NUCLEAR PRESENCE AND CRISIS ESCALATION STABILITY:

PROSPECTS FOR PEACE?

by

VICTORIA JUSTINE SANCHEZ

(Under the Direction of Patricia L. Sullivan)

ABSTRACT

This thesis examines the relationship between crisis escalation and the presence of nuclear actors. Nuclear weapons are typically viewed as the ultimate weapons of mass destruction, but can nuclear weapons actually be a force for peace? The research conducted is primarily concerned with how the escalation of international crises is affected by the presence of actors with nuclear weapons. Using data from the International Crisis Behavior Project, this thesis evaluates two hypotheses that crises where at least one nuclear actor is present will 1) experience lower levels of violence and 2) have less reoccurrence of the crisis. Quantitative analysis does not show a statistically significant relationship between the presence of a nuclear actor and crisis escalation and suggests that a contradictory relationship exists. The results of this thesis are important for understanding a part of the continued debate regarding the possession of nuclear weapons.

INDEX WORDS: Nuclear Weapons, International Crisis Behavior, Deterrence, Crisis Violence Escalation, Crisis Tension Reoccurrence, Crisis Stability.

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VICTORIA JUSTINE SANCHEZ

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VICTORIA JUSTINE SANCHEZ

Major Professor:	Patricia L. Sullivan
Committee:	Maurits van der Veen
	Brock Tessman

Electronic Version Approved:

Maureen Grasso
Dean of the Graduate School
The University of Georgia
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CHAPTER 1

INTRODUCTION

Si vis pacem, para bellum.

If you want peace, prepare for war.

—Roman Military Proverb

A world without nuclear weapons would be

less stable and more dangerous for all of us.

—Margaret Thatcher

Can nuclear weapons actually be a force for peace in the world? Since the development of the atomic bomb, the global community has been confronted with the problem of nuclear proliferation. The spread of weapons of mass destruction has left no corner of the world untouched. From some of the most hostile regions of the world (Northeast Asia, the Middle East) to more stable neighborhoods (North America, Europe), the reach of weapons of mass destruction, particularly of a nuclear variety, has extended far. In just the course of the past sixty-five years, the world has seen its nuclear powers grow from one to eight different countries (at present). The Federation of American Scientists estimates that there are approximately 23,000 nuclear warheads around the world as of October 2009. As weapons of mass destruction

capabilities continue to deepen and stretch across the globe, proliferation has become a major concern in securing national security interests.

Since nuclear weapons arrived on the scene, the world has been tenser than ever before when a conflict arises for the myriad of implications that nuclear weapons have brought to the scene. In the beginning, nuclear weapons were conceived to provide a tactical military advantage. However, over time these weapons quickly evolved to take predominance in a political strategic advantage. In essence, nuclear weapons have become the first truly political weapon system as just the presence of a nuclear capability is enough to send diplomatic and military channels into a state of heightened anxiety. The discourse of politics, at both domestic and international levels, has covered the play and strategy involved with nuclear weapons. This political aspect has fundamentally changed the character of nuclear weapons from just a purely offensive weapon for use solely on the battlefield. Instead, much of the practice of nuclear weapons happens from the inside of political offices.

Nuclear weapons are often seen as the ultimate weapons of mass destruction. For a relatively small size, quick transportability, and easy targeting, nuclear weapons can deliver the complete annihilation of everything within a given perimeter and have deleterious effects that extend even farther beyond those confines. History is laden with successive advances in innovation heightening the destructive power that could be brought to armed conflict. From the sling, the stirrup, the crossbow, gunpowder, the machine gun, and a wide range of other devices to illustrate that point, mankind has undergone a progression of continual advances in warfare and the technologies to carryout warfare (Quinlan 2008, 5). At the current stage of technology, only nuclear weapons can cause the instantaneous destruction of life and the physical and

ecological infrastructure critical to sustaining life (O'Neil 2007). Because of their capacity for such utter destruction, nuclear weapons are certainly placed among the most feared of weapons in history. With this framework in mind, surely, can keeping these weapons around only bring about negative consequences for the world should they continue to persist? Or, can nuclear weapons potentially bring about a sense of security to an often violent and anarchic international system by establishing stability and peace in situations of heightened conflict?

In the aftermath of World War II, when the only cases of nuclear weapons use in war at Hiroshima and Nagasaki was still fresh in the minds of people, few could be hopeful for the long term prospects for peace and stability in the emerging post-war international order (Rauchhaus 2009). However, as the world settled into a long and cold war, a sort of stability settled on the world as the use of nuclear weapons in war was absent. Nuclear weapons did not make their much anticipated return to the battlefield. Peace was even retained as in the immediate 1945-1960 aftermath of the Second World War as more and more countries slowly attained their own nuclear weapons and mutually assured destruction did not exist between any of the nuclear actors. Later nuclear stability ensued certainly in part due to the tight bipolarity between the US and the Soviet Union and the presence of mutually assured destruction between the two rival superpowers throughout the later years of the Cold War. With lessