-and-file by punishing those that shirk assigned responsibilities or deviate from their assigned tasks (Adler and Broys 1996; Soeters *et al.* 2010; Wilson 1989). A military that subscribes to the coercive structure finds optimal efficacy through the institutionalization of rational, technocratic control embedded within a clearly defined command structure and strict adherence to standard operating procedures (Adler and Borys 1996; Aoki 1986; Fredrickson 1986; Glenn 2011; Soeters *et al.* 2010). Because this structure requires personnel to refer routine decisions to the top of the bureaucratic hierarchy, means of communication can become sluggish, assessments delayed, and decisions rashly made, all of which can result

in unnecessary costs of blood and treasure (Adler and Borys 1996; Aoki 1986; Kotter 2014; Wilson 1989).

In contrast, enabling bureaucracies encourage responses to evolving situations through use of "on-the-spot" knowledge and problem solving by individuals, rather than micro-management by superiors (Adler and Borys 1996; Aoki 1986; Soeters *et al.* 2010). This type of structure recognizes that effective strategizing by high-level officials is important, but is contingent on the abilities of those dealing directly with the peculiarities on the ground (Brooks 2007b; Murray 2011; Soeters *et al.* 2010). Enabling organizations also encourage personnel to embrace new ideas and innovations even if doing so fundamentally changes institutional norms and practices (Adler and Borys 1996; Aoki 1986; Huntington 1957). Through the diffusion of knowledge and the decentralization of planning responsibilities, personnel at each link in the chain of command have an opportunity to use discretion, which allows for those on the battlefield to respond immediately to a changing conflict environment (Aoki 1986; Brooks 2007b; Soeters *et al.* 2010).

These archetypes illustrate that when it comes to bureaucratic design, militaries that establish rigid command structures and highly compartmentalized divisions of labor are less likely to display the skills necessary to employ weapons and technology effectively (Tellis 2000). This logic assumes that personnel only show initiative when given authority to use discretion, and that adaptation typically produces favorable outcomes. While this is the conventional wisdom toward bureaucratic design, restricting discretionary action can provide the predictability needed for personnel to develop expertise in their specific position (Adler and Borys 1996; Aoki 1986; Fredrickson 1986).

When organizations formalize bureaucratic positions and personnel have a clear sense of their role, they are often more satisfied with their work and demonstrate commitment to the organization (Adler and Borys).[13] Because formalizing bureaucratic roles reduces ambiguity of a soldier's responsibilities to the war effort, I expect that increasing the division of labor will lead to improved military efficacy on the battlefield.

Hypothesis 2: As the bureaucratic hierarchy becomes more stratified, a military organization will perform more effectively on the battlefield.

The sophistication of military personnel and bureaucratic design can influence military efficacy independently, but the combination of these organizational traits also affect battlefield performance. In other words, the formalization of specific roles must be matched with an appropriate level of troop quality (Frederickson 1986; Soeters *et al.* 2010; Wilson 1989). Militaries that utilize a coercive structure and encourage expertise require personnel with the skills necessary to capitalize on their differentiated roles. Likewise, military organizations that train personnel to have generalized knowledge operate more effectively when responsibilities are defined relatively ambiguously and roles are less stratified. Because an effective organization is one capable of transforming raw materials into action, sophisticated personnel operating within a coercive bureaucratic design should achieve a high level of military effectiveness.

Hypothesis 3: As bureaucratic stratification increases, sophisticated personnel will achieve greater battlefield effectiveness.

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[13] A number of studies have found that formalizing specific roles and responsibilities allow workers to feel more satisfied and less alienated from the larger organization (see Jackson and Schuler 1995; Michaels *et al.* 1988; Stevens *et al.* 1992).

The influence of organizational characteristics on military effectiveness becomes apparent when examining the Central Powers in World War I. Prior to the outbreak of war, much of Europe considered the German armed forces as the most capable and professionalized military organization on the continent (Hamilton and Herwig 2010; Kennedy 1985; Millett *et al.* 1986, 1988).[14] A notable feature of the German military was its strict root-and-branch bureaucratic structure, which clearly defined roles and responsibilities for each member within the chain of command. This structure worked well for German military officials who were able to develop institutional practices and war plans under the auspices of a consistent pool of resources and were sheltered from substantial political interference (Hamilton and Herwig 2010). As the conflict drew near, the Austro-Hungarian military sought to emulate its German counterpart by proposing extensive organizational reforms and abandoning its own plans for battle (Hamilton and Herwig 2010). Despite these efforts, substantial differences remained because political leaders in the Dual Monarchy maintained considerable influence over the armed forces, forcing the military to operate with restricted access to vital material resources and limited opportunities to develop military expertise (Hamilton and Herwig 2010). Although Austria-Hungary sought a bureaucratic design similar to that of its ally, their personnel lacked the capability and skillset needed to operate effectively in such an organizational setting.

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[14] Hamilton and Herwig (2010: 36) note that "since the wars of German unification, the Reich was perceived to be the strongest military power on the continent, with reliable, well-trained troops, a first-class officer corps, and the most professional General Staff in Europe".

This example demonstrates that militaries with different organizational structures prepare dissimilar responses to the same stimuli: either approach it with traditional actions or develop new procedures based on the particular situation (Aoki 1989; Adler and Borys 1996; Wilson 1989). The German military exemplified a centralized organizational structure: it emphasized the need for a clear stratification of authority and relied on standard operating procedures to direct actions and behaviors of its members. This coercive bureaucratic design prohibited personnel from taking discretionary action, but it also allowed individuals to develop expertise in a particular combat role. In essence, the German military sacrificed the ability for organization-wide flexibility in order to foster task specialization among its personnel. On the other hand, the Austro-Hungarian military utilized a similar bureaucratic design, but its personnel lacked the sophistication necessary to carry out complex battle plans on the ground. These organizational traits as well as the respective combinations of personnel sophistication and bureaucratic design explain the vast difference in military efficiency demonstrated by these allies.

Research Design

In order to evaluate military effectiveness of World War I participants, I use battle data from the United States Army's CDB90 dataset (Dupuy 1995).[15] Each observation in the data accounts for a battle in a dyadic format with combatants categorized as attacker

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[15] Scholars criticized the original dataset for double counting battles by including an observation for a battle while also accounting for clashes that were part of the larger operation (see Biddle 2004; Ramsay 2008). To account for this, I use a version of the data revised by Biddle and Long (2004) where duplicate battles have been removed.

or defender.[16] While World War I involved a number of states acting as part of broad alignments, observing battles in this fashion still represents behavior in warfare. As noted by Reiter and Stam (2002, 39) ''decision makers rarely anticipate or think in terms of larger systems of wars, but instead usually think in terms of sequences of opponents." Therefore, I use a battle-dyad as the unit of analysis. Scholars have criticized this data previously for selection bias because of its focus on conflicts involving Europe and the United States (Ramsay 2008). Because this study only evaluates battles from the First World War, selection effects in terms of the battles should not systematically bias present findings. I present the role of war participants in Table 2.1 below.

[Table 2.1 about here]

Dependent Variable

The primary objective of a military campaign is to defeat the enemy in combat, which means military organizations can pursue this objective effectively, even if they do not achieve ultimate victory in war (Biddle 2007; Brooks 2007a; Millett *et al.* 1986, 1988). Although effective military organizations may have a greater chance of long-term success, effectiveness is not necessarily synonymous with winning a war. Put simply, efficacy is determined by how one military performs compared to its opponent. In order to evaluate the relative efficacy of war participants, I evaluate the performance of military organizations during individual battles. Specifically, I focus on the number of battlefield losses of each military organization.[17] Using battle casualties is appropriate because

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[16] There are rare occasions when multiple states are involved in a battle, but only a single actor is designated as an attacker or defender. Rather than exclude these cases, I use a control variable to account for multilateral action (see below).

[17] This is consistent with Soeters *et al.* (2010: 207) who states, "Effectiveness has traditionally been measured in terms of outputs. In the past, these output measures have

losses of military personnel not only limit feasible military strategies, but also serve as an

indicator of military (in)competence (Biddle 2007; Biddle and Long 2004; Dixon 1976).

To measure the relative effectiveness of participating militaries, I use the loss exchange

ratio (LER), which is calculated as the proportion of attacker casualties to total attacker

and defender battle deaths. Because LER is a proportion, its values are comparable across

cases despite differences in the magnitude of battle casualties (Biddle and Long 2004).[18]

Independent Variables

Although there is no perfect measure to assess the sophistication of military

personnel, the share of government resources devoted to the average soldier can influence

the capacity of a military on the battlefield (Brooks 2007b; Reiter and Stam 2002; Szayna

et al. 2001). Specifically, a military can enhance the capacity of its armed forces by

investing in advanced training methods and technology. Prior studies argue that the rate

of per soldier spending indicates the type of technology, equipment, and training

programs available to military personnel (Reiter and Stam 2002).[19] Following the

practices in previous research, I divide total military expenditures by the number of

military personnel to measure the sophistication of the armed forces (Powell 2012; Reiter

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been the military actions taken (e.g. the 'body count' and the number of targets destroyed)."

[18] This measure is also free of subjective coding of battle "victory" and "defeat" (see Biddle and Long 2004).

[19] Some scholars contend that per soldier spending does not accurately represent personnel sophistication (Biddle and Long 2004; Powell 2012). These researchers suggest that this measure cannot account for areas military spending is actually dedicated (Biddle and Long 2004) or variation in spending occurring due to regime type (Powell 2012). Although it is possible for state leaders to overspend on the military, or unwisely invest in inefficient technologies and corrupt personnel, several studies conclude that militaries with higher per soldier spending typically do demonstrate superior troop quality (Reiter and Stam 2002; Szayna *et al.* 2001).

and Stam 2002; Szayna *et al.* 2001). I create the variable *Sophistication*, which calculates the proportion of attacker per soldier spending to the total of attacker and defender per soldier spending for each dyad-year. Therefore, the S*ophistication* measure does not indicate personnel quality in absolute terms, but rather the sophistication of personnel compared to the quality of its adversary. I compile military personnel, military expenditure, and total population figures from version 4.0 of the Correlates of War National Material Capabilities dataset (Singer 1987).[20] I present the descriptive statistics for *Sophistication* and all other variables used in the statistical analyses in Table 2.2 below.

[Table 2.2 about here]

The bureaucratic design of a military organization is crucial to its performance on the battlefield because it shapes the internal pattern of relationships, establishes roles of specialization, and determines the manner of communication through the command chain (Fredrickson 1986; Soeters *et al.* 2010; Wilson 1989). Specifically, the division of labor within a bureaucratic hierarchy indicates the clarity of specific roles and the emphasis on task specialization (Adler and Borys 1996; Soeters *et al.* 2010; Wilson 1989). Once again, there is not an ideal measure of bureaucratic design, so I elect to measure bureaucratic hierarchies in terms of the number of ranked positions in each army.[21] The number of military ranks represents a crude and highly simplified approximation, but these figures allow for cross-national comparison and capture formal designations of

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[20] I replace missing military personnel or expenditure data using the most recent year with data.
[21] Horowitz (2011) emphasizes the myriad of differences between military organizations, and explains that the presence of such minutia has limited research in this area.

specific roles and responsibilities within the organization. For example, ranks indicate

vertical divisions of a principal and its subordinate, like the relationship between a major

and a captain, as well as horizontal divisions such as a general of artillery and general of

infantry. To measure the influence of bureaucracy, I create a variable S*tratification* that

calculates the proportion of attacker ranks to total attacker and defender ranks in a battle

dyad. This variable does not indicate the influence of bureaucracy in absolute terms, but

instead indicates relative differences in bureaucratic design. I collect the number of army

ranks from a database compiled by *Over the Front* historical magazine (Bennett 2013)

and present military ranks for each war participant in Table 2.3 below.

<div align="center">[Table 2.3 about here]</div>

Control Variables

The magnitude of battlefield losses may not be a testament to military efficacy,

but rather an artifact of the number personnel available for a particular conflict. In other

words, as states commit more personnel for combat, they provide more potential targets

on the battlefield. To account for this, I calculate the number of military personnel for

each battle-dyad by calculating the proportion of attacker personnel to the total of

attacker and defender personnel. I derive personnel figures for attacker and defender

militaries from the CDB90 dataset (Dupuy 1995) modified by Biddle and Long (2004).[22]

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[22] I also collected the number of mobilized military personnel as reported in The Harper
Encyclopedia of Military History (Dupuy and Dupuy 1993) and The World War I
Databook (Ellis and Cox 2001). The number of mobilized personnel is highly correlated
with the number of total personnel as compiled by version 4.0 of the National Material
Capabilities dataset (Singer *et al.* 1972). I select to use personnel figures in the CBD90
dataset because substituting personnel counts from other sources does not change the
statistical or substantive results of the models.

Prior studies argue that political culture and social values associated with democracies are associated with battlefield effectiveness and lower numbers of battlefield losses (Horowitz *et al.* 2011; Reiter and Stam 2002). Moreover, scholars contend that democratic states demonstrate high levels of efficacy on the battlefield and suffer significantly fewer casualties as a result (Horowitz *et al.* 2011; Reiter and Stam 2002). To evaluate the influence of regime, I create a variable *Democracy*, which is the proportion of the attacker's democracy score to the total attacker and defender democracy score. I derive democracy scores from the Polity IV dataset (Marshall *et al.* 2014).[23] Greater values of this variable indicate an increasingly democratic attacker in a battle-dyad.

Previous literature indicates that the educational attainment of citizens are key to fielding militaries capable of operating sophisticated weapons and implement complex operations (Biddle and Long 2004; Biddle and Zirkle 1996). To measure the intellectual capabilities of a state's population, I create a variable that represents the attacker's fraction of the sum of attacker and defender states' years of primary and secondary education per capita. These values account for educational attainment in the year prior to the outbreak of war. I collect education from the modified CDB90 dataset (Biddle and Long 2004; Dupuy 1995).

The amount of time states are involved in a conflict also contributes to the number of battlefield losses. Put simply, each day troops are on the battlefield they are at risk of becoming a casualty (Horowitz *et al.* 2011). Therefore, states that engage in lengthy battles the longest are more likely to experience higher battlefield losses. I create

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[23] Democracy values are on a scale from 0 to 10 (Marshall et al. 2014). I assign democracy scores based on the year of the battle.

a variable that measures the number of days each battle. I collect battle duration information from the CDB90 (Dupuy 1995) dataset modified by Biddle and Long (2004).

The number of states involved in a given battle also influences battlefield outcomes. Specifically, most analyses of the World War I describe the conflict between two broad military alignments. Although states form military coalitions as a way to address a common threat, such an alignment does not preclude partner states from developing their own goals and strategies (Glenn 2011; Silkett 1993). Moreover, there are limited occasions when allied states actually fought alongside each other on a single battlefield. Nevertheless, I account for multilateral efforts in battle by creating a dichotomous variable coded as 1 when the attacker is a coalition and 0 otherwise.[24] I derive information about the origin of battle combatants from the modified CDB90 dataset (Biddle and Long 2004; Dupuy 1995).

Statistical Model

Because the dependent variable is a proportion, I analyze the data using Ordinary Least Squares (OLS) regression. The OLS approach fits a model to the observed data in the form of a straight line that minimizes the sum of squared vertical distances (Lewis-Beck 1980). To account for potential heteroscedasticity, I use robust standard errors. I also present predicted probabilities to illustrate the substantive effect of *Sophistication* and *Stratification* on battlefield effectiveness.

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[24] In the data, there are only four observations where an attacker operates as part of a coalition. While this is less than 5 percent of the data, it is theoretically important to distinguish when military efforts are unilateral and multilateral in nature. The inclusion of this control does not alter the significance or direction of other variables, but is itself statistically significant (see Table 2.4).

A recent study argues that OLS may not be appropriate when the dependent variable is a proportion because this method can create "nonsensical predications for extreme values of the regressors" (Baum 2008, 299). To address this concern I also conduct analyses using generalized linear modeling (GLM) techniques.[25] The GLM models do not produce results that differ statistically or substantively from OLS models, so I select to present the latter due to simplicity of interpreting results. I include generalized linear models as well as marginal effects graphs of these models in the Appendix.

[Table 2.4 about here]

Results and Discussion

The OLS regression models in Table 2.4 include unconditional and conditional relationships between organizational characteristics and military effectiveness. Based on the results of Model 3, the sophistication of military personnel considerably influences military effectiveness in battle. Specifically, for each unit increase in the attacker's proportion of *Sophistication*, attackers experience a 27 percent decrease in their proportion of battlefield casualties on average.[26] This finding suggests that militaries with an advantage over their opponent in terms of personnel quality will operate with more efficacy in battle, which supports Hypothesis 1. This proposition is also consistent with previous research that discusses how military skill influences the number of battlefield casualties. Biddle (2007: 208) acknowledges this relationship when stating,

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[25] The generalized linear model uses the logit link function and binomial distribution as suggested by Baum (2008).

[26] I first focus on Model 3 because it includes all control variables and excludes the interaction terms, so the coefficients of *Sophistication* and *Stratification* can be interpreted directly.

As weapons have become more lethal, unskilled militaries' casualty rates have grown rapidly. The net result has been a growing gap between the casualty rates of skilled militaries and those of unskilled militaries over time: technology has acted as a wedge that drives apart the real military power of the skilled and of the inept, but with much less effect on the outcomes of wars between the highly skilled.

Figure 2.1 presents the marginal effect of *Sophistication* and indicates that an increasing advantage in troop quality creates a substantial decrease in the proportion of attacker personnel killed in battle. In this figure, the x-axis represents the range of the *Sophistication* measure and the y-axis indicates the predicted proportion of battlefield losses suffered by the attacker. Looking at Figure 2.1, attackers with the largest advantage of *Sophistication* are predicted to experience a Loss Exchange Ratio of 40 percent, while attacking militaries with comparatively low *Sophistication* are expected to account for nearly 67 percent of the battle's casualties. For example, in the battle at Tannenberg (1914), the *Sophistication* measure for the German attackers and Russian defender is 0.761. This indicates that Germany outspent their Russian counterparts per soldier at a rate of 3 to 1. Such an advantage in troop quality allowed Germany to conclude with less than 10 percent of the battle's casualties.

[Figure 2.1 about here]

Model 3 also indicates that the bureaucratic design affects battlefield effectiveness. On average, for each unit increase in the attacker's proportion of S*ratification* the attacker experiences nearly a 75 percent reduction in LER. This finding suggests that war participants were much more efficient on the battlefield when utilizing

many layers of command and control (i.e. ranked positions), which supports the relationship proposed in Hypothesis 2. It is interesting to note that *Stratification* does not reach statistical significance in Models 1 and 2. This indicates that the influence of bureaucratic design is not apparent unless other state and battle-level variables are also included. That being said, increasing "links" in the command chain can potentially limit the organization's flexibility to a changing wartime environment. Nevertheless, an organization that remains true to standard operating procedures maintains a degree predictability during chaotic situations, and this benefits the mental health and capabilities of military personnel (Millett *et al.* 1986; Murray 2011; Soeters *et al.* 2010).

[Figure 2.2 about here]

Figure 2.2 presents the marginal effect of S*tratification* and indicates a substantial decrease in attacker's LER as the attacker has a greater proportion of ranked positions. In this figure, the x-axis represents the range of the *Stratification* measure and the y-axis indicates the proportion of battlefield casualties experienced by the attacking military. Based on Figure 2.2, an attacker with the largest advantage in terms of *Stratification* are expected to experience an LER of roughly 11 percent, while attacking militaries with the lowest proportion of ranked positions account for more than 85 percent of the battle's casualties. It is important to note that as *Stratification* approaches 0.5, belligerents can expect to bear a near equal share of casualties.

[Figure 2.3 about here]

While it is important to consider the independent influence of organizational traits on battlefield efficacy, the combination of these elements also affect how militaries perform in battle. At first glance, the conditional relationship proposed in Hypothesis 3 is

not supported because the interaction term does not reach statistical significance. This is not surprising when considering that the results in Model 4 indicate the influence of *Sophistication* on LER when the value of *Stratification* is zero (Brambor *et al.* 2006). Because the proportion of bureaucracies is never zero, the OLS results are not particularly informative. To elucidate potential substantive influence of this interaction, I plot marginal effects of the interaction term. Looking at Figure 2.3, the predicted proportion of battlefield casualties decreases as *Sophistication* rises regardless of the attacker's share of *Stratification*. This figure also illustrates that a military is expected to lose the larger proportion of the battlefield when it lags behind an opponent in terms of personnel sophistication and bureaucratic stratification.

[Figure 2.4 about here]

To evaluate this relationship in another way, I present Figure 2.4 which shows predicted probabilities of LER when belligerents have an even share of *Stratification*, but differ in terms of *Sophistication*. Based on this figure, conditions under which *Sophistication* and *Stratification* have a significant effect on the loss exchange ratio when the upper and lower bounds of the confidence interval are both above (or below) the 0.5 line (Brambor *et al* 2006).[27] Thus, when belligerents share similar bureaucratic stratification but the attacker has a 0.2 of *Sophistication*, an attacker is predicted to experience 58 percent of a battle's casualties. In contrast, when the attacking military accounts for 0.8 of the dyad's *Sophistication*, it can expect to experience less than 42 percent of the battle's casualties.

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[27] The 0.5 line represents the null hypothesis in which *sophistication* and *stratification* have no effect on battlefield casualties.

This impact of battlefield losses takes on additional meaning when considering that more than 30 million personnel wounded or killed in the First World War (Dupuy and Dupuy 1993). While the data and substantive predictions suggest that military organizations that had more sophisticated personnel and stratified bureaucracies than their opponents operated more effectively during World War I, this does not mean they were immune from experiencing a large number of casualties. Even militaries widely perceived as professionalized and effective (e.g. Germany), did not achieve fewer personnel losses than its opponent in every battle. In fact, Murray (2011) suggests that a common trend among World War I participants was that they focused less on how to minimize battle losses, but instead developed ways to help their troops tolerate casualties. In Table 2.5, I present the battle efficacy of each war participant.

[Table 2.5 about here]

In addition to organizational traits, the relative share of democracy also affects battlefield efficacy significantly. For every unit increase in the attacker's proportion of the democracy score, the attacker is expected to endure a 59 percent reduction in LER on average. This finding is consistent with prior research that claims that military organizations are microcosms of the societies they serve in terms of cultural norms and initiative on the battlefield (Reiter 2007; Reiter and Stam 2002). Moreover, the statistical findings support the idea that democracies produce relatively more effective military personnel (Horowitz *et al.* 2011; Reiter 2007; Reiter and Stam 2002).

The presence of a military coalition also improves military effectiveness. Specifically, the model indicates that on average, attackers that operate within a coalition framework experience a 21 percent reduction in the proportional loss of military

personnel. Military coalitions offer the advantage of aggregating military power to overcome a common threat without the need of creating a formal alliance agreement (see Leeds 1999; Morey 2015; Silkett 1993). This finding must be interpreted with caution because the sample only includes 5 instances of multilateral efforts in battle.

Conclusion

This chapter presents a novel explanation for the variation in battlefield effectiveness witnessed in the First World War by examining the organizational structures of participating militaries. Accounting for organizational characteristics is essential because organizational structure influences key factors of the military including the development of group cohesion, mobilization and training of personnel, and the institution a bureaucratic hierarchy (Millett *et al.* 1988; Soeters *et al.* 2010; Wilson 1989). The empirical tests indicate that both personnel quality and stratification of the bureaucratic hierarchy influences battlefield efficacy. Specifically, military organizations with more sophisticated personnel and a larger command chain than their opponents experienced significantly fewer battlefield casualties.

There is a danger that the present study attempts to generalize too much information from a single instance of war. It would difficult to argue that actions and outcomes of World War I have direct implications for all other wars in history. While a centralized bureaucracy may have aided efficacy in this particular time period, it may no longer be applicable to contemporary warfare involving advanced techniques and technologies (see Biddle 2007; Murray 2011; Soeters et al. 2010; Wilson 1989). Nevertheless, scholars continue to examine the First World War because it provides a case in which participants of the conflict experiences considerable variation in terms of

battlefield losses among participants, and an abundance of information is available detailing political and military idiosyncrasies of belligerent parties. Moreover, this particular conflict presents a puzzle because common arguments of military aptitude, domestic regimes, and pre-war coordination cannot fully explain the outcome of the Great War even after almost a century of scholarly work.

The conclusions of this study may also have implications for conflicts involving coalitions and alliances, in which various military organizations must cooperate and coordinate actions (Rice 1997). While military organizations may benefit by altering their bureaucratic structure to comport with potential coalition partners, implementing such reforms present a challenge. By their nature, bureaucratic organizations favor slow, incremental changes in behavior to create predictability and stability within its ranks (Allison 1971; Wilson 1989). Moreover, differences in the sophistication of troops would limit the ability of coalition partners to develop common methods of addressing a shared concern. Benasahel (2007: 196) recognizes this challenge when noting,

> The most capable military may not be able to execute operations in its
> preferred manner if it is operating as part of an alliance: it may have to
> adjust the very qualities that make it so capable to accommodate its allies
> and partners. It may not be possible, for example, to execute highly
> flexible and adaptive operations when inflexible and static partners are
> present on the same battlefield, or to use the full capabilities of advanced
> technologies alongside militaries that cannot operate in a similar manner.

Whether acting unilaterally or as part of a multilateral alignment, organizational structure influences the ability of a military to implement actions effectively on the

battlefield. By examining organizational structures alongside convention measures of state resources and capacity, researchers can clarify the role of organizational behaviors to conflict outcomes. Specifically, future work should consider how organizational structure affects a military's willingness to adopt advanced technologies (see Horowitz 2011) and utilize these assets during conflict. Recognizing the increasing lethality of modern weapons as well as the skills required to use these tools (see Biddle 2004, 2007), military and political leaders must identify organizational structures that allow for sufficient command and control, but also create personnel capable of responding appropriately to hostile battlefield conditions.

Tables and Figures

Table 2.1: WWI Participants in Data

Country	Attacker	Defender	Total
Austria-Hungary	7	11	18
France	12	10	22
Germany	26	47	73
Italy	9	3	12
Turkey	0	11	11
Russia	4	10	14
Serbia	1	1	2
United Kingdom	21	7	28
United States	22	2	24

Note: Belgium, Bulgaria, Greece, Japan, Portugal, and Romania are not included in the data.

Table 2.2: Descriptive Statistics

Variable	N	Mean	Std. Dev.	Min	Max
LER	102	0.516	0.187	0.062	0.923
Sophistication	102	0.568	0.254	0.018	0.982
Stratification	102	0.456	0.097	0.341	0.659
Personnel	102	0.612	0.122	0.333	0.923
Democracy	102	0.591	0.165	0.167	0.833
Human Capital	102	0.564	0.175	0.201	0.936
Duration	102	9.331	17.058	0.052	130.000
Coalition	102	0.039	0.195	0.000	1.000

Note: *LER* refers to loss exchange ratio

Table 2.3: Organizational Structures of WWI Participants

Country	Per Soldier Spending (1917)	Military Ranks
Austria-Hungary	3411.204	29
France	1133.048	19
Germany	1328.996	28
Italy	62.492	16
Turkey	57.681	20
Russia	446.409	37
Serbia	107.6218	15
United Kingdom	1715.679	18
United States	1022.646	17

Note: I compile the number of military ranks from Bennett (2013).

Table 2.4: Military Organizations and Battlefield Efficacy

	Model 1	Model 2	Model 3	Model 4
Sophistication	-0.216***	-0.323***	-0.267**	-0.244
	(0.068)	(0.110)	(0.105)	(0.281)
Stratification	0.084	-0.930**	-0.746**	-0.716
	(0.194)	(0.408)	(0.373)	(0.506)
Interaction				-0.053
				(0.611)
Military Size	-0.024	-0.037	-0.061	-0.062
	(0.136)	(0.123)	(0.125)	(0.127)
Democracy		-0.676***	-0.554**	-0.552**
		(0.246)	(0.233)	(0.237)
Education		0.367*	0.295	0.297
		(0.220)	(0.207)	(0.207)
Battle Duration			0.001*	0.001*
			(0.001)	(0.001)
Coalition			-0.214***	-0.214***
			(0.050)	(0.050)
Constant	0.615***	1.340***	1.203***	1.188***
	(0.143)	(0.298)	(0.280)	(0.326)
N	102	102	102	102
R2	0.084	0.154	0.191	0.191
F-Value	3.564	3.918	14.261	12.527

Notes: Ordinary Least Squares Regression
The dependent variable is the loss exchange ratio for each battle-dyad.
Interaction refers to (*Sophistication* x *Stratification*)
Robust standard errors in parentheses.
*p<0.10, ** p<0.05, *** p<0.01 (two-tailed)

Table 2.5: Battlefield Efficacy of WWI Participants

Country	Effective Attacker	Effective Defender	Overall Efficacy
Austria-Hungary	3	2	05/18 (28%)
France	0	4	04/22 (18%)
Germany	17	18	35/73 (48%)
Italy	1	2	03/12 (25%)
Turkey	0	7	07/11 (64%)
Russia	1	8	09/14 (64%)
Serbia	1	0	01/02 (50%)
United Kingdom	11	4	15/28 (54%)
United States	2	1	03/24 (13%)

Notes: I categorize states based on the loss exchange ratio of the battle.
I consider a military organization effective if it experienced 50 percent or less of a battle's casualties.
Overall Efficacy calculates the number of "effective battles" out of total battles.

Figure 2.1: Marginal Effect of Sophistication on Battlefield Efficacy (OLS Model 3)
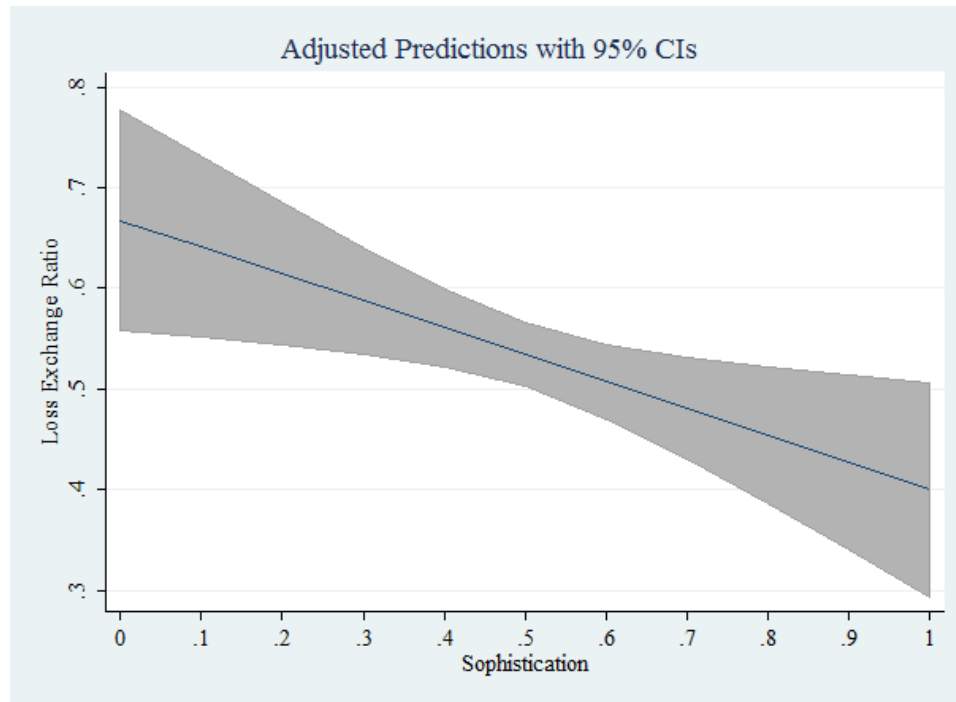
Note: This represents change in *Sophistication* with all other variables held at their mean.

Figure 2.2: Marginal Effect of Stratification on Battlefield Efficacy (OLS Model 3)
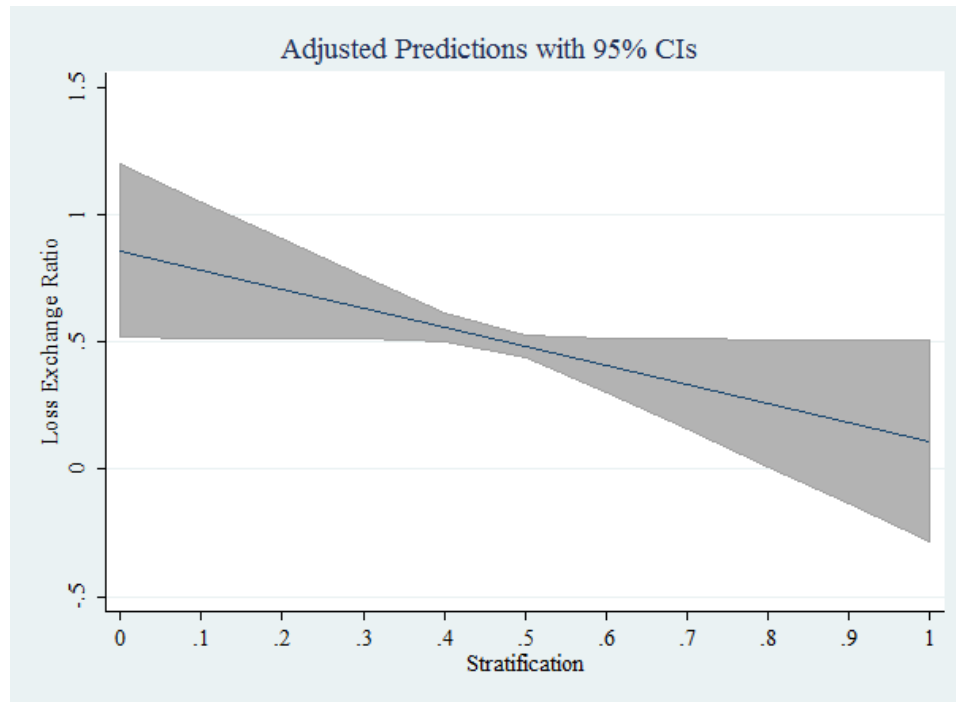
Note: This represents change in *Stratifcation* with all other variables held at their mean.

Figure 2.3: Predictive Margins of Interaction on Battlefield Efficacy (OLS Model 4)
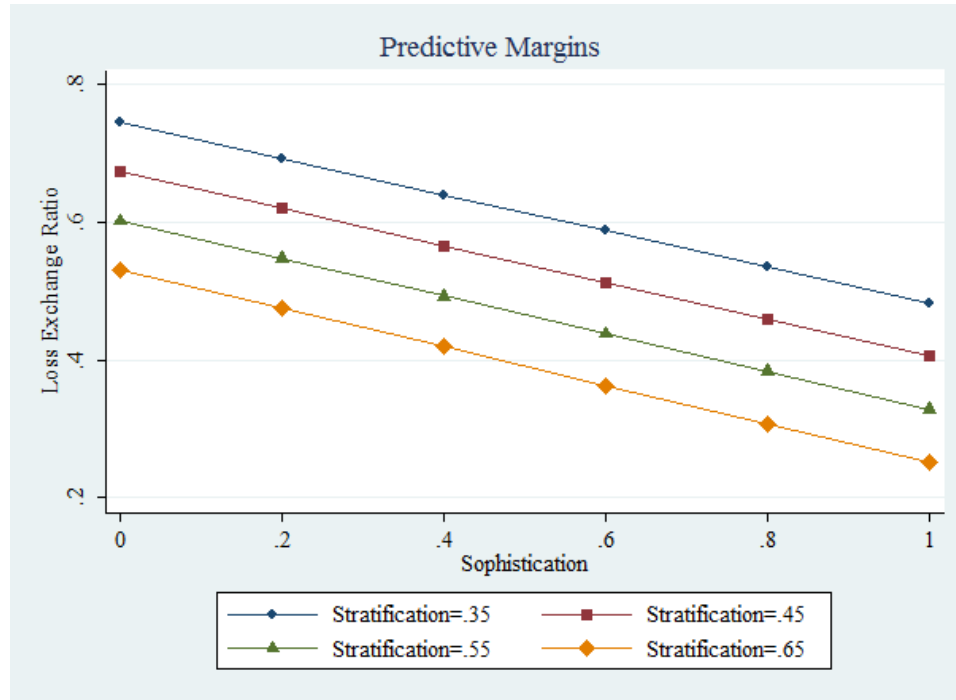
Note: Predicted margins are conditional on values of *Sophistication* and *Stratification*.

Figure 2.4: Marginal Effect of Interaction on Battlefield Efficacy (OLS Model 4)
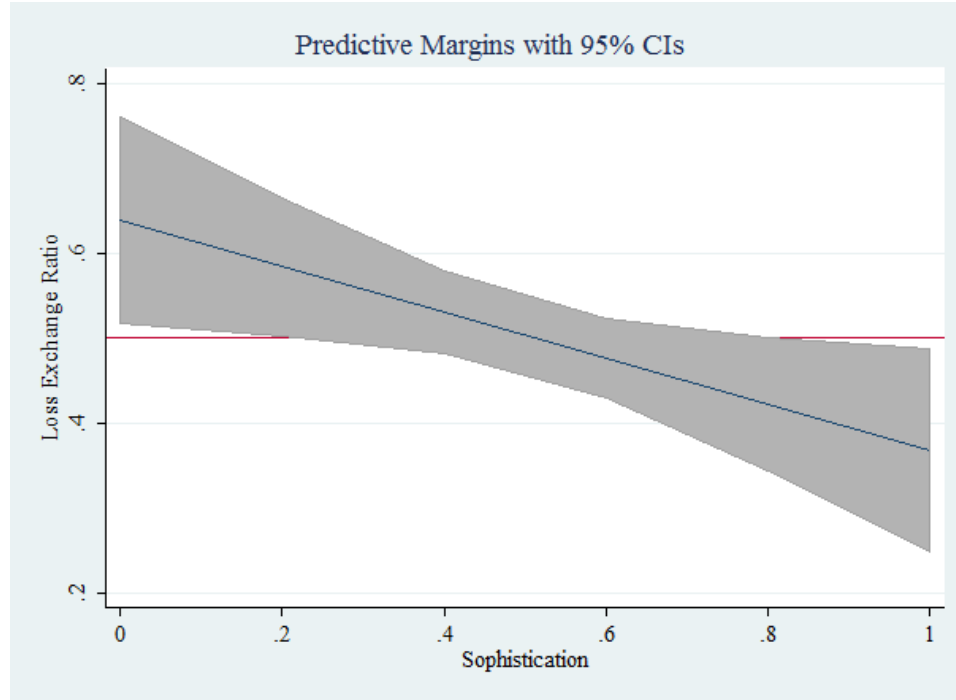
Predictive Margins with 95% CIs

Notes: The figure illustrates the predicted LER at different levels of
Sophistication if *Stratification* is held at 0.5.
The red line identifies a 0.5 share of Loss Exchange Ratio.

Chapter 3: Cooperation, Coordination, and Alliance Formation

In the aftermath of the Second World War, many European states struggled to rebuild their economic and political infrastructures while also maintaining a military capable of addressing security concerns. Limited resources coupled with fears of increased Soviet influence prompted the United States, Canada, and much of Western Europe to form the North Atlantic Treaty Organization (NATO) in April 1949. The NATO alliance established a collective defense agreement for all signatories and a framework for allied consultation regarding threats and matters of security (NATO 2014). In order to harmonize military abilities among the allies, NATO members agreed to develop common standards for training in weapons technology to ease coordination efforts necessary for conducting joint military operations (Bensahal 2007; Leeds and Anac 2005). Additionally, NATO members adopted an alliance-wide command structure that operated independently of individual states (Bensahal 2007; Leeds and Anac 2005; Wallace 2008). The continued efforts by NATO to institutionalize best practices and procedures for its allied military personnel demonstrate that coordination, not simply cooperation, is necessary for an alliance to function effectively.[28] While states can attract potential allies initially out of common foreign policy concerns and mutual interests, a cooperative relationship does not guarantee smooth integration of military personnel or collaborative implementation of allied operations. Because states are unlikely to enter into a costly alliance covenant with incompatible partners, how do considerations of military coordination influence patterns of alliance formation?

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[28] Following the Membership Action Plan, current NATO members evaluate the military organizations of aspiring members before approving additional allies (NATO 2014).

Military alliances require elements of cooperation and coordination in order to aggregate resources, conduct joint operations, and deter outside aggressors.[29] Cooperation occurs when states share common interests and adopt policies that benefit at least one of the actors, while not making other members worse off (Gulati *et al.* 2012). The possibility for cooperation is an essential first step when identifying a potential alliance partner as state leaders are unlikely to pay the extensive costs created by formal alliances unless signatories share common interests and approaches to international problems. In order to translate mutual goals into action, alliance partners must also coordinate military activities. Such coordination entails a deliberate and orderly adjustment of practices and procedures to implement allied plans (Gulati *et al.* 2012). Allied militaries that have comparable organizational and professional cultures require less of a learning curve to reconcile their differences and collaborate effectively. Recognizing the roles of both cooperation and coordination, I investigate patterns of alliance formation from 1816-2007 and find that states with similar military organizations are significantly more likely to create security alliances. These results suggest that states evaluate the prospects of both cooperation and coordination with potential allies before forming alliances. This means that it is not enough for allies to agree on broad political and military objectives; they must also develop compatible organizational practices and military acumen as well.

This chapter begins by introducing existing research on alliance formation and describing how political, geographic, and temporal characteristics influence interstate cooperation. Next, I distinguish the concepts of cooperation and coordination and discuss

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[29] Prior research suggests that alliances are most likely to deter outside aggression when the partnership signals a high degree of cooperation and coordination to the rest of the international system (Leeds and Anac 2005).

how each element contributes to the creation of alliance agreements and the

implementation of joint military ventures. Third, I devise a theoretical explanation for

military alliance formation in which states assess political and military traits of other

states when identifying and pursuing compatible alliance partners. I then use statistical

analyses to evaluate how state and military characteristics shape the likelihood that states

form a military alliance. Finally, I expand on the importance of cooperation and

coordination in the context of alliance agreements and consider how these elements factor

into other forms of interstate collaboration.

<div align="center">**Alliance Formation**</div>

In the presence of limited resources or an external threat, political leaders may

choose to take up arms with other states in the form of a military alliance. Alliances are a

desirable policy because they allow signatories to redirect resources away from defense

organizations without compromising national security (Morrow 1991, 1993; Pressman

2008).[30] Allies can also develop economies of scale that facilitate effective collaboration

by dividing security functions according to each member's particular strengths (Kimball

2006; Morgan and Palmer 2003; Morrow 1993). To achieve these mutual gains, states

must be willing and able to sacrifice a degree of decision-making autonomy and attempt

to align allied interests (Morrow 1991, 1993; Pressman 2008).

States are capable of cooperating militarily without a formal alliance agreement,

but the high costs associated with negotiating alliance terms demonstrate the intention of

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[30] Alliances create a mechanism for member states to acquire resources and security
without extracting additional resources or commitments from the domestic population
(Feaver 1999; Huntington 1957; Morrow 1991).

signatories to honor their commitments (Kimball 2006; Leeds 2003; Wallace 2008).[31] The establishment of a formal agreement not only links each ally's security to every other member's ambition, but also threatens the credibility of states that renege on alliance responsibilities (Leeds *et al.* 2000; Morrow 1993; Wallace 2008). Alliances institutionalize channels through which signatories influence political and military decisions of their partners, so the relative power of signatories shapes the likelihood that the covenant will be honored (Morrow 1991; Leeds 2003; Pressman 2008). Consideration of these factors entails that states do not select alliance partners at random or unwittingly enter into military agreements with states that could disproportionately influence decision-making processes (Morrow 1991; Pressman 2008).[32] Thus, evaluating the prospects for interstate cooperation is an essential prerequisite for identifying and pursuing potential alliance partners.

Numerous studies identify characteristics that can make states more or less attractive as military allies. Some scholars propose that states sharing similar domestic political institutions are far more likely to create alliances with each other (Lai and Reiter 2000; Leeds 1999). Leaders who operate under different institutional settings may be incapable of credibly committing to particular actions in the future or adapting to changes in the international system (Leeds 1999). Specifically, democracies that are responsive to domestic pressures, such as public opinion and elections, are more likely to make

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[31] Forming alliances with military obligations require signatories to "tie their hands" and "sink costs" into the agreement, which should send a signal of a credible commitment to the international system (Fearon 1997; Thyne 2006).

[32] Although alliances can form between asymmetric powers, member states tend to benefit from separate issues, rather than one simply overpowering the other (Morrow 1991; Pressman 2008).

credible commitments, but may be slow or unable to make commitments in the first place (Leeds 1999). Likewise, autocratic states can adopt policies relatively quickly, but lack incentives to remain committed if leaders no longer perceive the agreement as beneficial (Leeds 1999). These fundamental differences can potentially hinder states from developing a common approach to a crisis or cooperating on and off the battlefield.[33]

States are also more likely to pursue alliance agreements in the presence of a shared military threat. Alliances offer states the potential to aggregate capabilities and enhance the collective capabilities of the group, which may be necessary to either balance or deter an external aggressor (Glenn 2011; Leeds and Anac 2005; Weitsman 2003). A mutual threat incentivizes investment into the war effort and provides common ground necessary to achieve some level of cooperation (Weitsman 2003). In fact, Weitsman (2003: 82) argues that when states face "…a uniform external threat, it will be relatively easy for them to coordinate their goals and strategies to attain those goals." This behavior was evident in both World Wars, where the threat of German ascension brought together states with similar domestic regimes, such as the United States and Canada, as well as those with disparate regime types, including the United Kingdom and Russia. The mutual threat should have been enough for the allies to operate as a military coalition, but they still chose to use formal agreements to institutionalize a cooperative relationship.[34] These states were drawn together initially by a shared perception of threat, but fears of

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[33] These difficulties are common in *ad hoc* coalitions where partner states are typically unfamiliar with one another (Glenn 2011).

[34] Despite sharing a substantial external threat, allies on both sides of the First and Second World Wars largely failed to develop a common strategic outlook or standardized military practices (Wallace 2008).

abandonment or entrapment encouraged these states to formalize their relationship

through an alliance agreement (Pressman 2008; Snyder 1984).[35]

In situations where states share similar degrees of material and political power, a

military alliance likely serves as a tool of capability aggregation to deter or defeat a

common threat (Morrow 1991). This symmetric agreement initially limits the risk of

entrapment or abandonment because both members of the alliance need each other

equally to preserve their national security (Morrow 1991; Pressman 2008). Yet, if one

ally increases its capabilities and is able to maintain its security unilaterally, the value of

the alliance decreases along with the likelihood that alliance commitments will be

honored (Morrow 1991; Pressman 2008). Conversely, states can use a strategy of issue-

linkage to establish an alliance in the presence of a power asymmetry (Morrow 1991;

Pressman 2008). The ally with substantial resources can enhance the security capabilities

of the lesser ally in exchange for concessions in decision-making authority (Pressman

2008).[36] The ability to trade security for autonomy allows asymmetric military alliances

to stay intact after changes in relative power, and provides states an opportunity to align

military interests through the formation of economies of scale (Leeds 2003; Leeds and

Anac 2005; Morrow 1991; Pressman 2008).

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[35] States can overcome differences through formal alliances because the cost of
establishing the agreement creates increased costs in abrogating an agreement. This
increases the value of joint action (Leeds and Anac 2005; Leeds and Savun 2007).
[36] A potential danger associated with an asymmetric relationship is that cooperation can
transform into cooptation, leaving the weaker ally at the mercy of the stronger state's
policy demands. Likewise, when given the assurance of a stronger state's military
support, a weaker ally may become emboldened, adopt aggressive policies, and entrap
the more powerful ally in a conflict (Mearsheimer 2001; Pressman 2008).

A common thread running through each explanation is that states tend to form alliances with those that share similar domestic institutions, a mutual external threat, and foreign policy interests. By having some form of common ground, potential allies should be able to cooperate in the negotiations of alliance agreements and the implementation of their commitments. Cooperation among states may be necessary to get potential allies to the negotiation table, but it does not create an immediate harmony of interests. In fact, states need a formalized agreement to provide military consultation or support because they have diverse interests.[37] Even though alliances can foster cooperation among members, this relationship requires the joint pursuit of goals that benefit some partners and do not make allies worse off than before the agreement was established. Intra-alliance cooperation entails that signatories share a common objective, but they may not adopt the same vision of how to pursue the goal.

Previous literature argues that cooperation is essential for allies to agree on policies in principle, but it largely overlooks how prospects of coordination factor into alliance formation decisions. The role of coordination is critical because cooperation alone does not guarantee the capability of implementing allied plans if a conflict or crisis occurs. Specifically, allied states must also coordinate their practices, procedures, and military activities in order to operate as a cohesive unit (Weitsman 2014).

Cooperation and Coordination

Scholars often use the words "cooperation" and "coordination" interchangeably, but each term denotes a distinct concept. Cooperation refers to a "joint pursuit of agreed-

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[37] If allies had identical interests, they would come to the aid of each other without the cost of a formal alliance agreement in order to pursue their common goals (Morrow 1991).

on goals in a manner corresponding to a shared understanding about contributions and payoffs" (Gulati *et al.* 2012, 533). In other words, states can cooperate by identifying a common problem and agreeing to participate in the resolution of the issue. States may be able to settle on mutual understanding of the problem at-hand, but cooperation does not guarantee a shared strategy or approach to the predicament. Even in an ideal situation where there is a perfect alignment of interests and goals, allies may have difficulty implementing joint tasks because they are unable to develop an intra-alliance division of labor or they struggle adapting cohesively to changing circumstances (Glenn 2011; Gulati *et al.* 2012; Weitsman 2014).

In addition to cooperation, allied states must also be able to coordinate their actions. Scholars define coordination as "the deliberate and orderly alignment or adjustment of partners' actions to achieve jointly determined goals" (Gulati *et al.* 2012, 537). While cooperation entails a mutual understanding of goals, the benefit of aggregating resources, and payoffs of joint action, coordination indicates the specific ways that partners devise and implement operations (Glenn 2011; Gulati *et al.* 2012). Coordination focuses less on sustaining a relationship and deterring opportunistic behavior, and instead emphasizes mechanisms, such as information-sharing and standardized practices, that facilitate integration of each partner's contributions to the alliance (Gulati *et al.* 2012). Put simply, coordination ensures that allied actions "click" and are able to create desired outcomes through contributions by all signatories (Gulati *et al.* 2012; Weitsman 2003; 2014).

By describing these concepts separately, it becomes apparent that both cooperation and coordination are essential features of collaborative efforts. Cooperation

is a prerequisite for any allied actions because states will not pursue a joint venture without first achieving some baseline of shared interest and commitment to the joint effort (Gulati *et al.* 2012). Likewise, to maintain a cooperative and effective relationship, states must be able reconcile differences, develop shared practices, and implement actions as a collective unit (Glenn 2011; Gulati *et al.* 2012; Weitsman 2014). This means that allies cannot coordinate in the absence of a reliable commitment to pursue joint objectives, and they are incapable of putting their contributions to productive use without a mutual understanding of the task at-hand. Recognizing the extensive interplay between cooperation and coordination, I contend that alliances form when states cooperate to create a common set of interests and have military organizations capable of coordinating actions.

Choosing Alliance Partners

States expect their military organizations to provide essential security needs such as ensuring territorial integrity, promoting domestic order, and projecting state interests beyond national borders. Most militaries operate toward a similar mission, but the professional nature of their actions and approaches to issues on the battlefield reflect distinct norms and behaviors of the society that they serve (Reiter 2007; Reiter and Stam 2002). The share of resources devoted to the military not only shapes the capabilities of the armed forces, but also demonstrates how the state prioritizes the security apparatus (Brooks 2007a; Huntington 1957; Soeters *et al.* 2010). Because states operate with a finite amount of distributable goods, a continual competition for resources emerges between the military and other government agencies to maintain organizational relevance and vitality (Allison 1971; Barnett and Finnemore 2004).

This competitive environment places constraints on military action by defining acceptable performance metrics and making allocations of resources and responsibilities conditional on the perception of the military as a central institution of the state (Allison 1971; Burk 2001; Reiter and Stam 2002; Tellis 2000).[38] The military's share of resources also influences the professional nature of its personnel by determining the number of combatants recruited, limiting the types of weapons and technologies available, and constraining how troops are supplied and trained (Brooks 2007a; Burk 2001; Huntington 1957; Tellis 2000).[39] Insufficient numbers of troops and a lack of sophisticated personnel force military organizations to implement suboptimal strategies, operations, and tactics, all of which increase the risk of casualties and failure in the theater of war (Biddle and Long 2004; Reiter and Meek 1999).

Combining efforts under the auspices of an alliance requires each state to relinquish some degree of autonomy, so state leaders must carefully decide if joint operations will increase the probability of achieving mutual goals without endangering the state's relative power (Mearsheimer 2001; Pressman 2008). Recognizing that decision-makers select alliance partners in the imperfect marketplace of the international system, they must judge other states by perceived qualities and characteristics (Crescenzi

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[38] States that devote substantial material and human resources to its armed forces demonstrate that the military is a vital organ of the state. On the other hand, states that allocate limited personnel and resources to their military indicate that national security is not a top priority, and in turn constrain its ability to pursue complex or large-scale operations (Allison 1971; Bensahel 2007; Feaver 1999).
[39] Personnel sophistication and professionalization translates into fundamental features of a military organization including methods of communication through the chain of command, the development of cohesion among units, and the institutionalization of norms to abide by the bureaucratic stratification of authority (Millet *et al.* 1986; Soeters *et al.* 2010; Wilson 1989).

et al. 2012).[40] All other things equal, states prefer to align themselves with states that

have shared foreign policy interests, are subject to similar domestic political pressures,

and are likely to honor their agreements (Crescenzi *et al.* 2012; Lai and Reiter 2000;

Leeds 1999, 2003). States that share these traits are more likely to have common goals

and mutual interests, which provides fertile ground for a cooperative relationship (Gulati

et al. 2012).[41]

Beyond identifying potential allies by addressing cooperation concerns, state

leaders must also account for prospects of military coordination before making a formal

security pact.[42] Even if potential allies share a common vision on political and security

objectives, differences in aptitude, training, and professional experience necessitate

negotiation and experimentation before dissimilarities can be reconciled and effective

collaboration can occur (Soeters *et al.* 2010; Weitsman 2003, 2014). In situations where

there are vast differences between capabilities and methods of behavior, allies must

invest considerable effort to accommodate their partners (Bensahel 2007; Glenn 2011;

Szayna *et al.* 2001). Lieutenant Colonel Wayne A. Silkett recognizes the potential costs

associated with intra-alliance variation when stating,

> Cultural differences, subtle or substantial, may easily become debilitating
>
> if not understood and appreciated. Differences in discipline, work ethic,

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[40] Political leaders have difficulty identifying ideal alliance partners because of imperfect information, so they often rely on observable traits to make their decisions (Morrow 1991).

[41] Cooperation entails that allied states demonstrate a substantive congruence of interests, often in terms of shared security interests on a regional and global scale (Szayna *et al.* 2001).

[42] State leaders can minimize coordination costs and the likelihood of coordination failure by seeking partners perceived to be competent and compatible in terms of resources, organizational processes, language, and culture (Gulati *et al.* 2012).

class distinctions, religious requirements, standards of living, traditions –

all can cause friction, misunderstanding, and cracks in cohesion (Silkett

1993, 79).[43]

The structure of allied military organizations influences how other states perceive the

security partnership.[44] When military personnel come from distinct professional cultures

and organizational backgrounds, administrators and practitioners within the alliance may

employ different and potentially incompatible practices and procedures (Gulati *et al.*

2012; Silkett 1993; Soeters *et al.* 2010). If military organizations share similar structures

and routines, they necessitate less of a learning curve to bridge cultural and professional

differences due to a comparable understanding of standard operating procedures and

hierarchical controls (Glenn 2011; Gulati *et al.* 2012; Weitsman 2014).[45] Allied militaries

that cooperate in principle but lack common military characteristics may have difficulty

understanding each other's contributions and may fail to integrate them into a cohesive

strategy or operation (Bensahel 2007; Gulati *et al.* 2012).[46] Moreover, allies with

substantial dissimilarities in military organizations do not have an overlap in knowledge

and capabilities, leaving partner states uncertain in the abilities of one another and

discouraging necessary coordination and cooperative efforts (Gulati *et al.* 2012).

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[43] Lieutenant Colonel Wayne A. Silkett served as Associate Director of Military Strategy in the Department of Corresponding Studies at the US Army War College (Silkett 1993).
[44] An organization's structure refers to internal pattern of relationships, authority, and communication demonstrated by its personnel (Fredrickson 1986).
[45] Shared institutional norms can allow for coordination among allies lacking a history of collaboration by providing a basis for metrics, technical and administrative meanings, and values related to reciprocity, information sharing, and feedback mechanisms (Gulati *et al.* 2012).
[46] While military coordination requires allies to change behaviors to pursue a mutual goal, it does not require each partner to implement identical methods of coercion (Morrow 1986).

Previous literature argues that states create alliance agreements based on the understanding that allies are capable of cooperating. While the prospects of cooperation are a necessary step to identify potential allies, states must also consider how partners would implement terms of the agreement. Forecasts for effective coordination are notably more important in military alliances that require consultation or preparation for joint actions. Because political leaders select allies based on perceptions of other states, known characteristics of military organizations likely factor in the decision-making process. Moreover, states pursue military alliances with the intent of enhancing national security, even if this means bearing costs to coordinate actions. To minimize this burden, alliances are most likely to form between states that have militaries practicing similar procedures and accustomed to comparable training and technology.[47] This means that all other things equal, states are more likely to form military alliances when there are similarities in military organizations.

Hypothesis 1: As military organizations of two states become more similar, the dyad is more likely to form an alliance.

Military alliances offer the possibility of enhancing national security by aggregating resources with another state, but such integration does not occur by simply signing an agreement.[48] In order to realize benefits from an alliance partnership, allies must be able to cooperate and coordinate. Cooperation is a necessary element for

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[47] Militaries that have similar technological standards, organizational structures, and knowledge bases can reduce uncertainties about coordination and lessens the likelihood of incompatibilities (Gulati *et al.* 2012).

[48] In order to mitigate fears of abandonment and entrapment, alliances develop multilateral agreements based upon narrow and relatively explicit terms and obligations (Leeds *et al.* 2000).

successful alliance partnerships, noting that allied states must agree that a joint venture is an efficient method of achieving particular goals. Beyond this, allies must coordinate actions, which may entail harmonizing standard practices and procedures between their military organizations. Because states select themselves into alliance agreements, they are rational to pursue partnerships with states that share similar interests and have comparable military capabilities.

Research Design

Political leaders pursue alliances to solidify state security, but these agreements require leaders to sacrifice some decision-making authority in order to coordinate interests and practices. Before entering into a covenant that entails a great deal of cost and commitment, state leaders evaluate potential allies and establish agreements with those perceived as the most capable and compatible. This study investigates the relative importance of state characteristics by analyzing alliances formed from 1816-2007. A dyad-year is the unit of analysis.[49] Because political decision-makers can create or modify alliance agreements at any point in time, each dyad remains in the sample, even if they have an active alliance.[50] I compile the number of initiated alliance agreements from

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[49] Some scholars may argue that the sample should only include politically relevant dyads. Politically relevant dyads exclude dyads that may lack the capability to interact with one another (Lemke and Reed 2001). Scholars often operationalize politically relevant dyads as geographically continuous states or any pair of states that includes a major power (Lemke and Reed 2001). Because states can establish asymmetric alliances and enter into these agreements for purposes beyond resource aggregation (see Morrow 1991; Pressman 2008), I conclude that limiting the sample to politically relevant dyads unnecessarily introduces selection bias into the statistical analyses.

[50] Scholars may contend that dyads should be removed from the sample after they have an alliance agreement in place, but this would not be appropriate for two reasons. First, censoring the sample ignores the possibility that domestic issues (e.g., new leadership, regime change) or international factors (e.g., conflict) would alter state decisions to form and terminate alliance agreements (see Leeds and Savun 2007). Second, because each

version 4.1 of the Correlates of War Formal Alliance Dataset (Gibler 2009). To identify

general trends in alliance formation frequency, Figure 3.1 below illustrates the number of

alliance agreements in each year of the sample.

[Figure 3.1 about here]

Dependent Variable

The establishment of an alliance agreement takes place when state leaders agree

to collaborate in a specific fashion through written treaties or public proclamations

(Leeds 1999, 2003). Leeds (2003) indicates that the content of a given alliance agreement

determines the specific actions and level of commitment expected of signatories. For

instance, scholars consider defense pacts to entail the highest level of commitment

because they require alliances partners to provide military assistance to any signatory

attacked by a third party (Gibler 2009; Leeds 2003). On the other hand, previous

literature suggests that military consultation (i.e. entente) agreements are the lowest level

of military commitment, but they still require some degree of military cooperation and

coordination during a crisis (Gibler 2009; Leeds 2003). The focus of this study is on

alliances requiring military collaboration, so I create three dichotomous variables that

indicate when states form (1) any type of alliance agreement, (2) a defense pact, or (3) a

consultation pact. Each variable is coded as 1 if an alliance is established in a dyad-year

and coded 0 otherwise.

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alliance agreement requires different degrees of commitment from its signatories (see
Leeds 2003), it would be an atheoretical decision to only account for the first agreement
between a dyad. For example, the dyad of the United Kingdom and France would be
removed from the sample after a consultation pact was enacted in 1827.

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Independent Variables

State leaders consider the potential compatibility between its armed forces and the militaries of other states when pursuing a security alliance. These alliances require some degree of collaboration among military organizations, so states with comparable militaries are often the most attractive alliance partners. Because leaders make decisions in an imperfect marketplace of information, they rely on known metrics to approximate characteristics of potential allies (Crescenzi *et al.* 2012; Gulati *et al.* 2012; Szayna *et al.* 2001). As a result, leaders assess the organizational attributes of another state's armed forces based on resources devoted to the defense apparatus. The investment of state resources shapes how the armed forces are trained, their access to technology, and if society perceives the military as a legitimate profession (Burk 2001; Feaver 1999; Soeters *et al.* 2010). Moreover, military organizations with access to considerable resources are more likely to produce professionalized personnel capable of using advanced weaponry and executing complex operations (Reiter and Stam 2002; Szayna *et al.* 2001; Tellis 2000).

It is intuitive to evaluate military organizations based on measures of a state's total expenditures, personnel numbers, and access to material resources, but these data do not allow for cross-national comparisons and can lead to inaccurate conclusions. Specifically, absolute measures of military spending and the size of a state's armed forces do not account for differences in economic strength and total population. In fact, prior research argues that the proportion of resources devoted to military preparation provides a more appropriate measure of capability and resolve than absolute measures of personnel or expenditures (Wayman *et al.* 1983). Acknowledging the need to use proportional data,

a logical step is to evaluate military capacity by the proportion of state wealth allocated to the defense apparatus. The most common measure of state wealth and resources is gross domestic product (Gleditsch 2002). Unfortunately, because reliable measures of GDP are temporally limited to the latter half of the 20th century and suffer from an extensive missing data problem, a defense budget metric is of limited value (Gleditsch 2002; Wayman *et al.* 1983).[51]

In light of these constraints, I select to evaluate military organizations based on the share of state resources devoted to the armed forces. Although there is no perfect measure to assess military organizations, the number and sophistication of military personnel can both shape the capacity of a military. Therefore, I elect to use two variables to capture characteristics of military organizations. First, states that maintain large standing militaries demonstrate that security is a high priority and that it necessitates substantial participation by the population (Feaver 1999; Huntington 1957; Tellis 2000). To capture the extent of military participation in each state, I calculate the number of military personnel divided by the total population (Wayman *et al.* 1983). Using the proportion of military personnel to the total population allows for cross-national comparisons, which is not possible through measures of absolute military size. Because the unit of analysis is a dyad-year, I create a variable that is the absolute difference in military personnel per capita for each dyad and name it *participation difference*.

This variable measures a difference between proportions, so it is limited to values between 0 and 1. The distribution of this variable is highly skewed, so I transform it using

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[51] Previous work also suggests that measures of gross domestic product fails to account for idiosyncrasies in economic development and includes economic activity that is irrelevant to the capacity of the defense apparatus (Wayman *et al.* 1983).

the natural log.[52] Taking the natural log of numbers in this range produces a scale of all

negative values.[53] For example, in 2007, the *participation difference* between the United

States and Canada is quite small at .003, while the difference between Niger and North

Korea is relatively large .047. Although these are both positive values, the natural log of

these measures is -5.722 and -3.088 respectively. Thus, the most negative values of

participation difference represent the most similar dyads, while the least negative figures

the most dissimilar dyads.

Political leaders can also influence the sophistication of its personnel by investing

in innovative training methods and advanced technology. Specifically, prior studies argue

that the rate of per soldier spending indicates the type of technology, equipment, and

training programs available to military personnel (Reiter and Stam 2002). Following the

practices in previous research, I divide total military expenditures by the number of

military personnel measure the quality and sophistication of armed forces (Powell 2012;

Reiter and Stam 2002; Szayna *et al.* 2001). I create the variable *sophistication difference*,

which calculates the difference of per soldier spending for each dyad-year. The

distribution of this variable is skewed, so it is transformed using the natural log.[54] There

are some cases where the difference in per soldier spending is less than one, which results

in negative values after the log transformation (Azad 2007). Therefore, *sophistication*

difference contains both negative and positive values and negative values indicating

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[52] See Figure 3.3A in the appendix for the distribution of the *participation difference* variable.

[53] To calculate the natural log of a value less than 1, Euler's constant is raised to a number that is less than the zero power: a negative number (Azad 2007).

[54] See Figure 3.4A in the appendix for the distribution of the transformed *sophistication difference* variable.

relatively similar dyads, while large positive values indicate the most different dyads. I

compile military personnel, military expenditure, and total population figures from

version 4.0 of the Correlates of War National Material Capabilities dataset (Singer 1987).

I present the descriptive statistics for *participation difference*, *sophistication difference*,

and all other variables used in the statistical analyses in Table 3.1 below.

These measures do not identify the specific strengths and weaknesses of a given

military organization, but they do approximate the extent of roles and responsibilities

given to the armed forces. For example, states that have the highest measures of

sophistication include the United Kingdom, the United States, and Canada.[55] Likewise,

states that demonstrate a high level of *participation* include France, Switzerland, and

Germany. It is not surprising that a number of the aforementioned states are also partners

in security alliances. Thus, it is reasonable to suspect that armed forces with similar levels

of *participation* and *sophistication* demonstrate comparable capabilities and

organizational characteristics, which in turn encourages alliance formation.

Control Variables

Prior research indicates that alliances often occur between states with similar

domestic institutions (Lai and Reiter 2000; Leeds 1999). Moreover, scholars suggest that

democratic states are relatively reliable alliance partners because their leaders face heavy

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[55] Saudi Arabia and Kuwait are also rank near the top in terms of per soldier spending.
This provides credence to Powell (2012) who argues that the impact of per soldier
spending varies across regime types. He suggests that democratic regimes that increase
per soldier spending will produce increase security capabilities, while autocracies will use
this investment to pay off military leaders. Although it is possible for state leaders to
overspend on the military, or unwisely invest in inefficient technologies and corrupt
personnel, it is a general rule that militaries with higher per soldier spending demonstrate
the most sophistication and troop sophistication (Reiter and Stam 2002; Szayna *et al.*
2001).

costs for backing down from an international agreement that may not exist in non-democratic regimes (Leeds 1999; 2003). To evaluate the influence of regime type and similarity, I create two variables using the Polity IV dataset (Marshall *et al.* 2014). The first is a dichotomous variable coded as 1 if both states have democratic regimes, and 0 otherwise. States are considered democracies if they have a score of 5 or above on the Polity scale.[56] To measure the effect of regime similarity, another variable is coded as the absolute difference of aggregate Polity scores within a dyad. Greater values on this variable indicate increasingly different regimes in a dyad.

Previous literature indicates states pursue potential allies out of mutual policy interests or because they face a common threat (Crescenzi *et al.* 2012). As states become increasingly similar in their foreign policy portfolios, prospects for cooperation and coordination are greater, and in turn make them attractive alliance partners. To capture foreign policy resemblance, I use Signorio and Ritter's (1999) S-Score. This variable has a range of -1 to +1, with the most different portfolios approaching -1 and the most similar portfolios approaching +1 (Crescenzi *et al.* 2012; Signorio and Ritter 1999). I create a variable that represents the absolute difference in S-Scores for each dyad in the sample.[57] In order to reap the greatest benefits from an alliance, partner states can minimize costs associated with interstate communication and transportation. States located in close

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[56] I adopt this threshold for democracy to remain consistent with recent studies of alliance formation (see Crescenzi *et al.* 2012; Gibler 2008; Gibler and Wohlford 2006; Lai and Reiter 2000). While other scholars have used a higher threshold for joint democracy (see Johnson and Leeds 2011; Leeds 2003; Leeds and Savun 2007), using a more restrictive cutoff does not change the statistical or substantive influence of the variable.
[57] I conducted additional tests using Strezhnev and Voeten's (2013) UN Voting similarity scores. Voting similarity is positively correlated with the S-Score, but results using this variable are excluded because they only cover the international system from 1946-2012.

proximity not only require fewer resources to transport goods and personnel, but are

likely to have common regional interests as well. Moreover, allies require less effort to

intervene militarily if they share geographic proximity (Lai and Reiter 2000; Walt 1987).

The measure for geography is the capital-to-capital distance (miles) for each dyad. I

compile data on distance using the EUGene data generation program (Bennett and Stam

2000).

States that are considered major powers are attractive alliance partners because

they have a disproportionate amount of material resources within the international system

(Lai and Reiter 2000; Morrow 1991). Likewise, major powers frequently have

geopolitical interests on a global scale, so they have incentives to increase their alliance

networks to ensure their spheres of interest (Lai and Reiter; Mearsheimer 2001; Waltz

1979). To account for alliances involving major power, I create a dichotomous variable

coded as 1 if at least one member of the dyad is a major power and 0 otherwise.

States are motivated to align security interests with one another when facing a

common external threat. Alliances not only decrease the likelihood that signatories will

be attacked, but also makes allies more likely to intervene in conflict because the third

party is a shared enemy (Gibler 2008; Lai and Reiter 2000). To measure the influence of

a common threat, I construct a dichotomous variable coded as 1 if both states engaged in

a militarized dispute against the same adversary within the previous 10 years and 0

otherwise. I compile dispute data from version 4.01 of the Correlates of War Militarized

Interstate Dispute dataset (Ghosn *et al.* 2004).

The presence of bipolarity during the Cold War facilitated states aligning into

major alliance structures. During this time, the United States and Soviet Union fought for

influence in part by expanding their respective alliance networks. To account for this

systemic increase in alliance formation activity, I create a dichotomous variable coded as

1 if the observation occurred during the Cold War era, and 0 otherwise.[58]

States exist within an anarchic and competitive system, so they make the decision

to ally under conditions of limited information (Crescenzi *et al.* 2012). While a state can

develop a history of dependability through a direct relationship with a particular state

(i.e., dyadic relationships), its dealings with the rest of the international system (i.e.,

extra-dyadic relationships) also contribute to its image (Crescenzi *et al.* 2012). Because

states prefer forming alliances with states that have a reputation for upholding

commitments (Crescenzi *et al.* 2012), a potential ally's record of cooperation (or a lack

thereof), provide essential information. Therefore, states are more likely to establish

alliances with states that have a long history in the international system. I account for this

temporal dimension by constructing two variables that indicate the number of years and

number of years squared since a dyad has existed (Carter and Signorino 2010).

[Table 3.1 about here]

Statistical Model

The statistical analyses focus on the likelihood that states establish (1) a formal

alliance, (2) a defense pact, or (3) a consultation pact. Because each dependent variable is

dichotomous, I employ logistic regression. Logistic regression models the log odds of the

dependent variable as a linear combination of the predictor variables (Hosmer and

Lemeshow 2000). The logistic regression results indicate the change in the log odds of

alliance formation for a one-unit increase a given variable. I use predicted probabilities

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[58] I code the Cold War period as the years 1946-1991.

below to illustrate the substantive impact of *participation difference* and *sophistication difference* on the likelihood of that each type of alliance is formed. To account for dyad-specific relationships, I cluster standard errors by dyad.

[Table 3.2. about here]

Results and Discussion

Results from the logistic regression models in Table 3.2 indicate that the level of societal participation in the military affects the likelihood that states establish formal alliances. As *participation difference* decreases in value, the dyad is significantly more likely to create a formal alliance. This result suggests that states pursue alliances with states that have similar proportions of military personnel to the total population, which supports Hypothesis 1. Figures 3.2-3.4 present the marginal effect of *participation difference* and illustrate the consistent decline in (1) alliance formation, (2) defense pacts, and (3) consultation pacts as the difference grows. In these figures, the x-axis represents the range of the *participation difference* measure and the y-axis indicates the predicted likelihood of a given alliance agreement. Looking at Figure 3.2, dyads with comparable participation levels form alliances just under 0.24 percent of the time, while dyads with high levels of differentiation only form alliances in about 0.06 percent of cases. Of the dyads that formed alliances, 54.6 percent have a measure of *participation difference* below the sample mean.[59]

[Figure 3.2 about here]

[Figure 3.3 about here]

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[59] Table 3.1A in the Appendix presents models using *participation difference* as the only measure of military organizations.

68

[Figure 3.4 about here]

A similar finding occurs when considering each dyad's *sophistication difference*. As *sophistication difference* decreases, states are much more likely to form an alliance agreement, which supports hypothesis 1. Figures 3.5-3.7 present the marginal effect of troop sophistication and illustrate the consistent decline in the formation of (1) all alliances, (2) defense pacts, and (3) consultation pacts as the difference grows respectively. In these figures, the x-axis represents the range of the *sophistication difference* measure and the y-axis indicates the predicted likelihood of a given alliance agreement. The breadth of the curve represents a 95% confidence interval of predicted values at a given measure of troop sophistication. I calculate predicted probabilities by changing the values of the coalition structures, while holding all other variables at their mean values. For example, based on Figure 3.5, dyads with minimal differences in troop sophistication form alliances 0.23 percent of the time, while those with very different troop sophistication form alliances with less than 0.06 percent likelihood. The importance of this finding is evident when considering that alliance formation is a relatively rare event.[60] Specifically, 65.4 percent of the dyads that established an alliance had a value of *sophistication difference* measuring below the sample mean.[61]

[Figure 3.5 about here]

[Figure 3.6 about here]

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[60] Because alliances formation is an uncommon occurrence, I also use rare events logistic regression. This method did not change the statistical or substantive results of the statistical analyses (King and Zeng 2001). I include the rare event logit results in the appendix (see Table 3.2A).
[61] Table 3.3A in the Appendix presents models using *sophistication difference* as the only measure of military organizations.

[Figure 3.7 about here]

To elucidate the influence of military characteristics and alliance formation, I present the example of the relationship of Soviet Union and the People's Republic of China during the Cold War. In February 1950, these states entered into an alliance agreement that entailed military support from signatories in any instance of aggression by Japan or one of its allies (Cheng 2004). At this time, these states demonstrated a *participation difference* of -4.081 and *sophistication difference* of 7.995, which is above the sample mean for the former and well below the sample mean for the latter. These measures indicate that the Sino-Soviet security pact included military organizations with similar societal roles and personnel sophistication. Both parties upheld this contract until April 1980 when China refused to renew the alliance agreement in light of a deteriorating political and military relationship (Cheng 2004).

The decision for China and the USSR to eliminate security ties was unexpected considering that this dyad included two major powers with similar regime types and comparable foreign policy portfolios at the height of the Cold War. Previous literature would argue that these characteristics would be more than enough to foster a cooperative relationship within the dyad. Yet, when considering the prospects of military coordination, the data indicate considerable differences between Soviet and Chinese armed forces had emerged over time. The size and sophistication of each state's military had changed considerably over the life of the alliance, largely resulting from domestic economic reforms and shifts in foreign policy priorities (Cheng 2004).[62] By 1980, this

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[62] During this time, post-Mao leadership had adopted a number of reforms, including establishing an economic relationship with the United States. At the same time, the

dyad had a *participation difference* measure of -4.601 and a *sophistication difference* measure of 10.723, which are both in the 75th percentile of the sample. These states demonstrated common political institutions and mutual foreign policy interests, but such means of cooperation were not enough to overcome substantial differences in their military organizations.

Beyond characteristics of military organizations, I find that several control variables significantly decrease the likelihood of alliance formation. Dyads are less likely to form alliances as their regime types become more dissimilar. This result is consistent with prior studies that indicate that states establish agreements with states sharing similar domestic institutions (Crescenzi *et al.* 2012; Gibler and Wolford 2006; Leeds 1999). States are also less likely to create alliances when the dyad consists of two democracies. Interestingly, when observing defense pacts and consultation pacts exclusively, the influence of joint democracy is no longer statistically significant. This finding may not demonstrate an inability of democracies to cooperate and coordinate, but instead indicate that democracies are capable of collaboration in the absence of a formal alliance agreement (Leeds and Anac 2005). Apart from regime type, states are less likely to establish alliances as the geographic distance between them increases.

A number of factors increase the likelihood of alliance agreements as well. Dyads that share similar foreign policy interests are significantly more likely to engage in alliance formation. Likewise, states that have recently participated in a militarized dispute with a common third party are more likely to form an alliance. Mutual policy interests

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Soviet Union faced challenges to its expansionist policies and prepared its personnel for conflicts with the West and China (Cheng 2004).

and a shared enemy create fertile ground for cooperative opportunities and incentivize

allied intervention in the presence of a crisis (Crescenzi *et al.* 2012; Lai and Reiter 2000).

The distribution of power influences alliance formation as well. Dyads that include at

least one major power as well as those occurring during the Cold War are significantly

more likely to create a formal alliance. The global interests of major powers, along with

the pressures of bipolarity in the Cold War each create motives for states to increase their

alliance networks (Lai and Reiter 2000; Waltz 1979).

The measures of time indicate that there is significant temporal dimension related

to alliance formation. The results do not indicate support for a linear effect of time, but

rather a non-linear relationship between time and alliance formation. Specifically, the

time-squared variable shows that there is an inverse u-shaped relationship, where adding

years to a dyad's history increases the likelihood of alliance formation, but this effect

diminishes over time. This finding suggests that states can gather information about a

potential ally for a certain period, but reach a point where new information has a

declining influence on the likelihood of alliance formation. I demonstrate the structure of

this relationship in Figure 3.8 below.

[Figure 3.8 about here]

Conclusion

This study investigates characteristics states use to evaluate the capabilities and

merits of potential alliance agreements. Based on the statistical evidence, political leaders

are significantly more likely to establish alliances with states that have similar military

organizations. This finding is consistent for alliance agreements in general as well as

defense pacts and consultation pacts in particular.[63] Beyond developing a shared set of

goals, allies must also be capable of working together in order to implement alliance

terms. This means that leaders must simultaneously identify potential allies that have

comparable political institutions and foreign policy aspirations as well as military

organizations with similar practices, procedures, and capabilities. Completing such a task

is difficult even in highly cooperative situations because agreements on paper do not

necessarily translate into effective joint behaviors on the ground. Coordination not only

requires a higher degree of commitment between allies, but also necessitates that states

alter their military practices and capabilities to minimize the learning curve in joint

ventures. Having comparable militaries facilitates greater coordination because allies

require less of a learning curve to adjust actions in a deliberate and orderly fashion.

Moreover, the results support previous literature that argues that states prefer to work

alongside those that share similar domestic institutions and a mutual threat. Taken

together, these findings suggest that while interstate cooperation is an essential

component for identifying possible allies, scholars must also consider the prospects of

military coordination when investigating alliance formation behavior.[64]

Allies that have a cooperative relationship can improve coordination efforts by

institutionalizing commitments and reconciling differences in military organizations.

NATO exemplifies this behavior by standardizing training methods, weapons and pay

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[63] While neutrality and non-aggression pacts do not require direct military coordination,
there is statistical evidence that differences in military organizations may also influence
the decision to form these types of alliances as well. See Table 3.2A in the Appendix.
[64] Future research could address this issue by viewing alliance formation as a two-step
process in which states identify potential allies based on measures of cooperation, and
then select allies from this pool using metrics of potential coordination.

grades for all members of the alliance (Bensahal 2007; Leeds and Anac 2005). While this

strategy may ensure a threshold of coordination among allies, it only occurs in the

presence of extensive cooperation and at a high cost to signatories. NATO has worked

toward these goals for over half a century, but it still struggles to achieve technical

interoperability and implement a universal standard of practices and procedures

(Bensahal 2007; Leeds and Anac 2005). As the number of alliance partners has swollen

to 28 states, the diversity in organizational structures and professional cultures of allied

militaries has made developing acceptable strategies and alliance goals an increasingly

difficult task (Leeds and Anac 2005; Weitsman 2014).

The findings of this study have meaningful policy implications because they

demonstrate that the degree to which a state prioritizes and invests in its armed forces not

only shapes the professional and organizational culture of the military, but also how other

states perceive it as a viable alliance partner. Similarity of interests is an essential first

step because states must be capable of cooperating if they intend to establish credibility

and deter outside aggression (Gibler 2008; Leeds and Anac 2005).[65] If a cooperative

relationship is possible, states then evaluate whose militaries are capable of comparable

actions on and off the battlefield. In the absence of perfect information, traits such as the

number and professional character of military personnel serve as coordination metrics.

By altering investments in military training, technology, and professionalization

techniques, states shape the ability of the armed forces to produce the public good of

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[65]Gibler (2008) and Leeds *et al.* (2000) note that the majority of alliances challenged by a
third party are those perceived as weak or dysfunctional.

national security, while also changing how states perceive them as a compatible military

partner.

Tables and Figures

Table 3.1: Descriptive Statistics

	N	Mean	Std. Dev.	Min	Max
Participation Diff.	753829	0.007	0.009	0.000	0.211
Participation Diff. (ln)	748094	-5.576	1.302	-16.915	-1.554
Sophistication Diff.	552442	24523.400	71374.880	0.000	2416237.000
Sophistication Diff. (ln)	552293	8.403	2.238	-5.329	14.698
Joint Democracy	650590	0.169	0.375	0.000	1.00
Regime Difference	650590	7.728	6.273	0.000	20.000
Foreign Policy Similarity	647110	0.759	0.189	-0.217	1.000
Distance	786518	4719.460	2796.850	5.000	12347.000
Major Power	786518	0.102	0.302	0.000	1.000
Mutual Threat	786518	0.013	0.115	0.000	1.000
Time	786518	0.485	0.499	0.000	1.000
Time-Squared	786518	30.735	29.626	1.000	192.000
Cold War	786518	1822.317	3856.436	1.000	36864.000

Table 3.2: Military Characteristics and Alliance Formation

	All Alliances	Defense	Consultation
Participation Difference (ln)	-0.081***	-0.058***	-0.121***
	(0.017)	(0.021)	(0.018)
Sophistication Difference (ln)	-0.063***	-0.041***	-0.125***
	(0.011)	(0.014)	(0.012)
Joint Democracy	-0.496***	-0.234**	-0.034
	(0.090)	(0.096)	(0.093)
Regime Difference	-0.047***	-0.045***	-0.045***
	(0.005)	(0.006)	(0.006)
Foreign Policy Similarity	3.587***	3.749***	3.509***
	(0.287)	(0.374)	(0.328)
Distance	-0.001***	-0.001***	-0.001***
	(0.001)	(0.001)	(0.001)
Major Power	1.095***	0.920***	0.794***
	(0.077)	(0.087)	(0.087)
Mutual Threat	0.657***	0.623***	0.719***
	(0.105)	(0.122)	(0.111)
Cold War	0.531***	0.785***	0.880***
	(0.060)	(0.078)	(0.065)
Time	-0.003	-0.004	0.004
	(0.002)	(0.003)	(0.003)
Time-Squared	0.001**	0.001*	-0.001
	(0.001)	(0.001)	(0.001)
Constant	-7.029***	-7.544***	-7.699***
	(0.290)	(0.368)	(0.321)
N	437894	437894	437894
Log Likelihood	-9464.980	-6259.299	-7039.860
Chi2	2185.951	2186.409	2423.758
AIC	18953.961	12542.597	14103.720
BIC	19085.838	12674.474	14235.597

Notes: Logistic regression.
The dependent variable is coded 1 for an alliance formed in a dyad-year and 0 otherwise.
Robust standard errors clustered by dyad in parentheses.
AIC and BIC assess fit and complexity of models. Smaller values indicate better model fit.
*p<0.10, ** p<0.05, *** p<0.01 (two-tailed)

Figure 3.1: Formal Alliance Agreements, 1816-2007
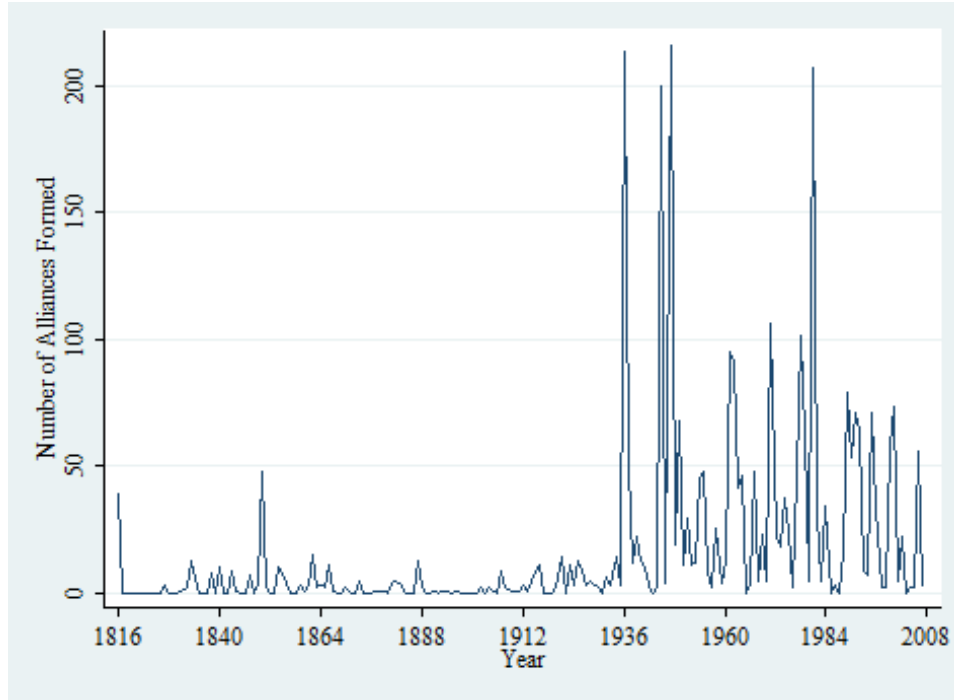
Note: This figure accounts for all alliance types.

Figure 3.2: Marginal Effect of Participation Difference on Alliance Formation (All)
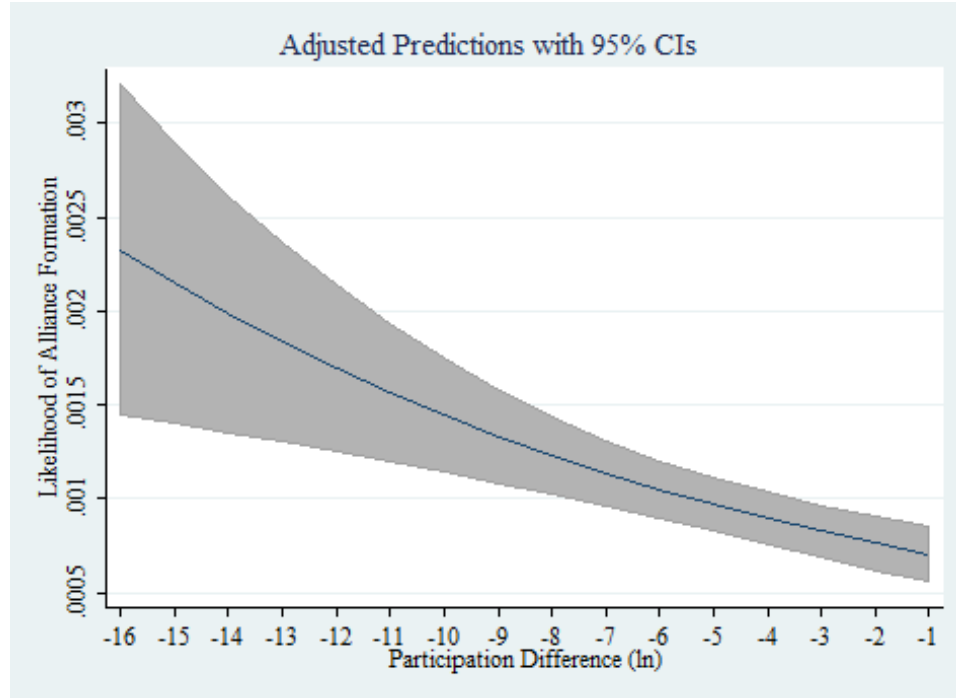
Notes: The effect represents change in participation difference with all other variables held at their mean. Because the values of *participation difference* fall between 0 and 1, the natural log of these figures results in negative values. This means that dyads with asimilar proportion of military participation are at the most negative end of the scale, while those with the most dissimilar participation rates are at the least negative end of the scale.

Figure 3.3: Marginal Effect of Participation Difference on Alliance Formation (Defense)
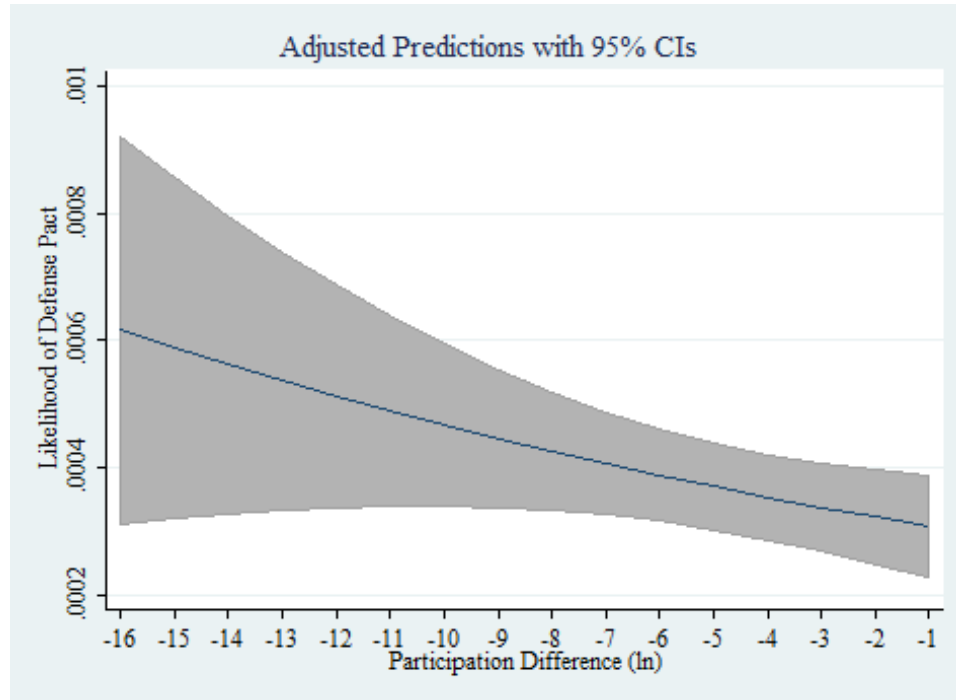
Notes: The effect represents change in participation difference with all other variables held at their mean. Because the values of *participation difference* fall between 0 and 1, the natural log of these figures results in negative values. This means that dyads with a similar proportion of military participation are at the most negative end of the scale, while those with the most dissimilar participation rates are at the least negative end of the scale.

Figure 3.4: Marginal Effect of Participation Difference on Alliance Formation

(Consultation)

Notes: The effect represents change in participation difference with all other variables held at their mean. Because the values of *participation difference* fall between 0 and 1, the natural log of these figures results in negative values. This means that dyads with a similar proportion of military participation are at the most negative end of the scale, while those with the most dissimilar participation rates are at the least negative end of the scale.

Figure 3.5: Marginal Effect of Sophistication Difference on Alliance Formation (All)

Notes: The effect represents change in sophistication difference with all other variables held at their mean. Because some values of *sophistication difference* fall between 0 and 1, the natural log of these figures results in negative values. This means that dyads with the most similar rate of per solider spending are at the negative end of the scale, while those with the most dissimilar participation rates are at the positive end of the scale.

Figure 3.6: Marginal Effect of Sophistication Difference on Alliance Formation
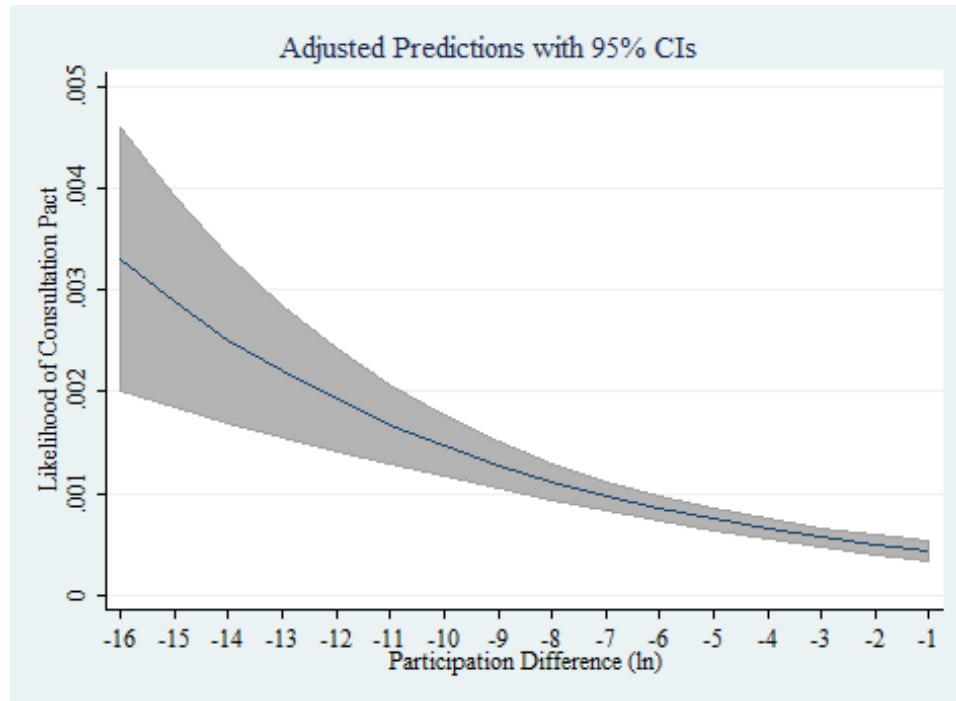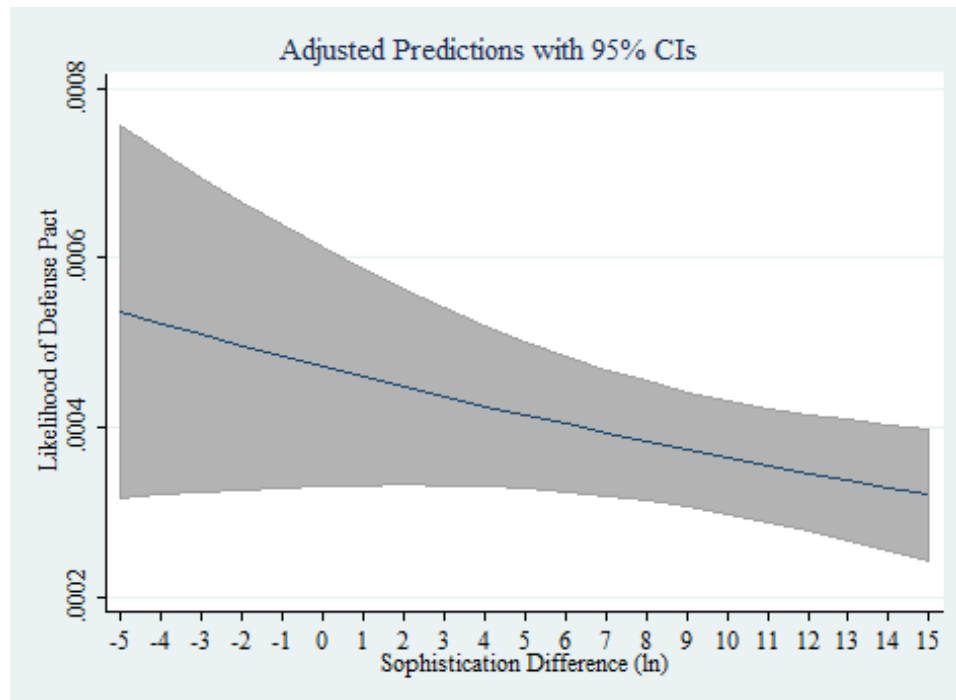
(Defense)

Notes: The effect represents change in sophistication difference with all other variables held at their mean. Because some values of *sophistication difference* fall between 0 and 1, the natural log of these figures results in negative values. This means that dyads with the most similar rate of per solider spending are at the negative end of the scale, while those with the most dissimilar participation rates are at the positive end of the scale.

Figure 3.7: Marginal Effect of Sophistication Difference on Alliance Formation
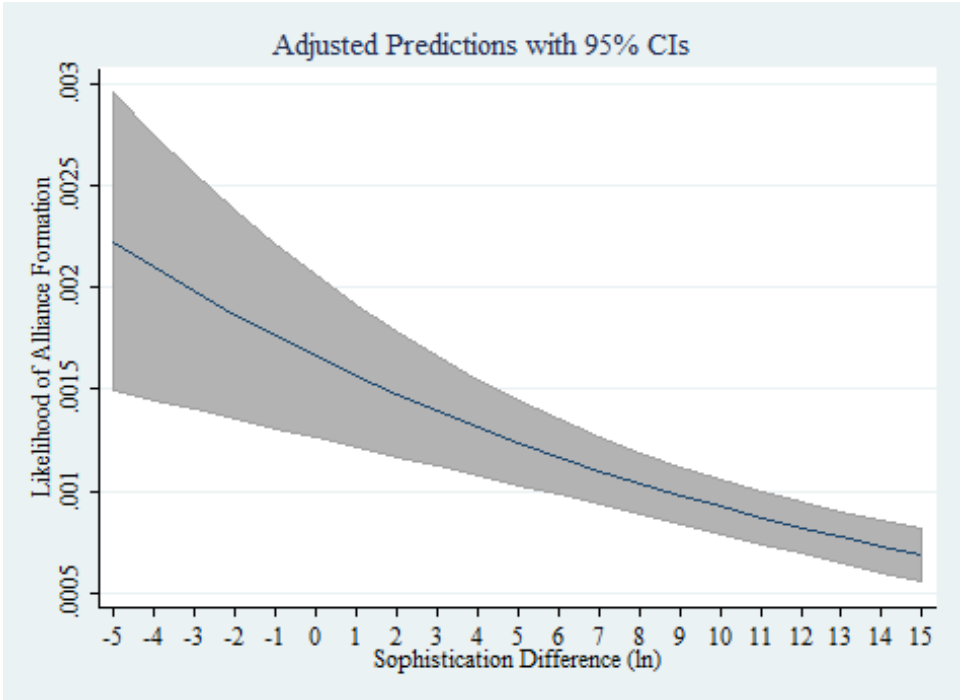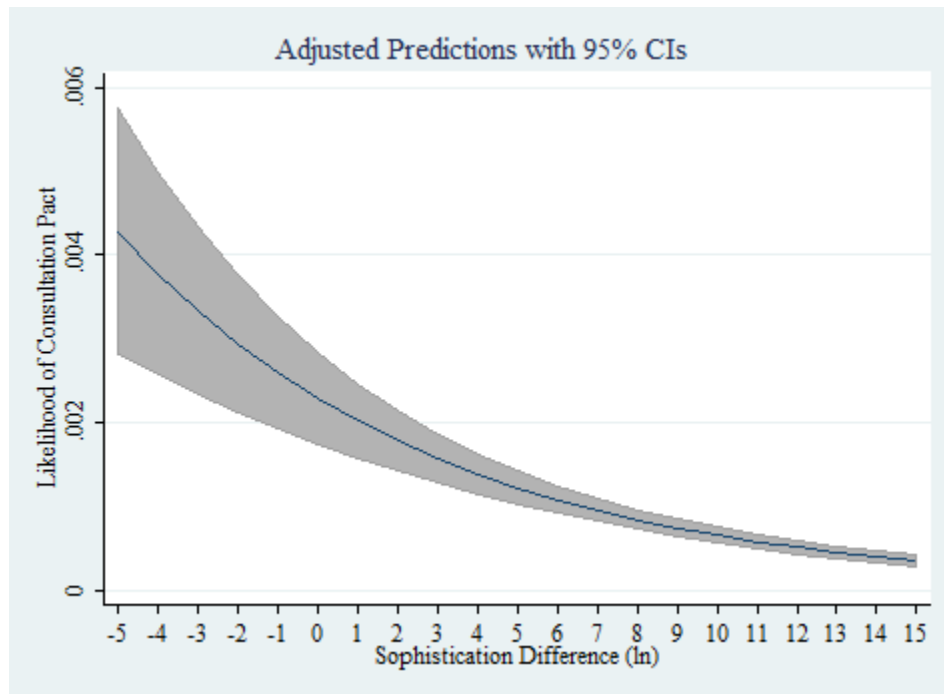
(Consultation)

Notes: The effect represents change in sophistication difference with all other variables held at their mean. Because some values of *sophistication difference* fall between 0 and 1, the natural log of these figures results in negative values. This means that dyads with the most similar rate of per solider spending are at the negative end of the scale, while those with the most dissimilar participation rates are at the positive end of the scale.

Figure 3.8: Relationship of Time-Squared and Alliance Formation
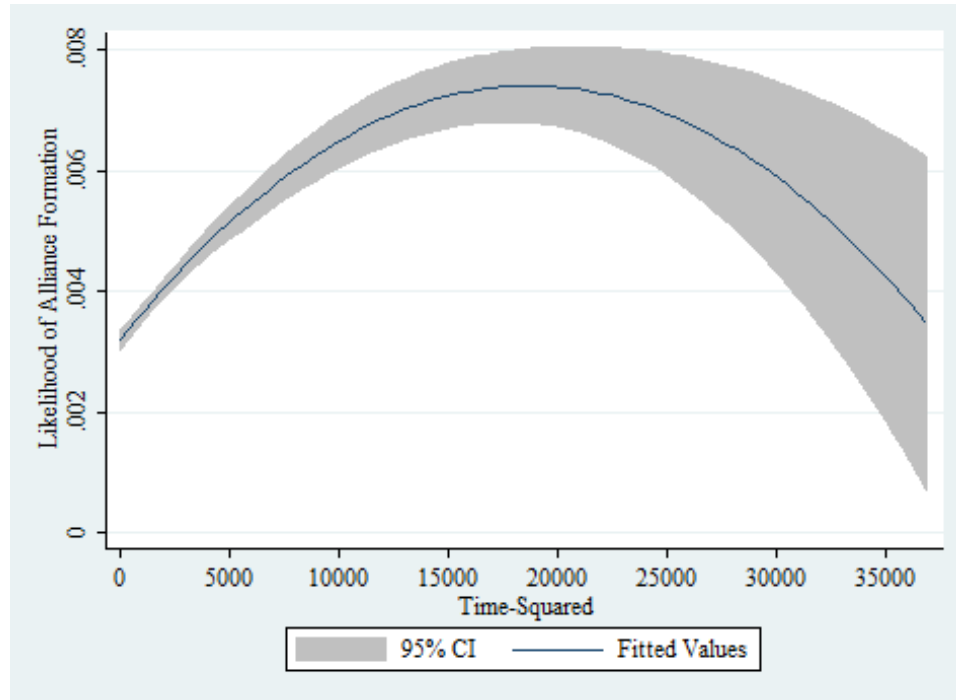
Note: The figure demonstrates a nonlinear effect of time on the likelihood of alliance formation.

Chapter 4: UN Interventions and Peacekeeper Fatalities

As the Cold War drew to an end, the United Nations (UN) expanded the scope of its peacekeeping operations beyond "traditional" roles and began intervening in conflicts that maintained active hostilities (Doyle and Sambanis 2006; Fortna 2004; Fortna and Howard 2008).[66] An early test for this new brand of peacekeeping arose in early 1993 with the establishment of the Second UN Operation in Somalia (UNOSOM II). Coming on the heels of a U.S.-led intervention in war-torn Somalia (UNITAF), this mission consisted of nearly 30,000 peacekeeping personnel provided by 35 member states (Clarke and Herbst 1996; O'Neill and Rees 2005). The sheer size and scope of the mission not only reflected the resolve of the international community, but also provided enough military and police personnel to engage belligerent parties aggressively.

Despite its endowment of resources and boots on the ground, the conditions of UNOSOM II deteriorated quickly. In early June 1993, militia forces commanded by Somali warlord Mohamed Farrah Hassan Aideed ambushed and brutally murdered 24 Pakistani peacekeepers (Clarke and Herbst 1996). That October, an attempt to capture Aideed led to a bloody firefight that brought about the deaths of 18 American soldiers, a Malaysian peacekeeper, and more than 300 Somali militia members and civilians (O'Neill and Rees 2005).[67] What once appeared as an opportunity to stabilize the fragile

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[66] Traditional peacekeeping refers to a response "to interstate crises by stationing unarmed or lightly armed UN forces between hostile parties to monitor a truce, troop withdrawal, or buffer zone while political negotiations went forward" (Doyle and Sambanis 2006: 12).

[67] The US Army Rangers killed in the Battle of Mogadishu operated under the guise of American commanders rather than conducting a UN-sanctioned operation (O'Neill and Rees 2005). Beyond these Rangers, the United States also contributed over 3,400 troops to UNOSOM II in 1993 (Perry and Smith 2013).

situation in Somalia instead resulted in an unfulfilled mandate and 113 United Nations

peacekeepers killed in the line of duty.[68]

More than 20 years removed from the Battle of Mogadishu, United Nations

peacekeeping operations (PKOs) have become increasingly complex, with contemporary

missions calling on peacekeeping forces to separate belligerent parties, enforce ceasefire

agreements, and protect the physical security of civilians and UN personnel (Bellamy *et

al.* 2004; Bellamy and Williams 2012; Hultman *et al.* 2013). United Nations interventions

disrupt the balance of power within a conflict zone by interceding between belligerent

parties and obstructing the policy goals of combatants (Ruggeri *et al.* 2012; Salverda

2013). As a result, belligerents have incentives to purposefully and violently target

peacekeepers in an attempt to reshape the strategic environment and encourage the UN to

withdraw from their mission (Ruggeri *et al.* 2012; Salverda 2013; Wood *et al.* 2012). In

light of this phenomenon, scholars suggest that that United Nations deploy larger

numbers of peacekeepers, specifically armed military and police contingents, so the

operation has personnel capable of creating a buffer zone between combatants and

punishing belligerents that continue to use violence (Hultman *et al.* 2013; Kathman 2013;

Wright and Greig 2012).

While the size and resources available to peacekeeping operations can shape the

legitimacy and capacity of the intervention, peacekeeping contingents must be able to

coordinate efforts if they are to meet mandated objectives and protect themselves from

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[68] UNOSOM II experienced 82 peacekeeper fatalities in 1993, 30 fatalities in 1994, and 1
fatality in 1995 resulting from malicious acts of violence (United Nations 2014). The
events of October 1993 also spurred the withdrawal of Belgian, French, and Italian
contingents in early 1994 (O'Neill and Rees 2005).

harm (Fortna 2004; Salverda 2013). Developing a resilient and unified presence in a conflict zone is a considerable challenge because peacekeeping forces are *ad hoc* coalitions of contingents volunteered by security organizations with different methods and capabilities. Because each contributing state prepares personnel for peacekeeping tasks according to its own standards and practices, those taking part in PKOs often adhere to diverse standard operating procedures and demonstrate dissimilar battlefield aptitude. In situations where peacekeeping partners are incapable of working together, personnel lack the ability to adapt to changing circumstances, risk being perceived as inept, and fail to restore order to the conflict zone no matter how many "blue helmets" are involved (United Nations 2008). This means that the degree of intra-coalition differences affects the ability of peacekeepers to convey credible threats, separate belligerent actors, and protect their own lives. Therefore, how do organizational differences within peacekeeping coalitions influence the likelihood and magnitude of peacekeepers killed deliberately by belligerent actors?

To evaluate peacekeeping coalitions, I focus on the organizational structures of security forces that contribute personnel to an operation. Organizational structure refers to the internal pattern of relationships, authority, and communication, so variation of these traits within a peacekeeping coalition influences the time and effort necessary to construct strategies, aggregate resources, and execute operations (Fredrickson 1986; Heidenrich 1994; Weitsman 2003, 2014). I theorize that coalition partners that function under similar organizational structures are able to coordinate efforts effectively and in turn demonstrate the aptitude necessary to deter malicious attacks by belligerent parties. Through the analysis of UN peacekeeping operations from 1990-2013, I find that

peacekeeping coalitions sharing similar organizational traits have their personnel killed at a significantly lower rate and magnitude. This finding suggests that United Nations leadership must consider characteristics of state security organizations before constructing peacekeeping coalitions and deploying personnel into a conflict zone.

This chapter begins by framing United Nations peacekeeping operations as coalition efforts and identifying how these interventions can incentivize violence toward peacekeepers. Second, I consider the challenges facing the UN in terms of recruiting and maintaining a sizable and capable peacekeeping force. Next, I present a theoretical explanation of how the organizational differences among peacekeeping contingents affect coordination and influence the propensity of combatants to target peacekeepers deliberately. Then, I employ statistical analyses to evaluate how characteristics of peacekeeping coalitions influence the likelihood and magnitude of peacekeeper fatalities in the conflict zone. Finally, I expound on the influence of organizational structure and posit how the United Nations can reconcile organizational idiosyncrasies in ongoing and future peacekeeping operations.

Peacekeepers as Targets of Violence

Scholars conceptualize war as a bargaining process in which adversaries engage in hostilities due to information disparities and credible commitment problems (Fearon 1995; Walter 2002). In this framework, adversaries calculate the probability of winning a conflict and select their behavior based on the payoffs of reaching a settlement in the present compared to fighting for a more favorable outcome in the future (Fearon 1995; Regan 2000, 2002). Belligerent actors have incentives to retain private information about their commitment to the contested issue, so combatants make decisions in an uncertain

environment (Fearon 1995; Walter 2002, 2009). This uncertainty makes conflict difficult to escape because belligerents do not want to risk accepting a suboptimal bargain or negotiating a settlement that cannot be enforced (Fearon 1995; Walter 2002, 2009).

Third-party interventions alter the domestic balance of power and complicate the bargaining process by introducing a new obstacle for policy outcomes desired by belligerent parties (Balch-Lindsay *et al.* 2008; Kathman and Wood 2011; Wood *et al.* 2012).[69] Despite attempts to intervene as an impartial third party, intercession by the United Nations presents a clear threat to combatant objectives, which allows peacekeepers to become targets of violent acts (Clarke and Herbst 1996; Salverda 2013). Scholars and policy-makers often view the concepts of neutrality and impartiality as synonymous, but the former refers to a passive indifference, while the latter indicates the participant takes an active role seeking a just outcome (Salverda 2013; United Nations 2008). This becomes more than a semantic argument when considering that the *Handbook of United Nations Multidimensional Peacekeeping Operations* defines impartiality as "an objective and consistent execution of the mandate, regardless of provocation or challenge…" (United Nations 2003: 56). In fact, the United Nations argues that failure to implement the mandate at all costs risks undermining the credibility and legitimacy of the entire mission (United Nations 2008). This perspective suggests that UN personnel cannot claim to be neutral because they actually serve as "referees" that penalize infractions of international norms and principles established by the United Nations (Clapham 1998; United Nations 2008, 2009).

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[69] Interventions affect the state of conflict by lessening the combatants' capacity to police the population, disrupting their ability to funnel resources to potential supporters, and discouraging civilian support for hostile parties (Wood *et al.* 2012).

Peacekeepers that intercede in hopes of facilitating a just outcome may have to

side with the weaker party in order to level the playing field (Clapham 1998). Such

behavior is addressed by the *Handbook of United Nations Multidimensional

Peacekeeping Operations,* which notes that "[peacekeepers] must actively pursue the

implementation of their mandate even if doing so goes against the interest of one or more

of the parties" (United Nations 2003: 56). By aligning themselves with one of the

belligerent groups, even on a temporary basis, peacekeepers disrupt the local balance of

power and become participants in a hostile domestic bargaining process (Pouligny 2006;

Ruggeri *et al.* 2012; Salverda 2013). This disruption provides incentives for belligerents

to remove the PKO from the conflict zone, especially for the group that has the most at

stake (Salverda 2013; United Nations 2008, 2009).[70] As a result, belligerent parties have

incentives to target peacekeepers with deliberate acts of violence in order to destabilize

the operation, force peacekeepers to remain close to their base, or even remove the

foreign presence altogether (Kathman and Wood 2011;Ruggeri *et al.* 2012; Salverda

2013; Wright and Greig 2012).

  Peacekeepers risk death by entering an active conflict zone, but malicious acts of

violence are often tactfully premeditated. For example, during UNOSOM II the ambush

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[70] Belligerent parties will only adopt less violent strategies if they recognize that the
intervener is resolved to end the conflict, has the capacity to punish factions that shirk on
agreements, and is able to offer alternative policies to resolve incompatibilities among
combatants (Kathman and Wood 2011). In this environment, a third-party intermediary
serves as a guarantor of sorts and allows combatants to disclose private information
regarding their capabilities, preferences, and resolve to one another (Regan and Aydin
2006, Walter 2009). By effectively separating combatants and discouraging open
conflict, UN interventions can provide belligerents with an opportunity to develop a
mutually acceptable solution without fear of becoming vulnerable in the post-conflict
period (Fearon 1995; Regan and Aydin 2006; Walter 2002, 2009).

and murder of Pakistani peacekeepers in June 1993 took place after the Pakistanis began

inspecting authorized weapon storage sites (AWSS) following a survey of the area by

American forces (Alexander 2013; O'Neill and Rees 2005). The Somali militants

selected their targets based on a perception that the Pakistani forces lacked discipline and

aptitude, and because they did not want to risk a failed, bloody engagement with U.S.

personnel (Alexander 2013; O'Neill and Rees 2005).[71] Based on this incident, it is not

just the sheer size of a peacekeeping operation, but also the characteristics of contributing

contingents that influence whether or not peacekeepers become victims of violent acts.

Peacekeeper deaths have been relatively rare events, but because even one fatality cause

peacekeepers to restrict their activities or leave the operation altogether, it is important to

indicate when and how often peacekeeper deaths occur. Figure 4.1 indicates the number

of peacekeeper fatalities during UN PKOs from 1990-2013.

[Figure 4.1 about here]

Peacekeeping Operations as Coalitions of the Willing

Rapid growth of peacekeeping operations at the end of the Cold War spurred an

abundance of research focusing on the ability of PKOs to mitigate violence and restore

order in the conflict zone (Fortna and Howard 2008). This wave of literature is plagued

with inconsistencies, as some studies argue that peacekeeping is incapable of preventing

hostilities or establishing a durable peace (Diehl *et al.* 1996; Jett 2001), while others

claim that peacekeeping operations are successful under certain circumstances (Doyle

and Sambanis 2000; Fortna 2008; Gilligan and Stedman 2003). Recent studies attempt to

---

[71] The UN gave the Somali militia twelve hours of notice before commencing the
inspection of the AWSS. The Somalis replied that they would respond to an inspection
with acts of aggression (O'Neill and Rees 2005).

reconcile these differences by accounting for the diversity of peacekeeping operations in terms of personnel commitments and force capacity (Hultman *et al.* 2013; Kathman 2013). This line of research highlights how the number and type of contingents shape the perception and activities of a given operation. In terms of limiting civilian deaths, numerically larger operations have better prospects for success because they are adequately equipped to intervene between warring factions, generate an effective buffer zone, and convince belligerents that future attempts at violence will be obstructed (Hultman *et al.* 2013; Kathman 2013). This finding suggests that PKOs with considerable numbers of armed military and police units have the training and equipment necessary to deter and repel violence by belligerent parties (Hultman *et al.* 2013).

The United Nations recognizes that size and type of contingents deployed influences its ability to amass resources and project a signal of legitimacy to the international community.[72] Constructing peacekeeping operations is a difficult task for the UN because it does not maintain its own standing security force, but instead relies upon personnel volunteered and trained by member states (Holt *et al.* 2009). What is more, peacekeeping operations differ from conventional conflict situations because consequences of the mission do not directly influence the survival and security of the contributing states (Glenn 2011). This environment often leads to relatively weak commitments from peacekeeper contributors alongside explicit caveats that dictate when,

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[72] Large PKOs also indicate a high level of UN resolve because these missions are visible to domestic and international audiences and are more difficult to withdraw due to sunk political costs (Hultman *et al.* 2013).

where, and how their personnel can be employed (Glenn 2011; Saiderman and Auerswald 2012).[73]

The transient nature of ties that bind peacekeeping operations together enable contributor states to terminate their participation at any point in which perceived costs exceed the benefits associated with continued membership (Glenn 2011). This means that changes in mission mandate or the fickleness of state leadership can lead to a fluctuation in personnel and contributor states involved, but the composition of peacekeeping operations also responds to the ebb and flow of hostilities in the conflict zone (Clarke and Herbst 1996; Hultman *et al.* 2013; Salverda 2013). For instance, because the governments contributing forces are sensitive to the risks of peacekeeper fatalities, the United Nations has implemented rules of engagement that place restrictions on peacekeepers' use of offensive actions in an attempt to reduce their exposure to direct hostilities with belligerents (Bellamy *et al.* 2004; Holt *et al.* 2009; Saiderman and Auerswald 2012).[74] An oft-cited example of this policy includes the need to use a gradation to the use of deadly force, even when the threat appears imminent, by requiring peacekeepers to shout verbal warning to belligerents before opening fire (Holt *et al.* 2009; Saiderman and Auerswald 2012). Encouraging a conservative approach in the conflict zone may be politically satisfying for contributor governments, but doing so

---

[73] The United Nations nominally controls all elements of the peacekeeping operation, but its institutional limitations ensure each contingent has considerable leeway to act at its own discretion and regularly communicate with their home government (Bellamy *et al.* 2004; United Nations 2008). More practically, if contributing states perceive UN leadership as weak or the conflict environment as deteriorating, they may select to withdraw their personnel from the operation (Doyle and Sambanis 2006).

[74] Some state leaders think these conservative rules of engagement actually put peacekeepers in greater danger (Saiderman and Auerswald 2012).

limits the ability of peacekeeping commanders to adopt complex or robust operational

approaches (Holt *et al.* 2009).

<div align="center">**Organizational Differences in Peacekeeping Coalitions**</div>

Research in the area of organizational ecology argues that organizations develop

through a life cycle that includes stages of birth, growth, maturity, revival and decline

(Chen 2014). In the early stages of this cycle, organizations achieve optimal efficiency

through rational, technocratic control embedded within a clearly defined command

structure and strict adherence to standard operating procedures (Adler and Borys 1996;

Aoki 1986; Fredrickson 1986; Glenn 2011; Soeters et al. 2010). Reliance on formalized

rules, standardized routines, and hierarchical control can dampen ambition for large-scale

innovations, but doing so allows organizations to use old certainties to improve their

performance in the short-run and avoid risks and costs endured during the trial-and-error

period most prominent in the first stage of the life cycle (Chen 2014; Horowitz 2011;

Kotter 2014). Thus, relatively young organizations require close management of rank-

and-file personnel, which delays communication, often causes means of communication

become sluggish and assessments to be ill informed, which can result in unnecessary

costs of blood and treasure (Adler and Borys 1996; Kotter 2014; Wilson 1989).

Through the accumulation of knowledge from prior experiences, mature

organizations are able to cultivate an operational history, develop expertise among

personnel, and formalize practices and procedures that support essential functions of the

organization (Adler and Borys 1996; Chen 2014; Horowitz 2011; Kotter 2014; Soeters *et

al.* 2010; Wilson 1989). With time and experience, organizations are able to develop best

practices, delegate discretionary authority, and encourage adaptation to complex and

<div align="center">95</div>

rapidly changing circumstances (Brooks 2007a; Soeters *et al.* 2010; Wilson 1989).

Moreover, mature organizations recognizes that effective actions by personnel are

contingent on their ability to use "on-the-spot" to deal with peculiarities on the ground

(Adler and Borys 1996; Aoki 1986; Brooks 2007a; Murray 2011; Soeters *et al.* 2010). [75]

To encourage sophistication among its personnel, organizational leaders train their

members to understand the overarching purpose of strategies, operations, and tactics in

order to better comprehend how the actions of individual members fits into the larger

mission of the organization (Adler and Borys 1996; Aoki 1986; Kotter 2014).[76] In order

for personnel to develop this type of sophistication, the organization must be able to

operate in a stable environment and develop best practices over a relatively long period of

time (Adler and Borys 1996; Kotter 2014).[77]

Organizational characteristics have direct implications for peacekeeping

operation, because each state's peacekeepers will behave according to their respective

organizational practices. Specifically, the organizational structures of contributed forces

shape how personnel respond to authority, disseminate information, and adapt to high-

stress environments (Fredrickson 1986; Soeters *et al.* 2010; Wilson 1989). In a coalition

framework where each contributing state brings different skills, practices, and procedures

to the operation, the inability to coordinate maneuvers or establish a cohesive grand

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[75] Depending on organizational memory can be beneficial in the short-run, but destructive
to an organization in the long term because an over-emphasis on previous experiences
can cause an organization to stop updating its knowledge base and refuse adopting
innovations (Chen 2014; Horowitz 2011).
[76] These qualities fit definitions of professionalism described by Huntington (1957) and
Fredrickson (1986).
[77] Prior studies indicate that organizations comprised of rational individuals with both
adequate experience and sufficient autonomy are better equipped to adapt strategies and
structures to fit rising environmental challenges (Chen 2014; Soeters et al. 2010).

strategy can lead to ill-considered and poorly executed actions in the conflict zone (Glenn

2011; Millett *et al.* 1986, 1988; Murray 2011). Even if each member of the peacekeeping

coalition shares a common vision on political and security objectives, differences in

aptitude, training, and professional experience necessitate negotiation and

experimentation before variation can be reconciled and effective collaboration can occur

(Soeters *et al.* 2010; Weitsman 2003, 2014). In situations where there are vast differences

between partner capabilities and methods of behavior, the coalition expends considerable

efforts to accommodate its members rather than focusing on the mission mandate

(Bensahel 2007; Glenn 2011; Szayna *et al.* 2001). Lieutenant Colonel Wayne A. Silkett

recognizes the potential costs associated with intra-coalition differences when stating,

> Cultural differences, subtle or substantial, may easily become debilitating
>
> if not understood and appreciated. Differences in discipline, work ethic,
>
> class distinctions, religious requirements, standards of living, traditions –
>
> all can cause friction, misunderstanding, and cracks in cohesion (Silkett
>
> 1993, 79).[78]

As members of an *ad hoc* coalition, the organizational characteristics of volunteer forces

shapes how personnel prepare in terms of training and discipline as well as how they

work with others in an adapt-or-die scenario (Doyle and Sambanis 2006; Gordon 2001).

Because each peacekeeping contingent has its own means and methods to construct

strategies and operations, having similar organizational structures within a coalition

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[78] Lieutenant Colonel Wayne A. Silkett served as Associate Director of Military Strategy
in the Department of Corresponding Studies at the US Army War College (Silkett 1993).
He makes this statement with conventional military coalitions in mind, but it has merit
for peacekeeping coalitions that require military, police, and observer personnel to
coordinate operations (see United Nations 2008).

provides an avenue to readily reconcile diverse abilities and reduce the learning curve

necessary to operate in a cohesive manner (Bensahel 2007; Heidenrich 1994; Millet *et al.*

1986).[79] Peacekeeping coalitions comprised of contingents with diverse organizational

characteristics require time and effort to become acclimated with one another. In the

presence of considerable organizational differences, there is a heightened likelihood for

friction and misunderstandings among peacekeeping contingents, which threatens the

efficacy of actions in the conflict zone (Bensahel 2007; Brooks 2007a; Silkett 1993).

The inability to reconcile such differences not only presents challenges for intra-

coalition relationships, but also projects a signal of ineptitude that invites belligerent

parties to attack. Coordination difficulties were evident in UNOCI, where more than 50

member state contributed to the peacekeeping coalition.[80] These contingents were highly

diverse in terms of experience, training, and organizational culture. Despite having a

sizable presence of nearly 10,000 security personnel on the ground during its tenure,

belligerents still targeted UNOCI forces, with 7 peacekeepers from Niger ambushed and

killed in June 2012 (Watkins 2012).

On the other hand, peacekeeping coalitions that overcome organizational

differences create the perception of a capable, competent, and unified group, which can

discourage malicious acts by belligerent parties. The benefits of sharing similar

organizational traits are evident in the United Nations Peacekeeping Force in Cyprus

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[79] Jeffrey Pfeffer addresses this issue in saying, "People who share experiences and
attitudes are more likely to like each other because they will understand each other better,
and because liking someone who is similar is self-reinforcing as it ratifies one's own
qualities…" (Pfeffer 1985: 69).
[80] UNOCI refers to the United Nations Operation in Ivory Coast that began in April 2004
and is ongoing as of the writing of this article.

(UNFICYP), where most of the peacekeeping personnel hail from stable and long-standing security organizations (O'Neill and Rees 2005). Specifically, the vast majority of UNFICYP personnel have a shared experience with NATO practices and procedures, which allows for smooth operations and limited hostilities from belligerent parties (O'Neill and Rees 2005).[81]

One type of organizational structure is not necessarily better than another, but combining contingents with dissimilar organizational characteristics can create difficulties in terms of coordinating joint efforts (Luft 2009). Specifically, security forces from relatively young organizations may have difficulty functioning side-by-side with personnel that have an extensive operational history (Luft 2009; Weitsman 2003, 2014). In cases where organizational structures differ substantively, there may not be sufficient time for peacekeeping contingents to reconcile their differences and operate effectively. Keeping this in mind, I anticipate that belligerents are more likely to use deliberate acts of violence toward peacekeepers when peacekeeping operations are comprised of security forces with dissimilar organizational structures. Likewise, I expect the number of peacekeeper fatalities to increase when contributed forces hail from diverse organizational cultures.

Hypothesis 1: As organizational structures become more diverse in a peacekeeping coalition, the likelihood of peacekeeper fatalities will increase.

Hypothesis 2: As organizational structures become more diverse in a peacekeeping coalition, the number of peacekeeper fatalities will increase.

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[81] UNFICYP is an ongoing operation in Cyprus that began in 1964. Belligerent actors have not killed any peacekeepers since 1981 despite a continued and sizable UN presence.

Peacekeeping forces face a unique challenge because the UN expects them to operate as a unified entity despite being *ad hoc* coalitions of contingents from a variety of organizational backgrounds. Fundamental differences in organizational characteristics influence a coalition's prospects for success because these traits translate into the nature of communication within the command chain, the perception of group cohesion among its members, and respect for the authority of the United Nations. Coalition partners that remain at odds in terms of their organizational practices and procedures will have considerable difficulty developing group cohesion or coordinate actions (Glenn 2011; Weitsman 2014). If peacekeeping coalitions fail to reconcile these differences, the use of violence becomes a viable tool for belligerent spoilers to force peacekeepers out of the conflict zone (Ruggeri *et al.* 2012; Salverda 2013; United Nations 2008).

Research Design

The United Nations generally sends peacekeeping operations to dangerous and desperate locales (Fortna 2004; United Nations 2008), so it is important to identify how the characteristics of coalition contingents influence when peacekeepers become targets of malicious violence. By directly engaging hostile actors, peacekeepers upset the domestic balance of power and put themselves in the crosshairs of groups that lose the most from an international presence (Hultman *et al.* 2013; Salverda 2013). Because contemporary peacekeeping operations are often deployed to active, hostile conflict zones, this study analyzes all United Nations peacekeeping operations from 1990-2013.[82] The source, size, and type of personnel contributed to an operation changes throughout

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[82] An abundance of literature explains that the number and conditions of UN PKOs has changed dramatically since the drawdown of the Cold War (see Bellamy *et al.* 2004; Fortna and Howard 2008; Kathman 2013)

the life of a PKO, so a mission-year is the unit of analysis.[83] This unit of analysis

identifies the influence of intra-coalition differences both within and across peacekeeping

operations. I compile the characteristics of each peacekeeping operation from the

International Peace Institute's Peacekeeping Database (Perry and Smith 2013). Table 4.1

lists each UN mission included in the sample along with the total number of peacekeeper

fatalities during its tenure.

[Table 4.1 about here]

Dependent Variable

I create two variables that measure the degree of malicious acts experienced by

UN peacekeepers. These variables account for the likelihood that a peacekeeper is killed

because of deliberate violence, as well as the number of fatalities. The first variable,

fatality, is dichotomous and coded as 1 if one or more peacekeepers are killed within a

mission-year and coded 0 otherwise. This discrete variable indicates instances where

belligerents kill peacekeepers, but does not detail the scope of malicious violence facing

UN personnel. In order to identify the magnitude of peacekeeper fatalities in a conflict

zone, I create a second variable, *fatality frequency*, which provides a count of

peacekeepers killed within a given mission-year. I compile data used to assess violence

toward peacekeepers from United Nations documents recording peacekeeper fatalities on

an annual basis for each PKO (United Nations 2014). These data disaggregates fatalities

into categories of cause including illness, accidents, and malicious violence. Events

coded as malicious violence indicate that peacekeepers died after combatants

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[83] The original IPI database is in mission-month format. Because information regarding peacekeeper fatalities is most readily available and verifiable at an annual basis, I collapse and convert the data to a mission-year format.

purposefully and directly targeted them. For this reason, I only include malicious

fatalities in the analyses.

Independent Variable

Time, experience, and institutional stability are necessary for an organization to

formalize best practices, so the structure of a security apparatus is largely a product of its

ability to avoid large-scale disturbances that trigger a structural overhaul (Allison 1971;

Horowitz 2011). In the aftermath of major system changes, a state must reconsider and

revamp the structure of its security organization to adapt to new circumstances (Horowitz

2011). I measure the organizational structure of a state's security apparatus through the

creation of the variable *structure*. *Structure* refers to the number of years that have passed

since a state experienced a severe disruptive event on either the domestic or the

international front.[84] This measure is adapted from the "durable" variable in the Polity IV

dataset (Marshall and Jaggers 2014) and is theoretically consistent with the calculation of

"organizational age" used by Horowitz (2011).[85] Horowitz (2011) identifies major regime

change or a losing effort in an interstate war as events powerful enough to topple the

status quo structure of security organizations. [86] I modify this measure by also including

losses in intrastate conflict as well as the occurrence of a successful coup d'état as a

---

[84] *Structure* is calculated from a sample of all states from 1945-2013. I code states as 0 in 1945 or their first year of independence. This coding scheme is consistent with the "durability" variable in the Polity IV dataset.

[85] Scholars commonly address the concept of organizational age within the organizational ecology literature (see Chen 2014), and it has been recently adapted to political science research (see Asal and Rethemeyer 2008; Horowitz 2011).

[86] A regime change results if there is a change of three or more on the aggregate Polity score (Marshall and Jaggers 2014).

source of shock to a security organization.[87] I derive the durability of each state's

political regime using the Polity IV dataset (Marshall and Jaggers 2014). I compile each

state's experience with intrastate and interstate conflicts using version 4.0 of the

Correlates of War Intrastate Wars and Interstate Wars datasets (Sarkees and Wayman

2010).[88] I record successful coups d'états using the 2013 version of the Center for

Systemic Peace's Coup D'état Events dataset (Marshall and Marshall 2014).[89]

Peacekeeping operations are multinational coalition efforts, so the ability of

peacekeepers to coordinate efforts depends on the organizational compatibility among

coalition members. To address intra-coalition relationships, I create a variable, *coalition

structures*, which calculates the dispersion of *structure* within each peacekeeping

coalition (i.e., mission-year) using the coefficient of variation. The coefficient of

variation (CV) is a measure of dispersion that represents the ratio of a variable's standard

deviation to its mean (Allison 1978). The CV is an appropriate measure of variability

because it allows for comparison among observations (i.e., coalitions) that have

considerably different dispersions and means (Allison 1978).[90] Based on this measure,

peacekeeping coalitions with high values of *coalition structures* represent diverse

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[87] I exclude intrastate conflicts that involve third-party interveners (i.e., internationalized
wars).

[88] The Correlates of War Data are used because they establish a high threshold for
conflict (i.e., battle deaths), which indicates a conflict of sufficient magnitude to spur
organizational change in the military or national police.

[89] I selected this dataset because of its coverage of years 1945-2013 and because it has
been cross-referenced with other datasets, including Powell and Thyne (see Marshall and
Marshall 2014).

[90] Because the standard deviation and mean have the same unit of measure, their ratio
creates a unit free measure than allows comparison among observations (Allison 1978).
Using other measures, such as variance or standard deviation would not allow for
comparisons among groups with different means and/or standard deviations (Allison
1978).

organizational characteristics among partner contingents, while low values of *coalition structures* indicate coalition partners that have similar organizational traits.

To provide more clarity on this measure, I use the United Nations Observer Mission in Tajikistan (UNMOT) as an example. In 1994, UNMOT involved a coalition of 5 states including Austria, Bangladesh, Denmark, Jordan, and Uruguay.[91] The value of *structure* for each of these security organizations is 48, 3, 49, 5, and 9 respectively. The average value for *structure* for this coalition is equal to 22.8, while the standard deviation is approximately 23.563. When dividing the standard deviation by the mean, the coefficient of variation for this coalition results in a value of 1.033. The CV indicates that the UNMOT coalition experienced variability in its organizational structures at a level of 103%. This measure not only indicates the degree of structural variation in the UNMOT coalition, but also serves as a metric of structural variability that allows comparisons among all peacekeeping coalitions.

Peacekeeping coalitions with a low degree of variability in terms of organizational structure require less of a learning curve to reconcile differences among contributing states, which should allow them to perform better in the conflict zone. An example of a low variability coalition is the group of contributing states in Pakistan (UNMOGIP) in 1993. The *structure* measure for these coalition partners ranges from 4 (Chile) to 48 (Belgium, Denmark, Finland, Norway, and Sweden) and the coefficient of variation for this coalition is 0.519. On the other end of the spectrum, an example of a high variability coalition is the group of contributors in Sierra Leone (UNAMSIL) in

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[91] The United Nations established UNMOT in 1994 to monitor the ceasefire agreement between the Government of Tajikistan and the United Tajik Opposition (Jett 2001).

2000. The *structures* within this coalition range from 0 (Croatia, Senegal, and the Russian Federation) to 55 (Canada, Denmark, Norway, Sweden, and the United Kingdom), which results in a CV of 1.126. These examples demonstrate that coalition partners in Pakistan experienced 52% variability, while coalition partners in Sierra Leone had 113% variability in terms of organizational structure. This indicates that the peacekeeping partners in UNMOGIP had relatively similar organizational structures, while the coalition in UNAMSIL had contingents operating under highly differentiated organizational structures. Figure 4.2 illustrates the distribution of *coalition structures* in the sample.

[Figure 4.2 about here]

Control Variables

Recent research suggests that the number and type of contingents devoted to a peacekeeping operation signal the resolve of the United Nations and define the capabilities of the mission (Hultman *et al.* 2013; Salverda 2013). Military personnel often enforce peace agreements, intercede between combatant parties, and in some cases, punish belligerents for continuing transgressions in the aftermath of a negotiated settlement (Kathman 2013). Police units also operate near the battlefield, but focus on providing security through monitoring and protecting civilian populations in areas where the rule of law remains absent (Kathman 2013). Furthermore, military observers participate in the operation by assessing the progress of negotiations, political reforms, and ceasefire agreements (Kathman 2013). I use data from the International Peace Institute's Peacekeeping Database to create three variables that indicate the average number of military, police, and observer personnel in a given mission-year (Perry and Smith 2013). I divide personnel figures by 100 in order to capture the influence of 100

military, police, and observer contingents in a given mission-year. I present the

descriptive statistics of peacekeeping contingent types in Table 4.2 below.

[Table 4.2 about here]

The desire to amass adequate resources and gain legitimacy within the

international community encourages the United Nations to recruit contingents from as

many states as possible (Glenn 2011). Despite differences in capabilities, a wide-reaching

coalition can potentially reach objectives at a lower cost than if states addressed them

unilaterally (Glenn 2011; Weitsman 2014). The relative influence and power of

contributing states indicates the importance of the mission to the United Nations and the

international community at large. Participation by permanent members of the Security

Council (P5) signals the resolve of major powers and solidifies the perception that

peacekeepers will have the resources and experience necessary for the mission at hand

(Voeten 2005).[92] Likewise, contributor states that share a geographic region with the

mission state have an inherent interest in restoring order to avoid lapses in relationships

(e.g., trade) or the contagion effect of conflict (Beardsley 2011; Buhaung and Gleditsch

2008). To capture the source of contributing states, I use the International Peace

Institute's Peacekeeping Database to create two variables that denote the average number

of (1) P5 and (2) regional states that participate in a given mission-year (Perry and Smith

2013).[93] Table 4.2 indicates that peacekeeping missions experience a variety of

participation from P5 and regional members, with about 2 states in each category

contributing on average.

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[92] P5 participation also addresses the notion that most PKOs lack adequate funding and
capabilities (Bellamy *et al.* 2004; Berman and Sams 2000; Gordon 2001).
[93] I classify states into regions based on categories used by the United Nations (2013).

Previous literature has shown that belligerent parties have greater incentive to use violent acts in the presence of an intense and divisive conflict (Hultman 2007; Wood 2010; Wood *et al.* 2012). To account for the conflict environment, I create two variables that indicate the (1) severity of the dispute and (2) the strength of non-state combatants. To operationalize the severity of a conflict, I use the natural log of the number of battle-related deaths during a given mission-year (see Lacina and Gleditsch 2005; Wood *et al.* 2012). I compile battle-related deaths from v.5-2014 of the UCDP Battle-Related Deaths Dataset (Sundberg 2008). The second variable indicates the fighting capacity of non-state combatants relative to the government. This measure is an ordinal variable capturing the strength of rebel groups based on their ability to procure arms and maintain an active fighting force. I code this variable on a scale of 0 to 3 for each mission-year according to version 3.4 of the Non State Actors in Armed Conflict Dataset (Cunningham *et al.* 2009). The strongest non-state actors are coded as 3, while the absence of non-state actors is coded as 0.[94]

Peacekeepers may also experience a greater level of violence during the initial stage of a peacekeeping operation. Because belligerent parties cannot perceive the intentions and resolve of peacekeepers during the early months of the intervention, combatants have incentives to target UN personnel in hopes of disrupting peacekeeping activities and forcing the United Nations to withdraw its mission (Salverda 2013; Wright and Greig 2012). What is more, belligerents are likely to challenge PKOs in the early

---

[94] The ordinal categories include (0) no rebels, (1) low, (2) moderate, (3) high rebel capacity. This variable is highly correlated with the *rebel strength* variable also included in the Non State Actors in Armed Conflict Dataset. Where there are multiple non-state actors, I code the variable as the highest capacity among the rebel groups.

stages of deployment because it takes peacekeepers time to address the lawlessness and insecurities in the conflict zone (United Nations 2008). Thus, I create a dichotomous variable coded as 1 to indicate the first year of the peacekeeping mission.[95]

Statistical Models

The first set of statistical analyses focus on the likelihood that peacekeepers fall victim to malicious violent attacks. Because the dependent variable is dichotomous, I employ logistic regression. Logistic regression models the log odds of the dependent variable as a linear combination of the predictor variables (Hosmer and Lemeshow 2000). The logistic regression results indicate the change in the log odds of a peacekeeper fatality for a one-unit increase in a given variable. I use predicted probabilities below to illustrate the substantive impact of coalition structure on the likelihood of peacekeeper fatalities. To account for the fact that coalitions within a given PKO are unlikely independent from one another, I cluster standard errors by peacekeeping operation.

To evaluate the number of peacekeepers killed by malicious acts, the second set of analyses utilizes negative binomial regression. A Poisson model is often used for count data, but if this model is used in the presence of over-dispersed data, the standard errors can be biased and be too small (Vuong 1989). The descriptive statistics in Table 4.2 indicate that *fatality frequency* has a variance that exceeds the mean, so a negative binomial model that accounts for over-dispersion is the correct choice (Vuong 1989).[96]

---

[95] If multiple missions occur in a state during the same year, I code the first year of each mission as 1 because each mission has a unique mandate, force size, and coalition composition.

[96] Some scholars argue that that the presence of over-dispersion and excessive zeroes in the dependent variable makes a zero-inflated negative binomial (ZINB) regression more appropriate (Vuong 1989). An underlying assumption of ZINB regression is that separate processes lead to zeroes in the data, and this does not seem applicable in the present

Once again, I cluster standard errors by peacekeeping operation, and use predicted

probabilities below to illustrate the substantive impact of coalition structure on the

number of peacekeeper fatalities.

Results and Discussion

Results from the logistic regression models in Table 4.3 indicate that

organizational structures within a peacekeeping coalition significantly affect the

likelihood that peacekeepers are victims of violent acts.[97] As the variability of *coalition*

structures increases, peacekeepers are significantly more likely to experience fatal

attacks, which supports hypothesis 1. Figure 4.3 presents the marginal effect of *coalition*

structures and illustrates a steady increase in the likelihood of peacekeeper fatalities as

the variability grows.[98] The x-axis represents the range of the *coalition structures*

measure and the y-axis indicates the predicted likelihood of peacekeeper fatalities, while

the breadth of the curve represents a 95% confidence interval of predicted values at a

given measure of *coalition structures*. I calculate predicted probabilities by changing the

values of the *coalition structures*, while holding all other variables at their mean values.

Based on Figure 4.3, coalitions at the low end of the variability scale endure peacekeeper

fatalities less than 10 percent of the time, while those with highly differentiated partner

organizations experience peacekeeper deaths at nearly a 30 percent likelihood. This

---

study. ZINB regressions specifying the presence of an ongoing conflict in the logistic
regression stage yields findings statistically and substantively similar to negative
binomial regressions.

[97] This finding is robust across various model specifications. Recognizing that
peacekeeper fatalities are relatively uncommon, I also specified models using rare event
logistic regression in the Appendix (see King and Zeng 2001), and this did not change the
statistical or substantive results.

[98] Figures 4.2A and 4.3A in the Appendix provide first differences plots for variables in
Model 4 and Model 8 (King *et al.* 2000; King *et al.* 2001; Tomz *et al.* 2003).

finding is quite important when considering that the vast majority of peacekeeping coalitions demonstrate a relatively high degree of variability in terms of *coalition structures*. Specifically, of the 97 mission-years that experienced peacekeeper fatalities, 76 coalitions had a coefficient of variation greater than the sample mean.

[Table 4.3 about here]

[Figure 4.3 about here]

The negative binomial models in Table 4.4 also indicate that variability in organizational structures significantly increases the number of peacekeepers killed in the line of duty, which supports hypothesis 2. Figure 4.4 illustrates the marginal effect of *coalition structures*, with the predicted number of peacekeeper fatalities increasing as structural variability grows. Looking at Figure 4.4, coalitions with low levels of organizational variation are predicted to lose about .1 peacekeeper, while those with considerable variation are projected to have approximately 0.6 peacekeeper killed. At first glance, the influence of organizational structures appears irrelevant, with even highly diverse coalitions predicted to lose less than one peacekeeper to malicious violence. The significance of this finding is more apparent when considering belligerents rarely kill large numbers of UN personnel, regardless of the operation. In fact, of the 97 mission-years experiencing peacekeeper fatalities, 45 mission-years featured a single peacekeeper death and only 12 mission-years had double-digit fatalities. Therefore, because even a small magnitude of peacekeeper deaths may encourage states to restrict actions of its contingents or withdraw their forces from the peacekeeping operation, minimizing organizational variability is critical.

[Table 4.4 about here]

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[Figure 4.4 about here]

These results from these models are more comprehensible when applied to a historical case. [99] Returning to UNOSOM II, the peacekeeping coalition in this operation featured contributions from heterogeneous organizational structures such as Bangladesh, Norway, Romania, and Tunisia, and the United States. Government officials and those in the media initially touted the merits of this mission due in part to its diversity of participants (Clarke and Herbst 1996; O'Neill and Rees 2005). Despite having a broad, "globally representative" coalition, incompatibility among peacekeeping partners led to slow decision-making, appointment of unqualified personnel, and an ineffective chain of command (Clarke and Herbst 1996). This dysfunction carried over to the conflict zone where UN officials disproportionately leaned on the United States to provide military and logistical support and largely failed to communicate clear objectives to other participating contingents (O'Neill and Rees 2005). Such behavior demonstrated a clear lack of a united front, which invited belligerent parties in Somalia to strike the coalition at its weakest points.

These anecdotes find support in the data, which confirm that the UNOSOM II peacekeeping coalition embodied considerable variation in terms of *coalition structures*. In the presence of 82 peacekeeper deaths during 1993, the measure of *coalition structures*

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[99] The relationship between coalition variability and peacekeeper fatalities also remains consistent across both time and space. For example, UNMIS endured peacekeeper fatalities in 3 of its 7 years of operation, UNAVEM II-III experienced peacekeeper deaths in 4 of 7 years, and MONUC suffered fatalities in 8 of 10 years. UNMIS was conducted in Sudan from 2005-2011, UNAVEM operations were conducted in Angola from 1991-1997, and MONUC operated in the Democratic Republic of Congo from 1999-2010. Each of these cases included military, police, and observer contingents. In each of these missions, almost all instances of peacekeeper fatalities occurred when the coalition variability surpassed the sample mean.

is 0.725, which indicates there were substantial organizational differences among coalition partners. The next year, *coalition structures* increased to 0.836 and belligerents killed another 30 peacekeepers. In 1995, *coalition structures* decreased to a value of 0.937, and belligerents killed an additional peacekeeper. The peacekeeping coalition in Somalia appeared unable to reconcile organizational differences among its contingents and was unable to reach mandated goals or protect the lives of its personnel.

In addition to organizational characteristics, the models also indicate that the size and type of personnel deployed to a conflict zone influence the likelihood and frequency of peacekeeper fatalities. This finding is consistent with previous literature that indicates that a large peacekeeping presence provides more targets for belligerents, and in turn, increased peacekeeper fatalities (Salverda 2013). Specifically, as the number of armed military personnel increase, both the likelihood and magnitude of peacekeeper fatalities increase. Because armed military personnel are most equipped to engage belligerent actors (Hultman *et al.* 2013; Kathman 2013), belligerents are most likely to view them as a threat to the domestic balance of power and engage in violent skirmishes with military contingents as a result. On the other hand, as the number of observers increases, the frequency of peacekeeper fatalities declines. Peacekeepers that serve exclusively as observers lack the mandate, equipment, and capacity to directly engage or deter belligerent parties (Hultman *et al.* 2013; Kathman 2013). Belligerents are aware of these limitations and are unlikely to view them as a substantial barrier to per-intervention policy goals. Thus, belligerents lack incentive to attack purposefully UN personnel in the presence of observers who cannot intercede among combatants or affect events in the conflict zone in a meaningful way.

The statistical analyses also specify that the presence of non-state actors and well as multiple rebel groups increases the number of peacekeeper fatalities. This finding is consistent with prior research that demonstrates that strong rebel groups are more likely to escalate violence toward peacekeepers in an attempt to restrict peacekeeper activities or remove the foreign presence altogether (Salverda 2013; Wright and Greig 2012). Previous literature shows that belligerent parties have greater incentive to utilize violence in the presence of divisive and intense conflicts because these conditions make reaching a mutually acceptable settlement highly difficult (Fearon 1995; Hultman 2007; Walter 2002; Wood 2010; Wood *et al.* 2012). If peacekeepers stand in the way of a belligerent party from capturing resources or gaining an advantage with in the delicate domestic power struggle, UN personnel become viable targets of violence. Therefore, where multiple hostile parties have resources and grievance, belligerents are much more likely to target peacekeepers with malicious acts of violence.

Conclusion

The present study indicates that organizational differences among peacekeeping contingents influence likelihood and magnitude that belligerents purposefully target and kill United Nations peacekeepers. Specifically, as the variability of organizational structures increases within peacekeeping coalitions, both the likelihood and frequency of peacekeeper fatalities increase significantly. These results indicate that in addition to the number and type of contingents deployed, the United Nations must also consider how the combination of diverse security organizations translate into coordinated efforts in the conflict zone. A peacekeeping coalition with relatively similar organizational structures

requires less of a learning curve to reconcile its differences, aggregate resources, and coordinate actions, than coalitions with organizationally diverse contingents.

Returning to the opening example, the mission in Somalia (UNOSOM II) serves as a prime example of coalition dysfunction, where the United Nations 113 peacekeepers deliberately killed in the line of duty despite having nearly 30,000 personnel volunteered by a broad multinational coalition. Coalition forces in Somalia were unable to develop cohesion in part because of UN leadership leaning heavily on the United States for logistical support, and as a result, the U.S. refused to work closely with other peacekeeping contingents (O'Neil and Rees 2005). This asymmetric burden-sharing agreement became more costly after the United States withdrew its personnel in 1994, leaving the remaining coalition members without necessary resources or a clear command and control infrastructure (O'Neil and Rees 2005). This example demonstrates that UN leadership must not only consider the sheer size of a peacekeeping operation, but also how organizational differences among coalition members helps or hinders their ability to collaborate effectively.

The need to consider organizational structures when constructing peacekeeping coalitions presents a considerable challenge to the United Nations because it has virtually no say over who offers personnel for a particular peacekeeping mission or how states train their contingents. The best option for UN leadership is to focus on integrating contingents that come from similar organizational and professional backgrounds, rather than cobble together broad peacekeeping coalitions with diverse practices and procedures. Such efforts appear to be taking place in the ongoing mission in Iraq (UNAMI), where coalition partners display low variability in terms of *coalition*

structures and belligerents have not killed any peacekeepers from 2006-2013. Taking this a step further, the UN could codify and standardize a peacekeeping training regimen for its member states.[100] Each member state would still have the final decision of whether or not to incorporate and institutionalize such standards, but this would provide a mechanism to improve collaboration among peacekeepers, regardless of their respective domestic circumstances or experiences with warfare.[101] In other words, United Nations officials may be able to construct effective coalitions by combining security personnel with similar organizational cultures and professional traditions.

The organizational attributes of coalition partners may also offer insights regarding the effectiveness of conventional military alliances and coalitions. Much like peacekeeping operations, multilateral military efforts have become more common since the end of the Cold War (Morey 2015; Sillket 1993). Moreover, alliances and coalitions are often used in order to obtain legitimacy from the international community and more practically, to aggregate the resources of multiple states (Glenn 2011; Weitsman 2003, 2014). Allied states may share an interest in neutralizing a mutual threat and devote considerable resources toward the mission, but if partner states fail to reconcile organizational and professional differences, such as aligning standard operating procedures and rules of engagement, they will not be able to counter an enemy effectively (Gordon 2001; Saiderman and Auerswald 2012; Weitsman 2003, 2014).

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[100] This method may be a necessary first step to institutionalize predictable behaviors and codify best practices (Adler and Borys 1996).

[101] There are currently attempts to enforce standards of training, capabilities, and equipment for peacekeepers, but this states that cannot endure increased procurement costs associated with standardization of best practices are resisting (Bellamy and Williams 2012).

Allied militaries that function under similar organizational structures need less time to become acclimated with each other, and they require less of a learning curve to aggregate resources during joint operations. Accounting for organizational structures may elucidate why some coalitions fail despite having the advantage of resources and a history of collaboration, while others are able to overcome such deficiencies over time.

Tables and Figures

Table 4.1: United Nations Peacekeeping Operations, 1990-2013

Mission	Fatalities	Mission	Fatalities
MINUCI	0	UNISFA	2
MINUGUA	0	UNMEE	0
MINURCA	0	UNMIBH	0
MINURCAT	1	UNMIH	2
MINURSO	0	UNMIK	12
MINUSMA	4	UNMIL	3
MINUSTAH	14	UNMIN	0
MIPONUH	1	UNMIS	4
MONUA	5	UNMISET	2
MONUC	34	UNMISS	9
MONUSCO	8	UNMIT	1
ONUB	3	UNMOGIP	0
ONUCA	0	UNMOP	0
ONUMOZ	1	UNMOT	6
ONUSAL	0	UNOCI	10
UNAMA	8	UNOMIG	8
UNAMI	0	UNOMIL	0
UNAMIC	0	UNOMSIL	0
UNAMID	62	UNOMUR	0
UNAMIR	14	UNOSOM I	0
UNAMSIL	17	UNOSOM II	114
UNAVEM I	0	UNPREDEP	0
UNAVEM II	1	UNPROFOR	74
UNAVEM III	6	UNPSG	0
UNCRO	8	UNSMIH	0
UNDOF	3	UNSMIS	1
UNFICYP	0	UNTAC	25
UNIFIL	22	UNTAES	2
UNIIMOG	0	UNTAET	2
UNIKOM	1	UNTMIH	0
UNIOSIL	0	UNTSO	2

Notes: The sample includes all missions conducted by the United Nations Department of Peacekeeping Operations (UNDPKO) from 1990-2013.
Fatalities refer to peacekeepers killed by malicious acts of violence.

Table 4.2: Descriptive Statistics

Variable	N	Mean	Std. Dev.	Min	Max
Fatality	423	0.229	0.421	0.000	1.000
Fatality Frequency	423	1.149	5.099	0.000	82.000
Coalition Structures	421	0.801	0.179	0.206	1.453
Troops	423	28.925	49.407	0.000	346.630
Police	423	3.822	8.484	0.000	51.345
Observers	423	1.062	1.496	0.000	8.089
P5 Contributors	423	2.242	1.691	0.000	5.000
Regional Contributors	423	1.709	2.227	0.000	13.167
Conflict Severity	423	1.940	2.819	0.000	9.619
Rebel Capacity	423	0.525	0.775	0.000	3.000
Rebel Factions	423	0.739	1.217	0.000	6.000
First Year	423	0.147	0.354	0.000	1.000

Notes: Troops, Police, and Observer variables represent their respective raw values divided by 100.

Coalition Structures has two fewer observations because the operation to Georgia (UNOMIG) in 1993 and the operation to Haiti (UNTMIH) in 1998 did not include coalitions, and therefore did not have variation in organizational structures.

Table 4.3: Coalition Structures and Likelihood of Peacekeeper Fatalities

	Model 1	Model 2	Model 3	Model 4
Coalition Structures	2.639***	3.175***	2.851***	2.886***
	(0.816)	(0.853)	(0.903)	(0.898)
Troops	0.019***	0.022***	0.024***	0.024***
	(0.005)	(0.004)	(0.004)	(0.004)
Police	-0.019	-0.016	-0.022	-0.022
	(0.014)	(0.017)	(0.025)	(0.025)
Observers	0.070	0.040	-0.052	-0.054
	(0.108)	(0.118)	(0.125)	(0.125)
P5 Contributors		0.027	0.087	0.088
		(0.133)	(0.133)	(0.134)
Regional Contributors		-0.146	-0.131	-0.132
		(0.091)	(0.100)	(0.100)
Rebel Capacity			0.364	0.388
			(0.230)	(0.263)
Rebel Factions			0.146	0.153
			(0.213)	(0.253)
Conflict Severity				-0.009
				(0.104)
First Year				-0.062
				(0.451)
Constant	-4.132***	-4.439***	-4.595***	-4.610***
	(0.760)	(0.881)	(0.892)	(0.883)
N	421	421	421	421
Clusters	62	62	62	62
Log Likelihood	-179.856	-177.454	-172.256	-172.235
Chi2	42.082	60.750	72.581	78.677
AIC	369.713	368.908	362.512	366.471
BIC	389.926	397.206	398.896	410.940

Notes: Logistic regression.
The dependent variable is coded 1 for at least one peacekeeper fatality in a mission-year and 0 otherwise.
Robust standard errors clustered by peacekeeping mission in parentheses.
Smaller values of AIC and BIC indicate better model fit.
Troop, Police, and Observer variables represent a change in 100 personnel respectively.
*p<0.10, ** p<0.05, *** p<0.01 (two-tailed)

Table 4.4: Coalition Structures and the Number of Peacekeeper Fatalities

	Model 5	Model 6	Model 7	Model 8
Coalition Structures	2.443**	2.651***	2.951***	2.938***
	(1.054)	(0.966)	(0.899)	(0.919)
Troops	0.027***	0.028***	0.027***	0.027***
	(0.005)	(0.005)	(0.004)	(0.004)
Police	-0.031	-0.018	-0.022	-0.024
	(0.022)	(0.023)	(0.028)	(0.028)
Observers	-0.111	-0.069	-0.257**	-0.267**
	(0.101)	(0.133)	(0.108)	(0.112)
P5 Contributors		-0.095	0.104	0.112
		(0.158)	(0.154)	(0.157)
Regional Contributors		-0.051	-0.038	-0.038
		(0.055)	(0.062)	(0.062)
Rebel Capacity			0.411**	0.395**
			(0.184)	(0.182)
Rebel Factions			0.373**	0.360**
			(0.160)	(0.178)
Conflict Severity				0.018
				(0.069)
First Year				-0.135
				(0.325)
Constant	-3.367***	-3.345***	-4.613***	-4.615***
	(1.040)	(1.106)	(0.880)	(0.886)
Alpha	1.422***	1.404***	1.022***	1.018***
	(0.257)	(0.237)	(0.149)	(0.149)
N	421	421	421	421
Clusters	62	62	62	62
Log Likelihood	-389.816	-388.787	-366.838	-366.722
Chi2	46.959	49.933	103.658	106.530
AIC	791.631	793.574	753.676	757.444
BIC	815.887	825.915	794.103	805.955

Notes: Negative binomial regression.
The dependent variable is a count of peacekeeper fatalities in each mission-year.
Robust standard errors clustered by peacekeeping mission in parentheses.
Smaller values of AIC and BIC indicate better model fit.
Alpha represents the log-transformed over-dispersion measure. Significant values of this measure indicate that the negative binomial model is more appropriate than a Poisson model.
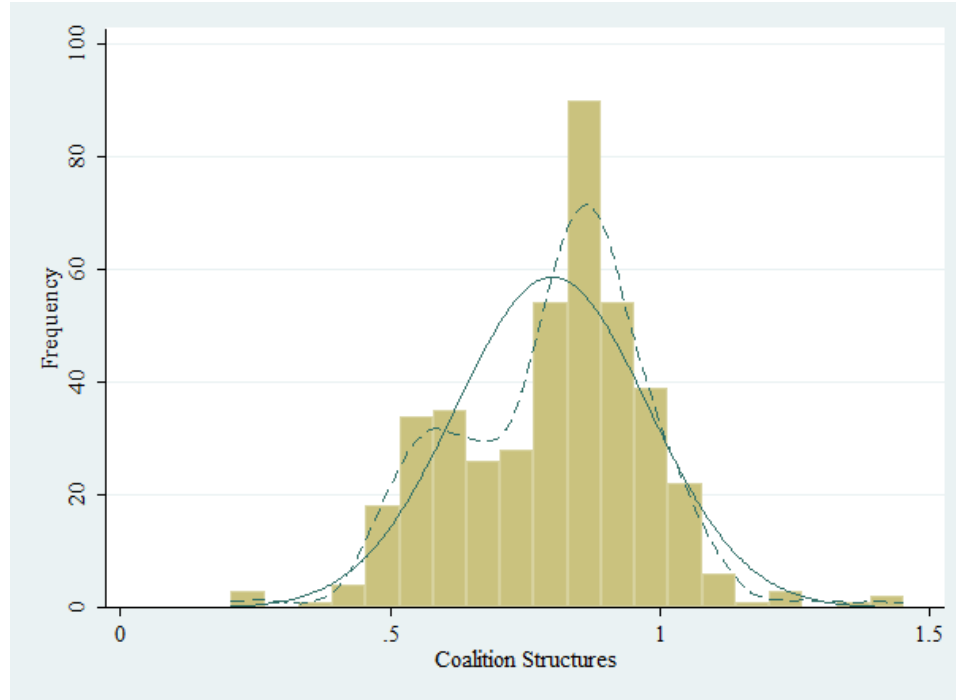Troop, Police, and Observer variables represent a change in 100 personnel respectively.
*p<0.10, ** p<0.05, *** p<0.01 (two-tailed)

Figure 4.1: United Nations Peacekeeper Fatalities, 1990-2013
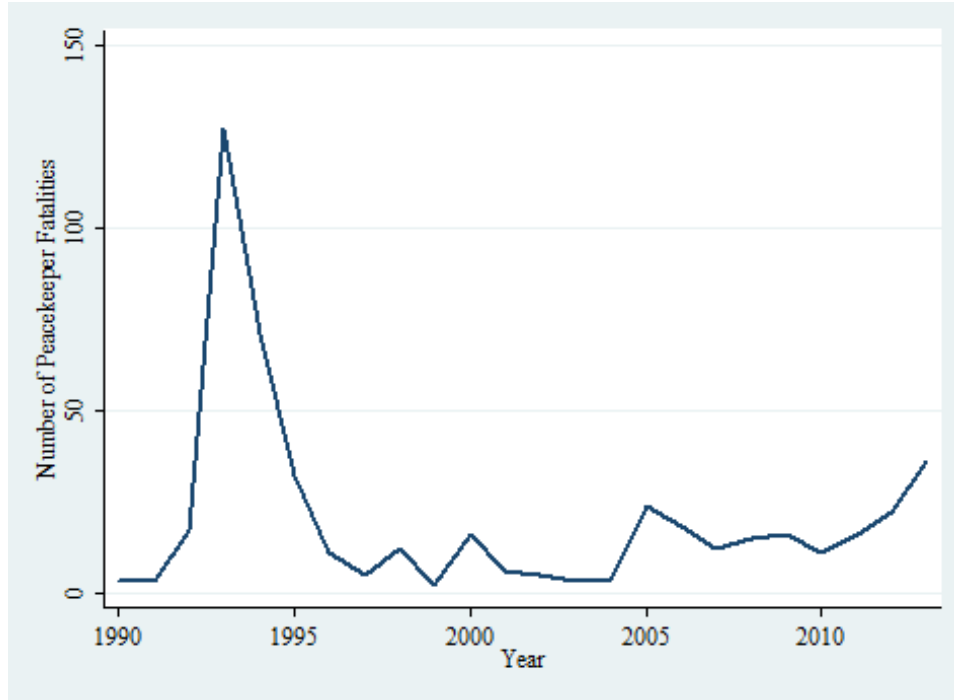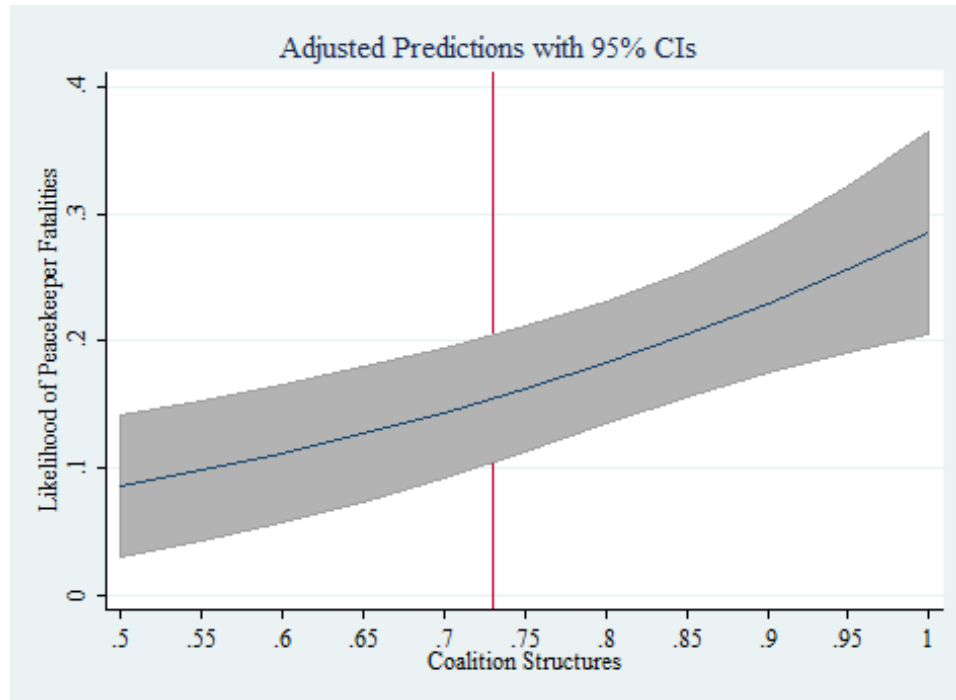

Note: UNOSOM II experienced 82 peacekeeper fatalities in 1993.

Figure 4.2: Distribution of Coalition Structures

Notes: The solid line represents a normal distribution.
The dashed line represents the kernel density.

Figure 4.3: Marginal Effect of Structure on Likelihood of Peacekeeper Fatalities

Adjusted Predictions with 95% CIs

Notes: Effect represents change in coalition structures with all other variables
held at their mean.
Vertical line represents UNOSOM II coalition structures in 1993.
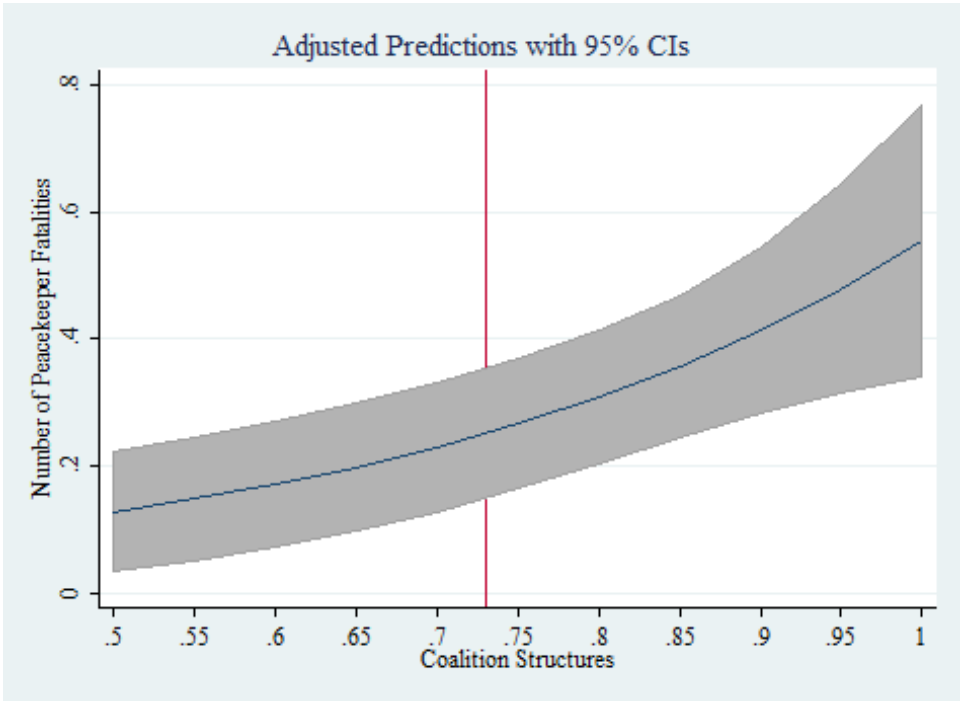
Figure 4.4: Marginal Effect of Structure on Number of Peacekeeper Fatalities

Notes: Effect represents change in coalition structures with all other variables held at their mean.
Vertical line represents UNOSOM II coalition structures in 1993.

Chapter 5: Conclusion

This project has focused on characteristics of military organizations and how these traits influence battlefield efficacy, patterns of alliance formation, and peacekeeper security. Taken together, this study indicates that the organizational structure of a military influences its methods of mobilizing and training personnel, development of group cohesion, and the ability to coordinate actions with other states. Chapter 2 evaluates organizations at the micro-level and measures structure in terms of personnel sophistication and bureaucratic design. Chapter 3 disaggregates the concepts of cooperation and coordination, and characterizes organizations at a macro-level, based on the share of human and military resources dedicated to the armed forces. Chapter 4 examines the development and maturation of security organizations, and evaluates how well dissimilar organizations operated in a coalition framework.

The key contribution of this project is that it examines how organizational characteristics have an effect on how a military functions on and off the battlefield. This finding challenges existing literature that tends to focus on characteristics of the state, such as regime type (Bennett and Stam 1996, 1998; Reiter and Stam 2002) and material resources (Mearsheimer 2001), influence how military organizations perform on the battlefield. Rather than assuming that military organizations are interchangeable units, I argue that organizational idiosyncrasies influence the ability of a military to utilize resources at its disposal and conduct operations effectively against a broad range of adversaries (Brooks 2007; Tellis 2000). By investigating distinct forms of military efforts, I not only demonstrate that organizational structure matters, but also that these characteristics are not sensitive to a particular measure or temporal domain.

A considerable amount of literature has addressed how differences in material capabilities, political institutions, and culture can influence state performance in military efforts, but these studies largely overlook the organizational characteristics of the armed forces.[102] Organizational structure is an important factor because the internal pattern of relationships, perceptions of authority, and means of communication shape the fundamental practices and procedures of a given military. Depending on its access to resources, societal role, and political support, each organization "learns" from its operational experiences and develops its own set of best practices (Chen 2014; Horowitz 2011; Soeters *et al.* 2010).[103] Accounting for these idiosyncrasies provides a link between state attributes and variation of outcomes in terms of military efforts. Specifically, characteristics of military organizations can help explain why some states perform more effectively on the battlefield, how states select alliance partners, and why large numbers of peacekeepers often cannot guarantee operational success.

It is also important to recognize how organizational characteristics fit into the larger international relations literature. Following the assumption that international system is anarchic, state leaders must create some form of security organization in order to maintain domestic order and ward off foreign aggressors (Huntington 1957; Feaver 1999; Mearsheimer 2001). The realist/neorealist perspective argues that obtaining and securing tangible power is paramount, and these actions require a large and capable fighting force (Mearsheimer 2001). This school of thought assumes that rational actors,

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[102] Some notable exceptions include Biddle 2004 and Millett *et al.* 1986, 1988.
[103] Organizational learning refers to the ability to gather and disseminate information, coordinate among units, and provide strong leadership (Fortna and Howard 2008; Howard 2008).

and the military organizations they create, can use the same set of resources to achieve identical goals, regardless of perceived differences on the domestic front (Mearsheimer 2001). Conceptualizing states as unitary actors deemphasizes differences among these entities and "black boxes" each state's military organization.

The present research challenges this viewpoint by indicating that differing circumstances influences the structure of a military organization, and in turn, its ability to convert resources into military assets. Specifically, each state's armed forces adopt a unique set of organizational practices and procedures depending on its particular set of social, political, and economic circumstances. This logic aligns more closely with neoliberalism, which acknowledges the anarchic system and importance of power, but also recognizes the influence of subnational and transnational factors to the development of the state and its institutions (Keohane 2005; Keohane and Martin 1995; Nye 1988). Moreover, it comports with claims from scholars that military organizations are microcosms of the societies they serve in terms of professional norms and initiative on the battlefield (Millet *et al.* 1986, 1988; Murray 2011; Reiter 2007; Reiter and Stam 2002; Soeters *et al.* 2010). Nevertheless, while neoliberals recognize the influence of subnational and transnational factors to the development of state institutions, they do not address explicitly differences in the armed forces or the impact of these differences.

Another debate between these theoretical perspectives deals with the possibility of military cooperation among states. From the realist/neorealist perspective, states do not align with one another unless doing so can favorably shift the distribution of power at the expense of others or because aggregation of resources is necessary to deter a mutual

threat (Mearsheimer 2001).[104] Because states are unlikely to share genuine interests or lack incentive to establish a long-term sense of interstate trust, any semblance of collaboration is little more than a temporary marriage of convenience (Mearsheimer 2001; Waltz 1979). On the other hand, neoliberals argue that the pursuit of one state's objectives does not necessarily have to oppose the goals of another (Keohane 2005; Keohane and Martin 1995). In fact, states can elect to work with others by negotiating agreements in which each participant plays to its strengths and derives benefits from others in its areas of relative weakness (Keohane 2005; Keohane and Martin 1995). Through continued interactions, states develop a familiarity with each other's capabilities and interests, which reduces uncertainty among state actors and provides opportunities for further cooperation in the future (Ikenberry 2000; Keohane 2005).

Both schools of thought present motives and mechanisms for military collaboration, but these arguments tend to focus on attributes of the state and continue to "black box" the armed forces. This decision glosses over the fact that military organizations are distinct entities, and considerable time and effort is required in order for a multinational force to operate as a cohesive group (Weitsman 2003, 2014). The creation of a military coalition or alliance offers the benefit of quickly increasing security through the aggregation of allied resources, but partner organizations must relinquish a degree of autonomy to reconcile conflicting interests and methods of behavior (Morrow 1993; Weitsman 2003, 2014). Moreover, military partnerships necessitate coordination of

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[104] Neorealists claim that states are able to balance against potential threats domestically by increasing material and military capacity (internal balancing) or through the creation of interstate alignments (external balancing) (Waltz 1979; Morrow 1991; Mearsheimer 2001).

actions among participating groups in order to experience substantial benefits from the

alignment (Millet *et al.*1986, 1988; Murray 2011). Therefore, more investigation on the

specific role of military organizations and the influence of organizational characteristics

is necessary if research is to move beyond limitations of current theoretical arguments.

Organizational characteristics also have practical policy implications because they

can influence the likelihood and magnitude of lives lost in conflict. In general, political

leaders are sensitive to battlefield casualties because personnel deaths signal political

ineptitude and threaten a regime's grip on power (Bennett and Stam 1996, 1998; Dixon

1976; Horowitz *et al.* 2011; 1996 2002).[105] This means that leaders try to adopt policies

that limit personnel losses in order to retain support of the domestic population and keep

positions of authority. While previous works have argued that characteristics of the state,

such as access to material resources and regime type, influence military capabilities, each

chapter of this study focuses on how organizational characteristics affect different

military efforts.

Chapter 2 emphasizes the role of battlefield efficacy, and argues that effective

military organizations minimize their losses and impose relatively high costs on their

adversary. Because most leaders have an incentive to limit personnel losses, I argue that

effective militaries are those that experience fewer casualties than their opponent. To test

this hypothesis, I examine personnel deaths in battles during the First World War. Based

on this specific case, I find military organizations with relatively stratified bureaucracies

and sophisticated personnel operate more effectively on the battlefield and experience

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[105] Bennett and Stam (1996) argue that democracies fight in shorter wars than other
regime types because democratic leaders fear that public support will wane when the
conflict is prolonged and casualties accumulate.

fewer casualties as a result. While these results are specific to World War I, this case helps illustrate the mechanism by which organizational characteristics influence battlefield performance.

Chapter 3 expands the scope of the theory and applies it to alliance formation. In this chapter, I argue that political leaders consider elements of cooperation and coordination when choosing alliance partners. Leaders that align with incompatible organizations risk losing unnecessary lives in combat because militaries may be unable to work alongside one another. This means that political leaders recognize the influence of organizational characteristics, and create alliances strategically with states that share a similar organizational structure. I examine patterns of alliance formation from 1816-2007, and find that states are significantly more likely to create alliances with state that have similar personnel sophistication and societal participation in the military. These findings indicate that political leaders recognize organizational characteristics and consider how combining military organizations under an alliance agreement might affect battlefield efficacy if a crisis were to occur.

Chapter 4 indicates that United Nations peacekeeping operations (PKOs) function as *ad hoc* coalitions, and I propose that differences among participating organizations influence how well peacekeepers can protect themselves from malicious violence. Because the UN forms PKOs from volunteer forces, an operation's success hinges on obtaining and maintaining competent and compatible personnel in the conflict zone. Nevertheless, political leaders are sensitive to casualties, so states can still withdraw from the coalition in the face of imminent danger to peacekeeping personnel. I examine PKOs from 1990-2013 and find that peacekeeping operations composed of personnel from

similar organizational backgrounds suffer personnel casualties at a significantly lower likelihood and frequency. These results suggest the United Nations must attempt to gather as many volunteer forces as possible, but must also consider how organizational differences among participating militaries will influence their ability to work together in a coalition framework

The inclusion of organizational characteristics opens up a number of avenues for additional research. One approach to build on the present study would be to investigate how domestic political changes alter the roles and responsibilities assigned to the military. Because the military is one of many state bureaucracies, such changes could influence personnel sophistication as well as an organization's capability of adapting new strategies and technologies.[106] Shifting the focus to individual militaries would allow for more fine-grained measures of organizational characteristics and a more nuanced examination of how organizations train, mobilize, and utilize their personnel. Specifically, future studies could examine the bureaucratic hierarchy not just by the number of ranked positions, but by the number of personnel in respective positions. The distribution of personnel may not only lead to different relationships among officers and enlisted soldiers, but may also shape means of communication and discretion by personnel on the battlefield.

In a related vein, future studies could also examine how organizational traits influence authority structures within alliances and coalitions. While chapters 3 examines how political leaders consider the potential for coordination when choosing alliance

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[106] Horowitz (2011) begins to explore how the organizational age of a military influences its willingness to adopt new practices.

partners, this does not explain how states accomplish coordination when called on to fight together. If state militaries have less difficulty assimilating with other organizations with similar structures and practices, similar organizations may also be more willing to adopt a relatively unified command and control structure.[107] Conversely, aligned organizations that have distinct behaviors and standard operating procedures are probably less willing to sacrifice any autonomy, even to an ally. This means that organizational characteristics not only affect performance on the battlefield, but also methods of communication and decision-making within the military partnership. Thus, future research could investigate cases of multilateral warfare, and identify if and how organizational characteristics influence the means of command and control adopted by military partners.

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[107] Morey (2015) identifies meaningful differences in command and control structures by classifying multilateral military efforts as coalitions or wars in parallel.

Appendix A: Additional Tables and Figures – Chapter 2

Table 2.1A: Cameron & Trivedi's Decomposition of IM-test (OLS Model 4)

	Chi-Square	Degrees of Freedom	P-Value
Heteroscedasticity	35.76	38	0.5736
Skewness	10.54	8	0.2290
Kurtosis	0.30	1	0.5854
Total	46.60	47	0.4892

Note: P-values greater than 0.05 indicate a lack of statistical significance.

Table 2.2A: Military Organizations and Battlefield Effectiveness (GLM)

	Model 5	Model 6	Model 7	Model 8
Sophistication	-0.876***	-1.335***	-1.124**	-0.901
	(0.275)	(0.459)	(0.439)	(1.124)
Stratification	0.334	-3.908**	-3.301**	-3.016
	(0.776)	(1.800)	(1.662)	(2.031)
Interaction				-0.523
				(2.528)
Military Size	-0.097	-0.154	-0.246	-0.254
	(0.542)	(0.490)	(0.490)	(0.494)
Democracy		-2.819***	-2.391**	-2.386**
		(1.085)	(1.024)	(1.024)
Education		1.544	1.302	1.329
		(0.945)	(0.886)	(0.895)
Battle Duration			0.006*	0.006**
			(0.003)	(0.003)
Coalition			-0.981***	-0.985***
			(0.232)	(0.230)
Constant	0.469	3.500***	3.021**	2.888**
	(0.573)	(1.297)	(1.221)	(1.331)
N	102	102	102	102
Log Likelihood	-48.791	-48.280	-47.985	-47.983
AIC	105.581	108.560	111.969	113.965
BIC	116.081	124.310	132.969	137.590

Notes: Generalized Linear Model

Logit link function and binomial distribution family

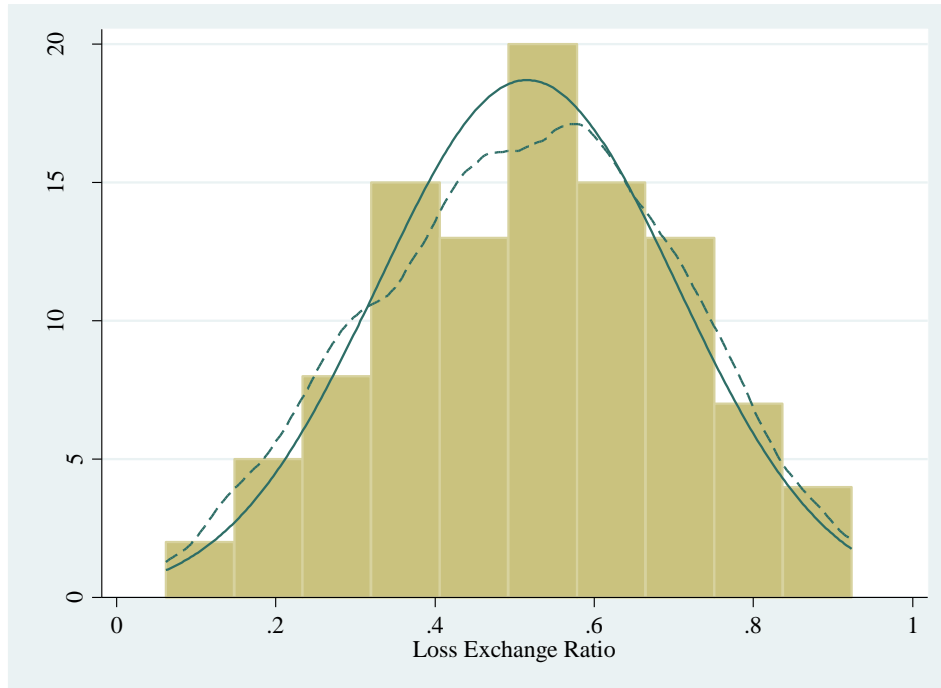The dependent variable is the loss exchange ratio for each battle-dyad.

Interaction refers to Sophistication x Stratification

Robust standard errors in parentheses.

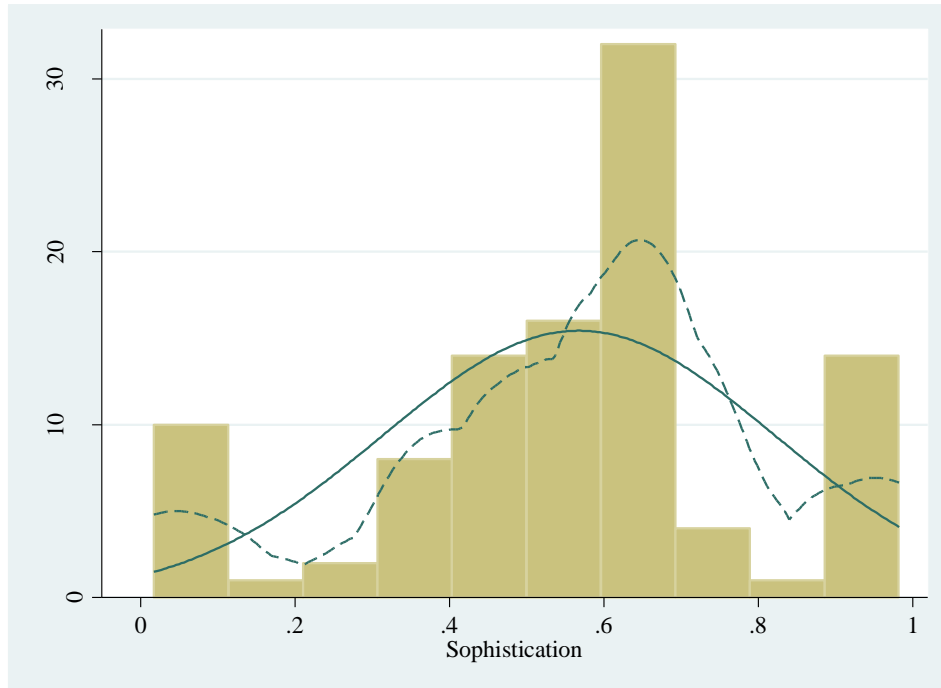Smaller values of AIC and BIC indicate better model fit.

*p<0.10, ** p<0.05, *** p<0.01 (two-tailed)

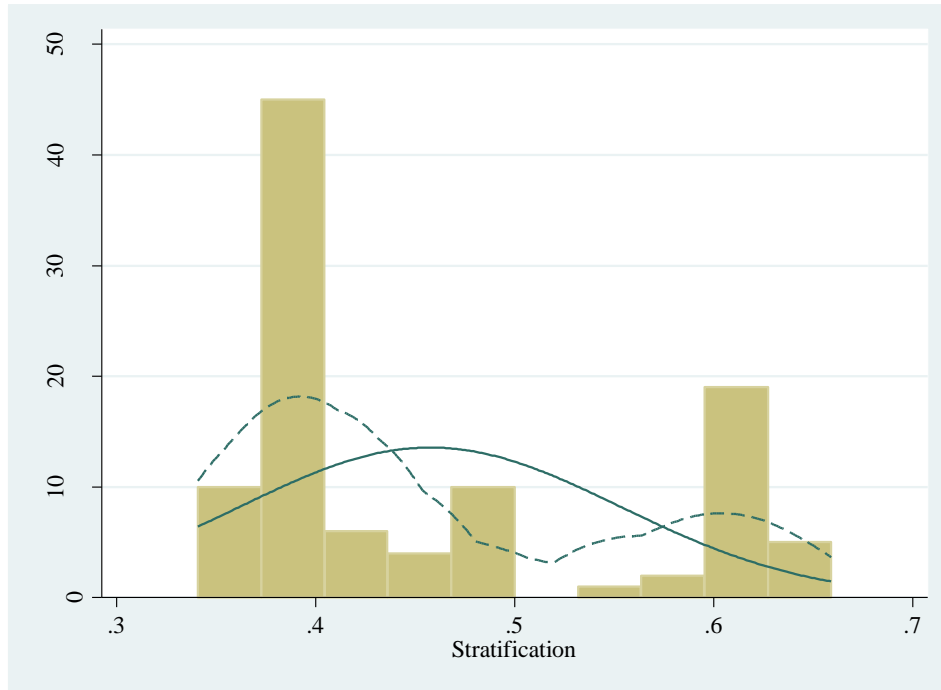Figure 2.1A: Distribution of Battlefield Casualties

Notes: The solid line represents a normal distribution.
The dashed line represents the kernel density.

Figure 2.2A: Distribution of Personnel Sophistication (Ratio)

Notes: The solid line represents a normal distribution.
The dashed line represents the kernel density.

Figure 2.3A: Distribution of Bureaucratic Stratification (Ratio)

Notes: The solid line represents a normal distribution.
The dashed line represents the kernel density.

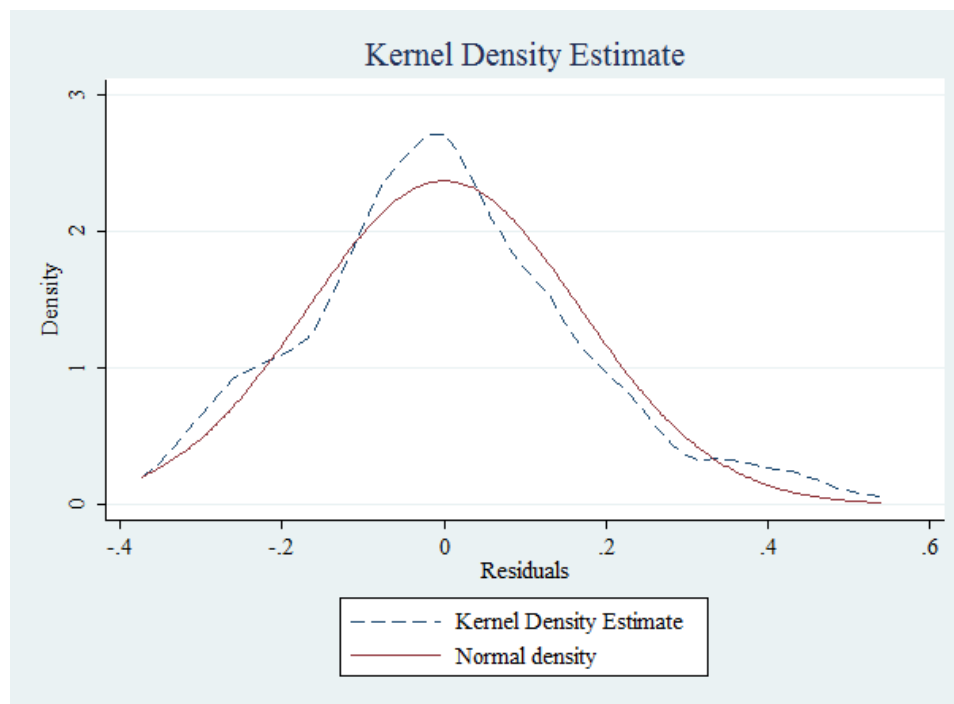Figure 2.4A: Distribution of Residuals (OLS Model 4)

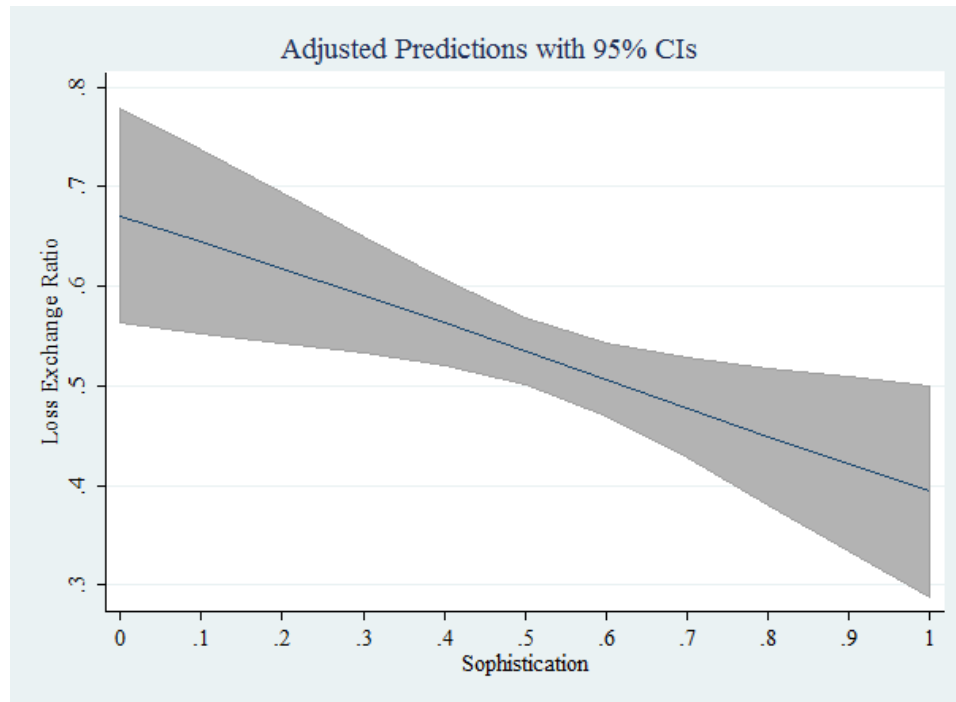Figure 2.5A: Marginal Effect of Sophistication on Battlefield Efficacy (GLM Model 8)

Note: The effect represents change in *Sophistication* with all other variables held at their mean.

Figure 2.6A: Marginal Effect of Stratification on Battlefield Efficacy (GLM Model 8)
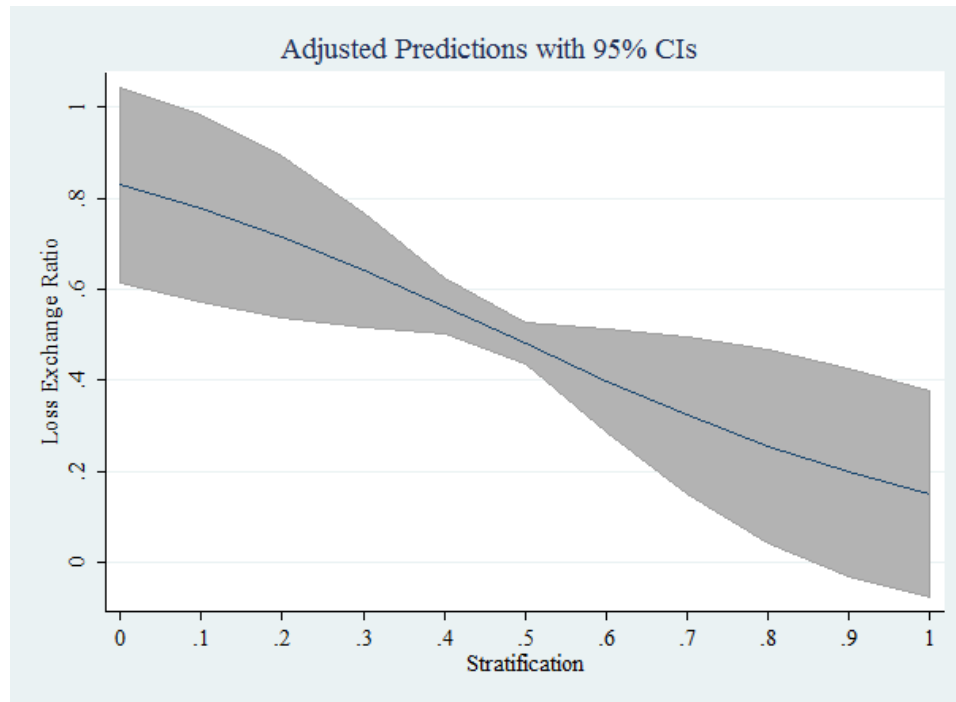
Adjusted Predictions with 95% CIs

Note: The effect represents change in *stratifcation* with all other variables held at their mean.

Figure 2.7A: Predictive Margins of Interaction Term on Battlefield Efficacy (GLM
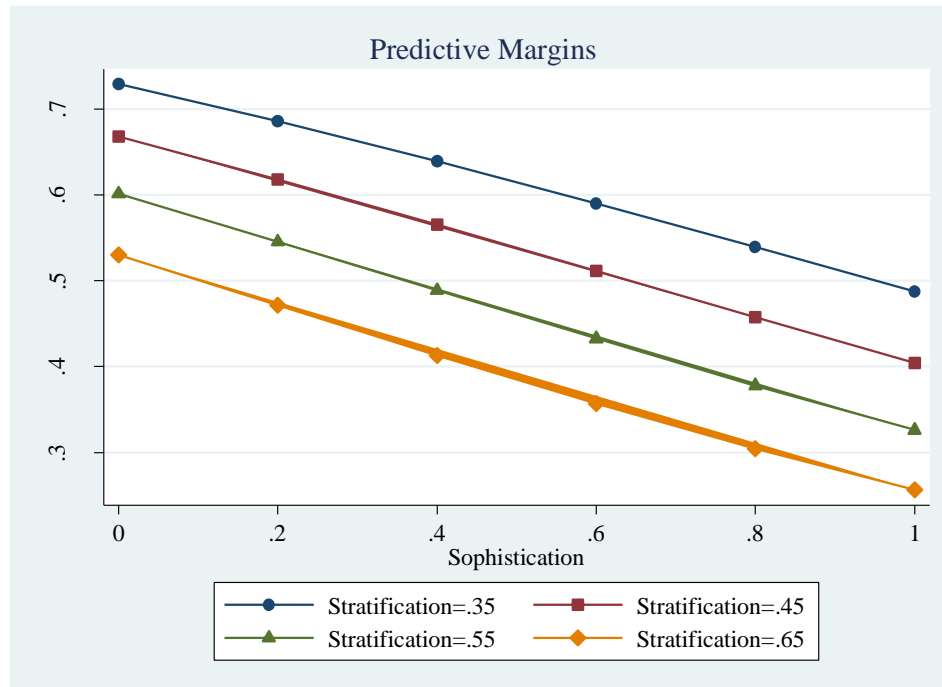
Model 8)

Note: Predicted margins are conditional on values of both *Sophistication* and *Stratification*.

Figure 2.8A: Marginal Effect of Interaction Term on Battlefield Efficacy (GLM Model 8)
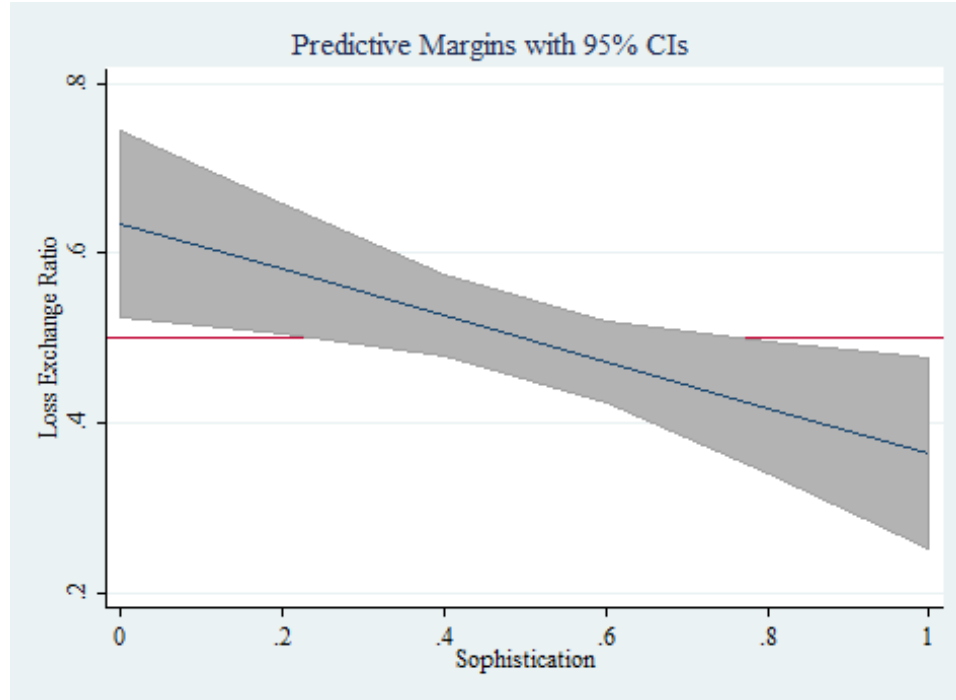
Notes: The figure illustrates the predicted LER at different levels of
Sophistication if *Stratification* is held at 0.5.
The red line identifies a 0.5 share of Loss Exchange Ratio.

Appendix B: Additional Tables and Figures – Chapter 3

Table 3.1A: Participation Difference and Alliance Formation

	All Alliances	Defense	Consultation
Participation Difference (ln)	-0.101***	-0.081***	-0.137***
	(0.015)	(0.019)	(0.017)
Joint Democracy	-0.710***	-0.475***	-0.406***
	(0.083)	(0.086)	(0.086)
Regime Difference	-0.049***	-0.050***	-0.048***
	(0.005)	(0.005)	(0.005)
Foreign Policy Similarity	3.757***	3.799***	3.800***
	(0.280)	(0.348)	(0.324)
Distance	-0.001***	-0.001***	-0.001***
	(0.001)	(0.001)	(0.001)
Major Power	1.148***	0.999***	0.912***
	(0.071)	(0.081)	(0.079)
Mutual Threat	0.643***	0.600***	0.638***
	(0.107)	(0.120)	(0.119)
Cold War	0.557***	0.827***	0.831***
	(0.051)	(0.065)	(0.054)
Time	-0.003	-0.002	0.002
	(0.002)	(0.002)	(0.002)
Time-Squared	0.001*	0.001	-0.001
	(0.001)	(0.001)	(0.001)
Constant	-7.661***	-7.994***	-8.646***
	(0.277)	(0.340)	(0.317)
N	528434	528434	528434
Log Likelihood	-1.12e+04	-7591.489	-8632.283
Chi2	2457.832	2650.860	2604.824
AIC	22477.742	15204.979	17286.567
BIC	22600.697	15327.933	17409.521

Notes: Logistic regression.
The dependent variable is coded 1 for an alliance formed in a dyad-year and 0 otherwise.
Robust standard errors clustered by dyad in parentheses.
Smaller values of AIC and BIC indicate better model fit.
*p<0.10, ** p<0.05, *** p<0.01 (two-tailed)

Table 3.2A: Military Characteristics and Alliance Formation (Rare Events)

	All Alliances	Defense	Consultation
Participation Difference (ln)	-0.081***	-0.058***	-0.122***
	(0.017)	(0.021)	(0.018)
Sophistication difference (ln)	-0.063***	-0.041***	-0.125***
	(0.011)	(0.014)	(0.012)
Joint Democracy	-0.494***	-0.233**	-0.032
	(0.090)	(0.096)	(0.093)
Regime Difference	-0.047***	-0.045***	-0.045***
	(0.005)	(0.006)	(0.006)
Foreign Policy Similarity	3.583***	3.742***	3.503***
	(0.287)	(0.374)	(0.328)
Distance	-0.001***	-0.001***	-0.001***
	(0.001)	(0.001)	(0.001)
Major Power	1.095***	0.921***	0.795***
	(0.077)	(0.087)	(0.087)
Mutual Threat	0.659***	0.627***	0.723***
	(0.105)	(0.122)	(0.111)
Cold War	0.531***	0.784***	0.879***
	(0.060)	(0.078)	(0.065)
Time	-0.003	-0.004	0.004
	(0.002)	(0.003)	(0.003)
Time-Squared	0.001**	0.001*	-0.001
	(0.001)	(0.001)	(0.001)
Constant	-7.025***	-7.536***	-7.692***
	(0.289)	(0.368)	(0.321)
N	437894	437894	437894

Notes: Rare event logistic regression.
The dependent variable is coded 1 for an alliance formed in a dyad-year and 0 otherwise.
Robust standard errors clustered by dyad in parentheses.
*p<0.10, ** p<0.05, *** p<0.01 (two-tailed)

Table 3.3A: Sophistication Difference and Alliance Formation

	All Alliances	Defense	Consultation
Sophistication difference (ln)	-0.066***	-0.043***	-0.128***
	(0.011)	(0.014)	(0.012)
Joint Democracy	-0.492***	-0.233**	-0.034
	(0.089)	(0.095)	(0.093)
Regime Difference	-0.048***	-0.046***	-0.046***
	(0.005)	(0.006)	(0.006)
Foreign Policy Similarity	3.663***	3.809***	3.631***
	(0.291)	(0.375)	(0.333)
Distance	-0.001***	-0.001***	-0.001***
	(0.001)	(0.001)	(0.001)
Major Power	1.066***	0.899***	0.749***
	(0.078)	(0.087)	(0.088)
Mutual Threat	0.651***	0.618***	0.708***
	(0.103)	(0.120)	(0.109)
Cold War	0.504***	0.766***	0.836***
	(0.059)	(0.077)	(0.064)
Time	-0.003	-0.004	0.004
	(0.002)	(0.003)	(0.003)
Time-Squared	0.001**	0.001*	-0.001
	(0.001)	(0.001)	(0.001)
Constant	-6.567***	-7.219***	-7.012***
	(0.275)	(0.356)	(0.309)
N	437900	437900	437900
Log Likelihood	-9481.762	-6262.926	-7063.522
Chi2	2121.727	2145.688	2342.474
AIC	18985.524	12547.852	14149.043
BIC	19106.411	12668.739	14269.931

Notes: Logistic regression.
The dependent variable is coded 1 for an alliance formed in a dyad-year and 0 otherwise.
Robust standard errors clustered by dyad in parentheses.
Smaller values of AIC and BIC indicate better model fit.
*p<0.10, ** p<0.05, *** p<0.01 (two-tailed)

Table 3.4A: Military Characteristics and Alliance Formation

(Neutrality and Non-Aggression)

	Neutrality Pacts	Non-Aggression Pacts
Participation Difference (ln)	0.195***	-0.075***
	(0.067)	(0.021)
Sophistication difference (ln)	-0.110***	-0.029*
	(0.030)	(0.015)
Joint Democracy	0.012	-0.237**
	(0.300)	(0.098)
Regime Difference	0.003	-0.063***
	(0.015)	(0.006)
Foreign Policy Similarity	1.569***	3.619***
	(0.564)	(0.389)
Distance	-0.001***	-0.001***
	(0.001)	(0.001)
Major Power	2.616***	0.692***
	(0.219)	(0.097)
Mutual Threat	0.796***	0.261*
	(0.256)	(0.143)
Cold War	0.476**	1.152***
	(0.194)	(0.091)
Time	-0.004	-0.003
	(0.006)	(0.003)
Time-Squared	0.001	0.001
	(0.001)	(0.001)
Constant	-7.511***	-8.071***
	(0.680)	(0.366)
N	437894	437894
Log Likelihood	-1215.051	-5499.007
Chi2	509.280	2274.354
AIC	2454.102	11022.014
BIC	2585.978	11153.891

Notes: Logistic regression.
The dependent variable is coded 1 for an alliance formed in a dyad-year and 0 otherwise.
Robust standard errors clustered by dyad in parentheses.
Smaller values of AIC and BIC indicate better model fit.
*p<0.10, ** p<0.05, *** p<0.01 (two-tailed)

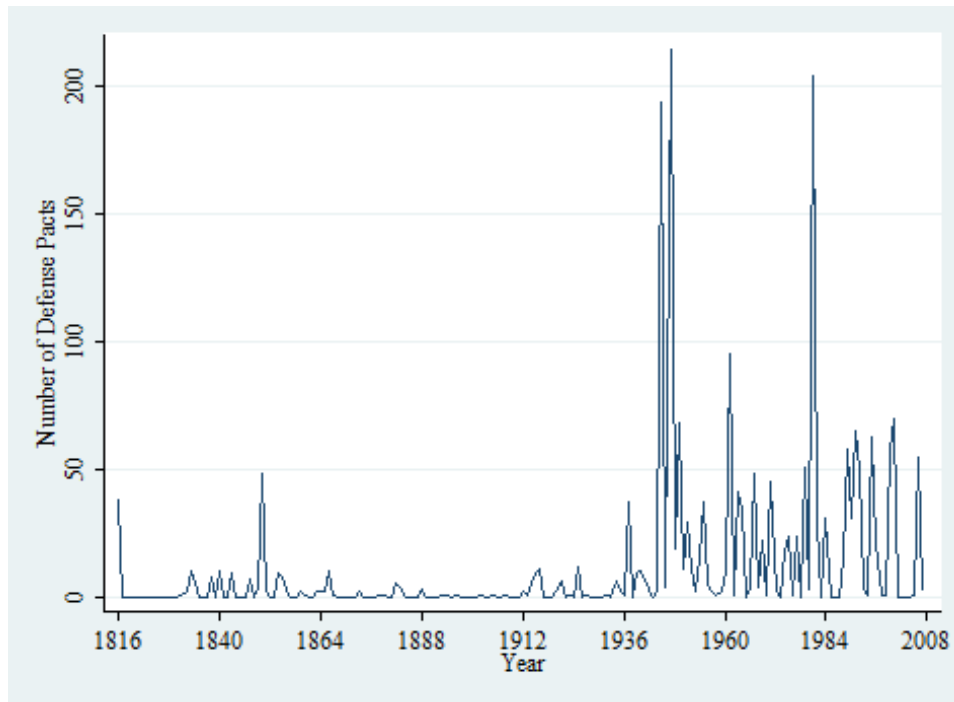Figure 3.1A: Defense Pact Alliances, 1816-2007

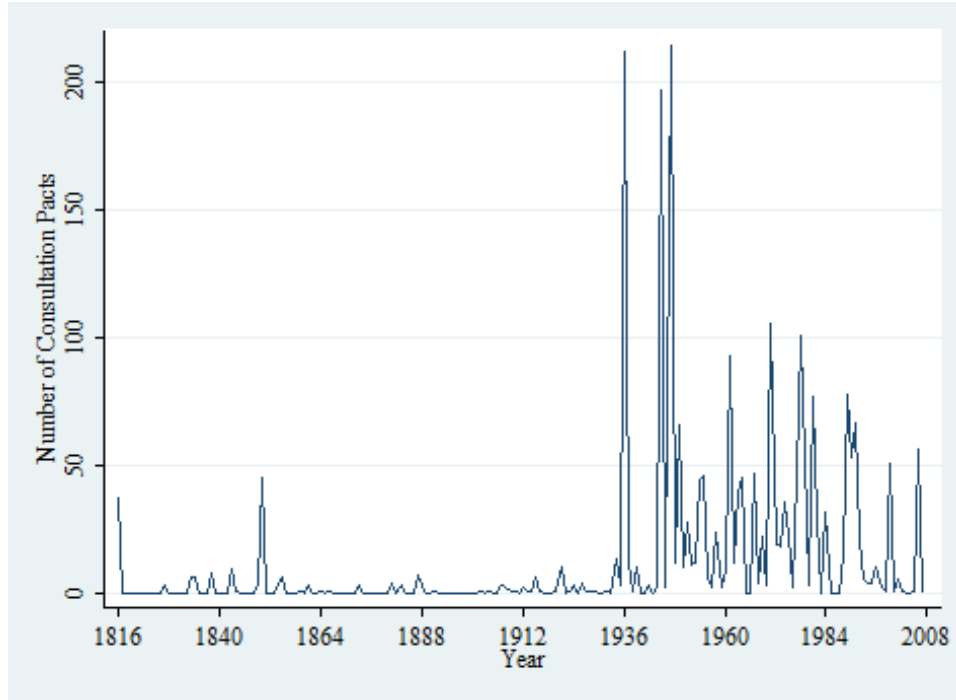Figure 3.2A: Consultation Pact Alliances, 1816-2007

Figure 3.3A: Distribution of Participation Difference (ln)

Notes: The solid line represents a normal distribution.
The dashed line represents the kernel density.
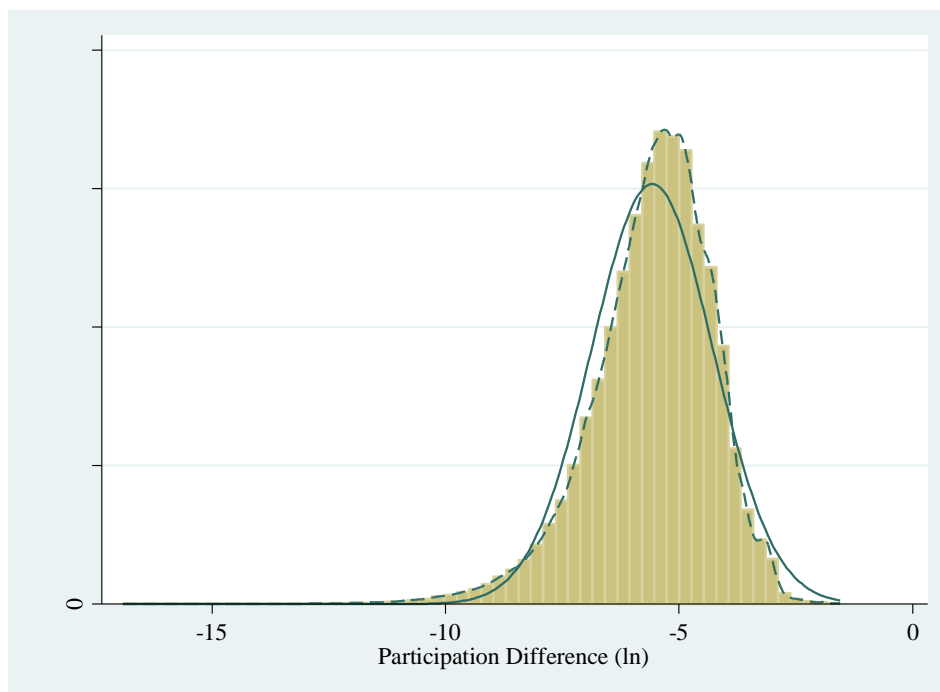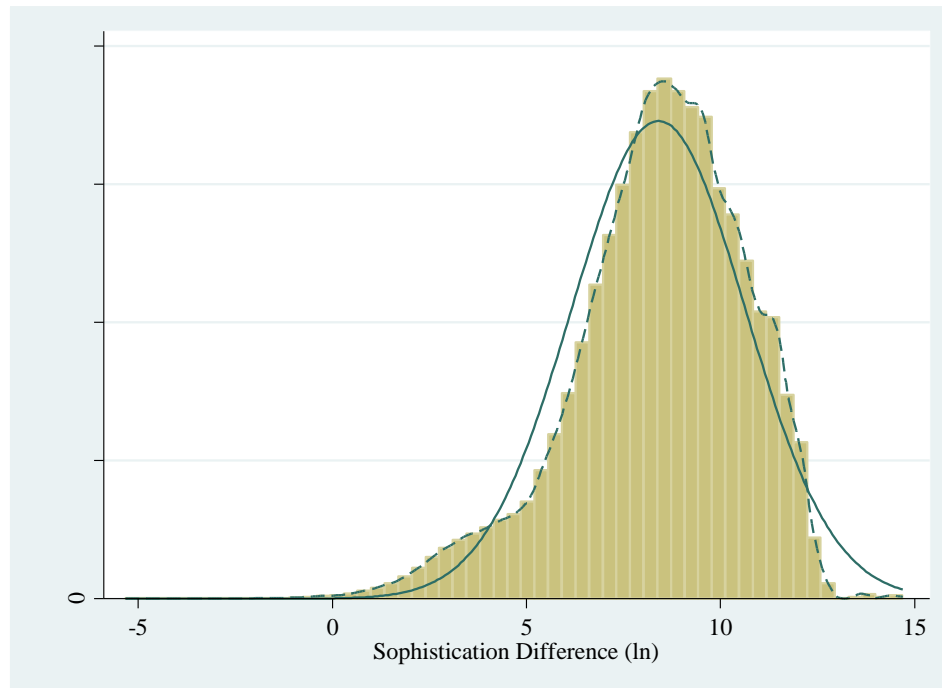
Figure 3.4A: Distribution of Sophistication Difference (ln)

Notes: The solid line represents a normal distribution.
The dashed line represents the kernel density.

Table 4.1A: Coalition Structures and Likelihood of Peacekeeper Fatalities

(Rare Event Logistic Regression)

	Model 9	Model 10	Model 11	Model 12
Coalition Structures	2.601***	3.104***	2.765***	2.787***
	(0.807)	(0.839)	(0.884)	(0.876)
Troops	0.019***	0.022***	0.023***	0.022***
	(0.005)	(0.004)	(0.004)	(0.004)
Police	-0.018	-0.016	-0.022	-0.022
	(0.014)	(0.017)	(0.024)	(0.024)
Observers	0.067	0.033	-0.058	-0.061
	(0.106)	(0.116)	(0.123)	(0.122)
P5 Contributors		0.031	0.092	0.092
		(0.131)	(0.130)	(0.130)
Regional Contributors		-0.138	-0.122	-0.121
		(0.090)	(0.097)	(0.097)
Rebel Capacity			0.354	0.368
			(0.225)	(0.256)
Rebel Factions			0.144	0.150
			(0.209)	(0.246)
Conflict Severity				-0.006
				(0.102)
First Year				-0.045
				(0.439)
Constant	-4.069***	-4.353***	-4.481***	-4.473***
	(0.751)	(0.867)	(0.874)	(0.860)
N	421	421	421	421
Clusters	62	62	62	62

Notes: Rare event logistic regression.
The dependent variable is coded 1 for at least one peacekeeper fatality in a mission-year and 0 otherwise.
Robust standard errors clustered by peacekeeping mission in parentheses.
Troop, Police, and Observer variables represent a change in 100 personnel respectively.
*p<0.10, ** p<0.05, *** p<0.01 (two-tailed)

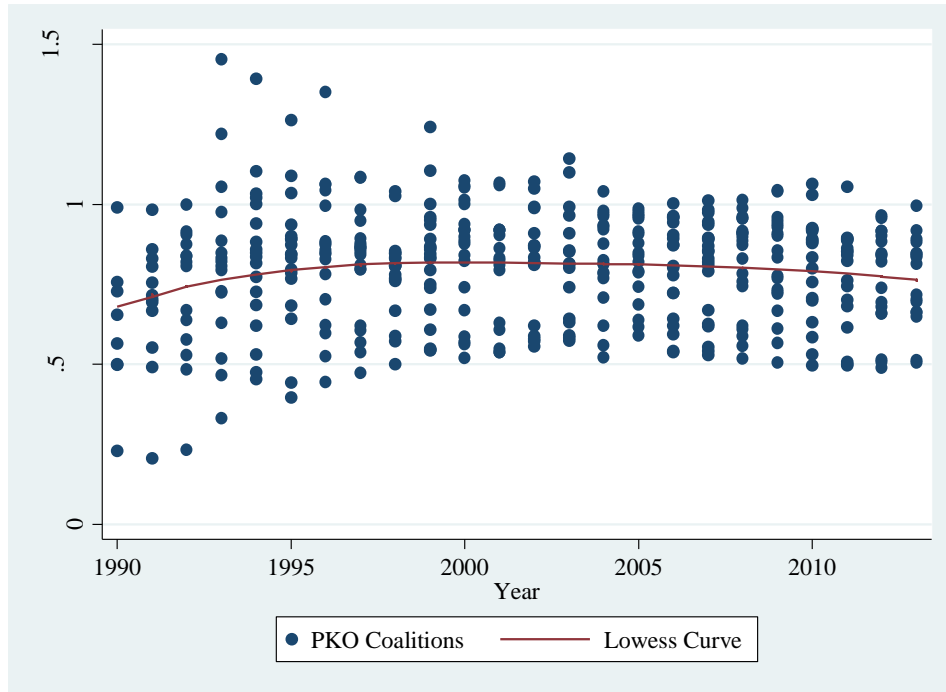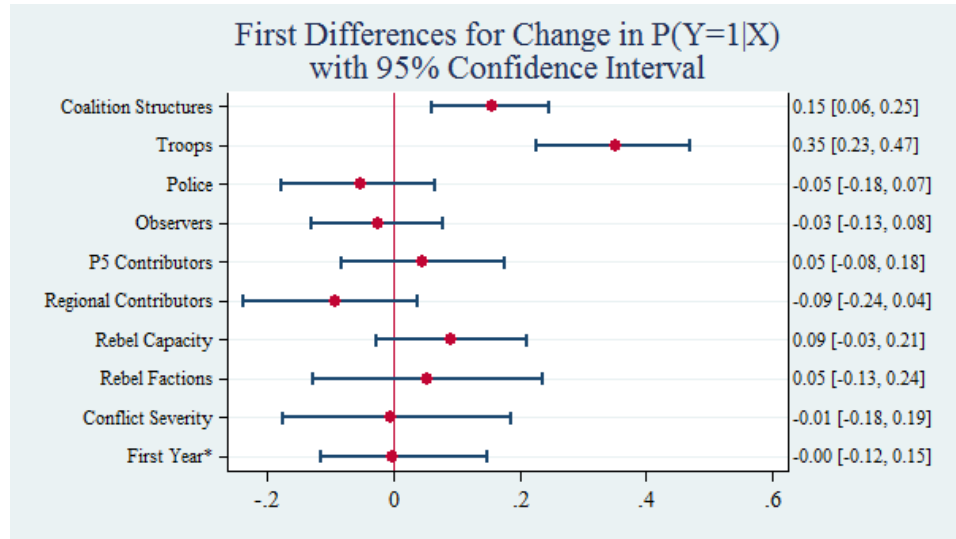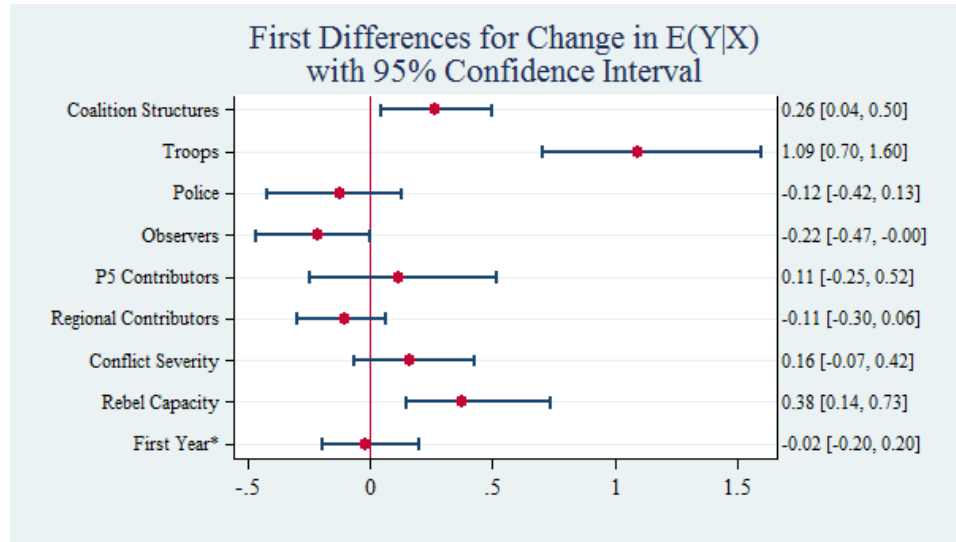Figure 4.1A: Coalition Structures in Peacekeeping Operations, 1990-2013

Figure 4.2A: First Differences and the Likelihood of Peacekeeper Fatalities

Notes: First differences represent a change from one standard deviation below the mean to one standard deviation above it.
Variables with a * are discrete, and FD is a change from 0 to 1.

Figure 4.3A: First Differences and the Number of Peacekeeper Fatalities

First Differences for Change in E(Y|X) with 95% Confidence Interval

Variable	FD [95% CI]
Coalition Structures	0.26 [0.04, 0.50]
Troops	1.09 [0.70, 1.60]
Police	-0.12 [-0.42, 0.13]
Observers	-0.22 [-0.47, -0.00]
P5 Contributors	0.11 [-0.25, 0.52]
Regional Contributors	-0.11 [-0.30, 0.06]
Conflict Severity	0.16 [-0.07, 0.42]
Rebel Capacity	0.38 [0.14, 0.73]
First Year*	-0.02 [-0.20, 0.20]

Notes: First differences represent a change from one standard deviation below the mean to one standard deviation above it.

Variables with a * are discrete, and FD is a change from 0 to 1.

References

Adler, Paul S. and Bryan Borys. 1996. "Two Types of Bureaucracy: Enabling and Coercive." *Administrative Science Quarterly* 41(1): 61–89.

Alexander, Paul. 2013. "Fallout from Somalia Still Haunts U.S. Policy 20 Years Later." *Stars and Stripes*, October 3. http://www.stripes.com/news/fallout-from-somalia-still-haunts-us-policy-20-years-later-1.244957 (April 7, 2014).

Allison, Graham T. 1971. *Essence of Decision: Explaining the Cuban Missile Crisis*. Boston, MA. Little, Brown and Company.

Allison, Paul D. 1978. "Measures of Inequality." *American Sociological Review* 43(6): 865-880.

Aoki, Masahiko. 1986. "Horizontal vs. Vertical Information Structure of the Firm." *The American Economic Review* 76(5): 971–983.

Asal, Victor and R. Karl Rethemeyer. 2008. "The Nature of the Beast: Organizational Structures and the Lethality of Terrorist Attacks." *Journal of Politics* 70(2): 437-449.

Avant, Deborah. 2007. "Political Institutions and Military Effectiveness: Contemporary United States and United Kingdom." In *Creating Military Power: The Sources of Military Effectiveness*, eds. Risa A. Brooks and Elizabeth A. Stanley. Stanford, CA: Stanford University Press, 80-105.

Azad, Kalid. 2007. "Demystifying the Natural Logarithm (ln)." May 20. http://betterexplained.com/articles/demystifying-the-natural-logarithm-ln (October 19, 2014).

Barnett, Michael and Martha Finnemore. 2004. *Rules for the World: International Organizations in Global Politics*. Ithaca, New York: Cornell University Press.

Baum, Christopher F. 2008. "Stata Tip 63: Modeling Proportions." *The Stata Journal* 8(2): 299-303.

Beardsley, Kyle. 2011. "Peacekeeping and the Contagion of Armed Conflict." *The Journal of Politics* 73(4): 1051–1064.

Bellamy, Alex J., Paul Williams, and Stuart Griffen. 2004. *Understanding Peacekeeping*. Cambridge, UK: Polity Press.

Bellamy, Alex J. and Paul D. Williams. 2012. "Broadening the Base of United Nations Troop- and Police-Contributing Countries." *Providing for Peacekeeping* 1: 1-16.

Bennett, Richard L. 2013. *Military Ranks by Country.* Over the Front: The League of WWI Aviation Historians. http://www.overthefront.com/reasources/military-ranks (20 October 2014)

Bennett, D. Scott, and Allan C. Stam. 1996. "The Duration of Interstate Wars, 1816-1985." *The American Political Science Review* 90(2): 239-257.

Bennett, D. Scott, and Allan C. Stam. 1998. "The Declining Advantage of Democracy: A combined Model of War Outcomes and Duration." *The Journal of Conflict Resolution* 42(3): 344-366.

Bennett, D. Scott, and Allan C. Stam. 2000. "EUGene: A Conceptual Manual." *International Interactions* 26(2): 179-204.

Bensahel, Nora. 2007. "International Alliances and Military Effectiveness: Fighting Alongside Allies and Partners." In *Creating Military Power: The Sources of Military Effectiveness*, eds. Risa A. Brooks and Elizabeth A. Stanley. Stanford, CA: Stanford University Press, 186-206.

Berman, Eric G. and Katie E. Sams. 2000. *Peacekeeping in Africa: Capabilities and Culpabilities.* Geneva: United Nations Institute for Disarmament Research.

Biddle, Stephen and Stephen Long. 2004. "Democracy and Military Effectiveness: A Deeper Look." *The Journal of Conflict Resolution* 48(4): 525-546.

Biddle, Stephen, and Robert Zirkle. 1996. "Technology, Civil-military Relations, and Warfare in the Developing World." *Journal of Strategic Studies* 19(2): 171-212.

Biddle, Stephen. 2007. "Explaining Military Outcomes." In *Creating Military Power: The Sources of Military Effectiveness*, eds. Risa A. Brooks and Elizabeth A. Stanley. Stanford, CA: Stanford University Press, 207-227.

Bland, Douglas L. 1999. "A Unified Theory of Civil-Military Relations." *Armed Forces and Society* 24(1): 7-25.

Brooks, Risa A. 2007a. "Introduction: The Impact of Culture, Society, Institutions, and International Forces on Military Effectiveness." In *Creating Military Power: The Sources of Military Effectiveness*, eds. Risa A. Brooks and Elizabeth A. Stanley. Stanford, CA: Stanford University Press, 1-26.

Brooks, Risa A. 2007b. "Civil-Military Relations and Military Effectiveness: Egypt in the 1967 and 1973 Wars." In *Creating Military Power: The Sources of Military Effectiveness*, eds. Risa A. Brooks and Elizabeth A. Stanley. Stanford, CA: Stanford University Press, 106-135.

Burk, James. 2001. "The Military's Presence in American Society, 1950–2000." in

    Soldiers and Civilians: the Civil-Military Gap and American National Security,

    eds. Peter D. Feaver and Richard H. Kohn. Cambridge, MA: MIT Press, 247-274.

Carter, David B. and Curtis S. Signorino. 2010. "Back to the Future: Modeling Time

    Dependence in Binary Data." *Political Analysis* 18(3): 271-292.

Chen, Chung-An. 2014. "Revisiting Organizational Age, Inertia, and Adaptability:

    Developing and Testing a Multi-Stage Model in the Nonproft Sector." *Journal of*

    Organizational Change Management 27(2): 251-272.

Cheng, Joseph Y.S. 2004. "Challenges to China's Russian Policy in Early 21st Century."

    Journal of Contemporary Asia 34(4): 480-502.

Chong, Ja Ian and Todd H. Hall. 2014. "The Lessons of 1914 for East Asia Today:

    Missing the Trees for the Forest." *International Security* 39(1): 7-43.

Clarke, Walter and Jeffrey Herbst. 1996. "Somalia and the Future of Humanitarian

    Intervention." *Foreign Affairs* 70(2): 70–85.

Crescenzi, Mark J.C., Jacob D. Kathman, Katja B. Kleinberg, and Reed M. Wood. 2012.

    "Reliability, Reputation, and Alliance Formation." *International Studies*

    Quarterly 56(2): 259-274.

Cunningham, David E., Kristian Skrede Gleditsch, and Idean Salehyan. 2009. "It Takes

    Two: A Dyadic Analysis of Civil War Duration and Outcome." *Journal of*

    Conflict Resolution 53 (4): 570-597.

Diehl, Paul F., Jennifer Reifschneider, and Paul R. Hensel. 1996. "United Nations

    Intervention and Recurring Conflict." *International Organization* 50(4): 683-700.

Dixon, Norman. 1976. *On the Psychology of Military Incompetence.* New York, NY: Basic Books, Inc. Publishers.

Doyle, Michael W. and Nicholas Sambanis. 2000. "International Peacebuilding: A Theoretical and Quantitative Analysis. *American Political Science Review* 94(4): 779-801.

Doyle, Michael W. and Nicholas Sambanis. 2006. *Making War and Building Peace*. Princeton, NJ. Princeton University Press.

Dupuy, Trevor N. 1995. *Attrition: Forecasting Battle Casualties and Equipment Loss in Modern War.* Falls Church, VA: NOVA.

Dupuy, R. Ernest and Trevor N. Dupuy. 1993. *The Harper Encyclopedia of Military History: From 3500 B.C. to the Present.* Fourth Edition. New York, NY: Harper Collins Publishers.

Ellis, John and Michael Cox. 2001. *The World War I Databook: The Essential Facts and Figures for All the Combatants.* London, UK: Aurum Press.

Fearon, James D. 1997. "Signaling Foreign Policy Interests: Tying Hands Versus Sinking Costs." *The Journal of Conflict Resolution* 41(1): 68-90.

Feaver, Peter D. 1999. "Civil Military Relations." *Annual Review of Political Science* 2: 211-241.

Filson, Darren and Suzanne Werner. 2004. "Bargaining and Fighting: The Impact of Regime Type on War Onset, Duration, and Outcomes." *American Journal of Political Science* 48(2): 296-313.

Fredrickson, James W. 1986. "The Strategic Decision Process and Organizational Structure." *The Academy of Management* Review 11(2): 280-297.

Fortna, Virginia Page. 2004. "Does Peacekeeping Keep Peace? International Intervention and the Duration of Peace After Civil War." *International Studies Quarterly* 48(2): 269-292.

Fortna, Virginia Page. 2008. *Does Peacekeeping Work? Shaping Belligerents' Choices after Civil War*. Princeton, NJ: Princeton University Press.

Fortna, Virginia Page and Lise Morje Howard. 2008. "Pitfalls and Prospects in the Peacekeeping Literature." *Annual Review of Political Science* 11: 283 -301.

Ghosn, Faten, Glenn Palmer, and Stuart 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. 2008. "The Costs of Reneging: Reputation and Alliance Formation." *Journal of Conflict Resolution* 52(3): 426-454.

Gibler, Douglas M. 2009. *International Military Alliances, 1648-2008*. CQ Press.

Gibler, Douglas M and Scott Wolford. 2006. "Alliances, Then Democracy: An Examination of the Relationship between Regime Type and Alliance Formation." *Journal of Conflict Resolution* 50(1): 129-153.

Gilligan, Michael and Stephen John Stedman. 2003. "Where Do the Peacekeepers Go?" *International Studies Review* 5(4): 37-54.

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

Gleditsch, Nils Petter; Peter Wallensteen, Mikael Eriksson, Margareta Sollenberg & Håvard Strand 2002. "Armed Conflict 1946–2001: A New Dataset". *Journal of Peace Research* 39(5): 615–637.

Glenn, Russell W. 2011. *Band of Brothers or Dysfunctional Family: A Military Perspective on Coalition Challenges During Stability Operations*. Pittsburgh, PA. RAND Corporation.

Gordon, Stuart. 2001. "Icarus Rising and Falling: The Evolution of UN Command and Control Structures." In *Aspects of Peacekeeping*, eds. D.S. Gordon and F.H. Toase. London, UK: Frank Cass & Company, Ltd.

Gordon, Stuart. 2013. "The Protection of Civilians: An Evolving Paradigm?" *Stability: International Journal of Security and Development* 2(2): 1-16.

Gulati, Ranjay, Franz Wohlgezogen, and Pavel Zhelyazkov. 2012. "The Two Facets of Collaboration: Cooperation and Coordination in Strategic Alliances." *The Academy of Management Annals* 6(1): 531-583.

Hamilton, Richard F. and Holger H. Herwig, eds. 2010. *War Planning 1914*. New York, NY: Cambridge University Press.

Heidenrich, John G. 1994. "Arming the United Nations: Military Considerations and Operational Constraints." In *Peacemaking, Peacekeeping, and Coalition Warfare: The Future Role of the United Nations*, eds. Fariborz L. Mokhtari. Washington D.C.: National Defense University Press.

Holt, Victoria K., Glyn Taylor, and Max Kelly. 2009. "Protecting Civilians in the Context of UN Peacekeeping Operations Successes, Setbacks and Remaining Challenges." United Nations, Office for the Coordination of Humanitarian Affairs.

Horowitz, Michael C. 2011. *The Diffusion of Military Power: Causes and Consequences for International Politics*. Princeton, NJ: Princeton University Press.

Horowitz, Michael C., Erin M. Simpson, and Allan C. Stam. 2011. "Domestic Institutions and Wartime Casualties." *International Studies Quarterly* 55(4): 909-936.

Hosmer, D. & Lemeshow, S. 2000. *Applied Logistic Regression (Second Edition)*. New York, NY: John Wiley & Sons, Inc.

Hultman, Lisa. 2007. "Battle Losses and Rebel Violence: Raising the Cost of Fighting." *Terrorism and Political Violence* 19(2):205–22.

Hultman, Lisa. 2013. "UN Peace Operations and Protection of Civilians: Cheap Talk or Norm Implementation?" *Journal of Peace Research* 50(1): 59-73.

Hultman, Lisa, Jacob Kathman, and Megan Shannon. 2013. "United Nations Peacekeeping and Civilian Protection in Civil War." *American Journal of Political Science* 57(4): 875-891.

Huntington, Samuel P. 1957. *The Soldier and the State: The Theory and Politics of Civil-Military Relations*. Cambridge, MA. Harvard University Press.

Ikenberry, G. John. 2000. *After Victory: Institutions, Strategic Restraint, and the Rebuilding of Order After Major Wars*. Princeton, NJ: Princeton University Press.

INTERPOL. 2014. "Member Countries." *International Criminal Police Organization*. http://www.interpol.int/Member-countries/World (March 25, 2014).

Jackson, Susan E. and Randall S. Schuler. 1985. "A Meta-Analysis and Conceptual Critique of Research on Role Ambiguity and Role Conflict in Work." *Organizational Behavior and Human Decision Processes* 36(1): 17-78.

Jett, Dennis C. 2001. *Why Peacekeeping Fails*. New York, NY. Palgrave Publishers.

Johnson, Jesse C. and Brett Ashley Leeds. 2011. "Defense Pacts: A Prescription for Peace." *Foreign Policy Analysis* 7(1): 45-65.

Kadera, Kelly M. 1998. "Transmission, Barriers, and Constraints: A Dynamic Model of the Spread of War." *The Journal of Conflict Resolution* 42(3): 367-387.

Kathman, Jacob D. and Reed M. Wood. 2011. "Managing Threat, Cost, and Incentive to Kill: the Short- and Long-Term Effects of Intervention in Mass Killings." *Journal of Conflict Resolution* 55(5): 735-760.

Kathman, Jacob D. 2013. "United Nations Peacekeeping Personnel Commitments, 1990-2011." *Conflict Management and Peace Science* 30(5): 532-549.

Kennedy, Paul M. 1984. "The First World War and the International Power System." *International* Security 9(1): 7-40.

Keohane Robert O. 2005. *After Hegemony: Cooperation and Discord in the World Political Economy*. 2nd ed. Princeton, NJ: Princeton University Press.

Keohane, Robert O. and Lisa L. Martin. 1995. "The Promise of Institutionalist Theory." *International Security* 20(1): 39-51.

Kimball, Anessa L. 2006. "Alliance Formation and Conflict Initiation: The Missing Link." *Journal of Peace Research* 43(4): 371-389.

King, Gary, Michael Tomz, and Jason Wittenberg. 2000. "Making the Most of Statistical Analyses: Improving Interpretation and Presentation." *American Journal of Political Science* 44(2): 347-61.

King, Gary and Langche Zeng. 2001. "Logistic Regression in Rare Events Data." *Political Analysis* 9(2): 137-163.

Kotter, John P. 2014. *Accelerate: Building Strategic Agility for a Faster-Moving World*. Boston, MA. Harvard Business Review Press.

Lacina, Bethany and Nils Petter Gleditsch. 2005. "Monitoring Trends in Global Combat: A New Dataset of Battle Deaths". *European Journal of Population* 21(3): 145–166.

Lai, Brian and Dan Reiter. 2000. "Democracy, Political Similarity, and International Alliances, 1816-1992." *Journal of Conflict Resolution* 44(2): 203-227.

Leeds, Brett Ashley. 1999. "Domestic Political Institutions, Credible Commitments, and International Cooperation." *American Journal of Political Science* 43(4): 979-1002.

Leeds, Brett Ashley. 2003. "Do Alliances Deter Aggression? The Influence of Military Alliances on the Initiation of Militarized Interstate Disputes." *American Journal of Political Science* 47(4): 427-439.

Leeds, Brett Ashley, Andrew G. Long, Sara McLaughlin Mitchell. 2000. "Reevaluating Alliance Reliability: Specific Threats, Specific Promises." *The Journal of Conflict Resolution* 44(5): 686-99.

Leeds, Brett Ashley, Jeffrey M. Ritter, Sara McLaughlin Mitchell, and Andrew G. Long. 2002. "Alliance Treaty Obligations and Provisions, 1815-1944." *International Interactions* 28(3): 237-260.

Leeds, Brett Ashley and Sezi Anac. 2005. "Alliance Institutionalization and Alliance Performance." *International Interactions* 31(3): 183-202.

Leeds, Brett Ashley and Barcu Savun. 2007. "Terminating Alliances: Why Do States Abrogate Agreements." *The Journal of Politics* 69(4): 1118-1132.

Lemke, Douglas and William Reed. 2001b. "The Relevance of Politically Relevant Dyads." *The Journal of Conflict Resolution* 45(1): 126-144.

Lewis, Leslie and C. Robert Roll. 1993. *Strategy-to-Tasks: A Methodology for Resource Allocation and Management*. The RAND Corporation.

Lewis-Beck 1980. *Applied Regression: An Introduction*. New York: NY: SAGE Publications.

Levy, Jack S. 1990-1991. "Preferences, Constraints, and Choices in July 1914." *International Security* 15(3): 151-186.

Levy, Jack S. 2011. "The Initiation and Spread of the First World War: Interdependent Decisions." *Foreign Policy Analysis* 7(2): 183-188.

Lieber, Keir A. 2007. "The New History of World War I and What It Means for International Relations Theory." *International Security* 32(2): 155-191.

Luft, Gal. 2009. *Beer, Bacon, and Bullets: Culture in Coalition Warfare from Gallipoli to Iraq*. Charleston, SC. BookSurge Press.

Marshall, Monty G., Ted Robert Gurr, and Keith Jaggers. 2014. *Polity IV Project: Political Regime Characteristics and Transitions, 1800-2013*. Center for Systemic Peace. Vienna, VA.

Marshall, Monty G. and Donna Ramsey Marshall. 2014. *Coup D'état Events, 1946-2013*. Center for International Development and Conflict Management, University of Maryland: College Park, MD.

Mearsheimer, John J. 2001. *The Tragedy of Great Power Politics*. New York, NY: W. W. Norton & Company, Inc.

Michaels, Ronald E., William L. Cron, Alan J. Dubinsky, and Erich A. Joachimsthaier. 1988. "Influence of Formalization on the Organizational Commitment and Work

Alienation of Salespeople and Industrial Buyers." *Journal of Marketing Research* 25(4): 376-383.

Millett, Allan R., Williamson Murray, and Kenneth H. Watman. 1986. "The Effectiveness of Military Organizations." *International Security* 11(1): 37–71.

Millett, Allen R., Williamson Murray, and Kenneth H. Wateman. 1988. "The Effectiveness of Military Organizations." In *Military Effectiveness Volume 1: The First World War*, eds. Allan R. Millett and Williamson Murray. Winchester, MA: Allen & Unwin Inc, 1-29.

Morey, Daniel S. 2015. "Military Coalitions and the Outcome of Interstate Wars." *Foreign Policy Analysis*, forthcoming.

Morgan, Clifton T. and Glenn Palmer. 2003. "To Protect and to Serve: Alliances and Foreign Policy Portfolios." *The Journal of Conflict Resolution* 47(2): 180-203.

Morrow, James D. 1986. "A Spatial Model of International Conflict." *American Political Science Review* 80(4): 1131-1150.

Morrow, James D. 1991. "Alliances and Asymmetry: An Alternative to the Capability Aggregation Model of Alliances." *American Journal of Political Science* 35(4): 904-933.

Morrow, James D. 1993. "Arms Versus Allies: Trade-Offs in the Search of Security." *International Organization* 47(2): 207-233.

Murray, Williamson. 2011. *Military Adaptation in War: With Fear of Change.* New York, NY: Cambridge University Press.

NATO. 2014."A Short History of NATO." *North Atlantic Treaty Organization*. http://www.nato.int/history/nato-history.html (September 01, 2014).

Nye, Joseph S. 1988. "Neorealism and Neoliberalism." *World Politics* 40(2): 235-251.

Perry, Chris and Adam C. Smith. 2013. "Trends in Uniformed Contributions to UN Peacekeeping: A New Dataset, 1991-2012." *Providing for Peacekeeping* 3: 1-16.

Pfeffer, Jeffrey. 1985. "Organizational Demography: Implications for Management." *California Management Review* 28(5): 1123–1137.

Pouligny, Beatrice. 2006. *Peace Operations Seen from Below: UN Missions and Local People*. London, UK: Hurst.

Powell, Emilia Justyna. 2010. "Negotiating Military Alliances: Legal Systems and Alliance Formation." *International Interactions* 36(1): 28-59.

Powell, Jonathan. 2012. "Determinants of the Attempting and Outcome of Coups d'état." *Journal of Conflict Resolution*. 56(6): 1017-1040.

Pressman, Jeremy. 2008. *Warring Friends: Alliance Restraint in International Politics*. Ithaca, NY: Cornell University Press.

Ramsay, Kristopher W. 2008. "Settling It on the Field: Battle Events and War Termination." *Journal of Conflict Resolution* 52(6): 850-879.

Reiter, Dan. 2007. "Nationalism and Military Effectiveness: Post-Meiji Japan." In *Creating Military Power: The Sources of Military Effectiveness*, eds. Risa A. Brooks and Elizabeth A. Stanley. Stanford, CA: Stanford University Press, 27-54.

Reiter, Dan and Curtis Meek. 1999. "Determinants of Military Strategy, 1903-1994: A Quantitative Empirical Test." *International Studies Quarterly* 43(2): 363-387.

Reiter, Dan and Allan C. Stam. 1998. "Democracy and Battlefield Military Effectiveness." The Journal of Conflict Resolution 42(3): 259-277.

Reiter, Dan and Allan C. Stam. 2002. *Democracies at War*. Princeton, NJ: Princeton

    University Press.

Rice, Anthony J. 1997. "Command and Control: The Essence of Coalition Warfare."

    Parameters Spring: 152-167.

Ruggeri, Andrea, Theodora-Ismene Gizelis, and Han Dorussen. 2012. "Managing

    Mistrust: An Analysis of Cooperation with UN Peacekeeping in Africa." *Journal*

    of Conflict Resolution 57(3): 387-409.

Sagan, Scott D. 1986. "1914 Revisited: Allies, Offense, and Instability." *International*

    Security 11(2): 151-175.

Saideman, Stephen M. and David P. Auerswald. 2012. "Comparing Caveats:

    Understanding the Sources of National Restrictions upon NATO's Mission in

    Afghanistan." *International Studies* Quarterly 6(1): 67-84.

Salverda, Nynke. 2013. "Blue Helmets as Targets: A Quantitative Analysis of Rebel

    Violence against Peacekeepers 1989-2003." *Journal of Peace Research* 50(6):

    707-720.

Sarkees, Meredith Reid and Frank Whelon Wayman. 2010. *Resort to War: A Data Guide*

    to Inter-State, Extra-State, Intra-state, and Non-State Wars, 1816-2007.

    Washington, DC: CQ Press.

Shimshoni, Jonathan. 1990-1991. "Technology, Military Advantage, and World War I: A

    Case for Military Entrepreneurship." *International Security* 15(3): 187-215.

Singer, J. David. 1987. "Reconstructing the Correlates of War Dataset on Material

    Capabilities of States, 1816-1985." *International Interactions*, 14(2): 115-132.

Signorino, Curtis S., and Jeffrey M. Ritter. 1999. "Tau-b or Not Tau-b: Measuring the

Similarity of Foreign Policy Positions." *International Studies Quarterly* 4(1):

115–144.

Silkett, Wayne A. 1993. "Alliance and Coalition Warfare." *Parameters* Summer: 74-85.

Singer, J. David, Stuart Bremer, and John Stuckey. 1972. "Capability Distribution,

Uncertainty, and Major Power War, 1820-1965." in *Peace, War, and Numbers* ed.

Bruce Russett. Beverly Hills: Sage, 19-48.

Snyder, Jack. 1984. "Civil-Military Relations and the Cult of the Offensive, 1914 and

1984." *International Security* 9(1): 108–146.

Snyder, John. 1984. "The Security Dilemma in Alliance Politics." *World Politics* 36(4):

461-495.

Strezhnev, Anton and Erik Voeten. 2013, "United Nations General Assembly Voting

Data Version 7.0", updated October 09, 2013. Georgetown University and

Harvard University.

Soeters, Jospeh, Paul C. van Fenema, and Robert Beeres, eds. 2010. *Managing Military

Organizations (Cass Military Studies)*. London, UK: Routledge.

Stevens, Fred, Joseph Diedriks, and Hans Philipsen. 1992. "Physician Satisfaction,

Professional Characteristics, and Behavior Formalization in Hospitals." *Social

Science and Medicine* 35(3): 295-303

Stevenson, David. 2011. "From Balkan Conflict to Global Conflict: The Spread of the

First World War, 1914-1918." *Foreign Policy Analysis* 7(2): 169-182.

Sundberg, Ralph. 2008. "Collective Violence 2002 - 2007: Global and Regional Trends."
In Harbom, Lotta and Ralph Sundberg (eds.). *States in Armed Conflict 2007*.
Uppsala: University.

Szayna, Thomas S., Frances M. Lussier, Krista Magras, Olga Oliker, Michele Zanini, and
Robert Howe. 2001. *Improving Army Planning for Future Coalition Operations*.
RAND Corporation. Pittsburgh, PA.

Tellis, Ashley J. 2000."Measuring Military Capability." In *Measuring National Power in
the Postindustrial Age*, eds. Tellis, Ashley J., Janice Bially, Christopher Layne,
and Melissa McPherson. Santa Monica, CA: RAND/Arroyo Center.

Thyne, Clayton L. 2006. "Cheap Signals with Costly Consequences: The Effect of
Interstate Relations on Civil War." *Journal of Conflict Resolution* 50(6): 937-961.

Tierney, Dominic. 2011. "Does Chain-Ganging Cause the Outbreak of War?"
International Studies Quarterly 5(2): 285-304.

Tomz, Michael, Jason Wittenberg, and Gary King. 2003. "CLARIFY: Software for
Interpreting and Presenting Statistical Results." Version 2.1. Stanford University,
University of Wisconsin, and Harvard University.

Trachtenberg, Marc. 1990-1991. "The Meaning of Mobilization in 1914." *International
Security* 15(3): 120-150.

United Nations. 2003. *Handbook of United Nations Multidimensional Peacekeeping
Operations*. New York, NY: Department of Peacekeeping Operations.

United Nations. 2008. *United Nations Peacekeeping Operations: Principles and
Guidelines*. New York, NY: Department of Peacekeeping Operations and
Department of Field Support.

United Nations. 2009. *A New Partnership Agenda: Charting a New Horizon for UN Peacekeeping*. New York, NY: Department of Peacekeeping Operations and Department of Field Support.

United Nations. 2013. "Composition of Macro Geographical (Continental) Regions, Geographical Sub-Regions, and Selected Economic and Other Groupings." *United Nations Statistics Division*. http://millenniumindicators.un.org/unsd/methods/m49/m49regin.htm. Accessed March 18, 2014.

United Nations. 2014. "Fatalities." *United Nations Department of Peacekeeping Operations*. http://www.un.org/en/peacekeeping/fatalities/documents/stats_4a.pdf. Accessed March 18, 2014.

Van Evera, Stephen. 1984. "The Cult of the Offensive and the Origins of the First World War." *International Security* 9(1): 58–107.

Van Evera, Stephen. 1985. "Why Cooperation Failed in 1914." *World Politics* 38(1): 80-117.

Vasquez, John A., Paul F. Diehl, Colin Flint, Jurgen Scheffran, Sang-Hyun Chi, and Toby J. Rider. 2011. "The ConflictSpace of Cataclysm: The International System and the Spread of War 1914-1917." *Foreign Policy Analysis* 7(2): 143-168.

Voeten, Erik. 2005. The Political Origins of the UN Security Council's Ability to Legitimize the Use of Force. *International Organization* 59(3): 527–557.

Vuong, Q. 1989. Likelihood ratio tests for model selection and non-nested hypotheses. Econometrica 57: 307-333.

Wallace, Geoffrey P.R. 2008. "Alliances, Institutional Design, and the Determinants of Military Strategy." *Conflict Management and Peace Science* 25(3): 224-243.

Walt, Stephen M. 1987. *The Origins of Alliances*. Ithaca, NY: Cornell University Press.

Walter, Barbara. 2002. *Committing to Peace: The Successful Settlement of Civil Wars*. Princeton, NJ: Princeton University Press.

Waltz, N. Kenneth. 1979. *Theory of International Politics*. Long Grove, IL: Waveland Press, Inc.

Wayman, Frank W, J. David Singer, and Gary Goertz. 1983. "Capabilities, Allocations, and Success in Militarized Disputes and Wars, 1816-1976." *International Studies Quarterly* 27(4): 497–515.

Weitsman, Patricia A. 1997. "Intimate Enemies: The Politics of Peacetime Alliances." *Security Studies* 7(1): 156-192.

Weitsman, Patricia A. 2003. "Alliance Cohesion and Coalition Warfare." *Security Studies* 12(3): 79-113.

Weitsman, Patricia A. 2014. *Waging War: Alliances, Coalitions, and Institutions of Interstate Violence*. Stanford, CA: Stanford University Press.

Williamson, Samuel R. 2011. "German Perceptions of the Triple Entente after 1911: Their Mounting Apprehensions Reconsidered." *Foreign Policy Analysis* 7(2): 205-214.

Wilson, James Q. 1989. *Bureaucracy: What Government Does and Why They Do It*. New York, NY: Basic Books.

Wood, Reed M. 2010. "Rebel Capability and Strategic Violence against Civilians." Journal of Peace Research 47(10): 601-14.

Wood, Reed M., Jacob D. Kathman, and Stephen Gent. 2012. "Armed Intervention and

    Violence against Civilians in Intrastate Conflicts." *Journal of Peace Research*

    49(5): 647–60.

Wright, Thorin M. and J. Michael Greig. 2012. "Staying the Course: Assessing the

    Durability of Peacekeeping Operations." *Conflict Management and Peace Science*

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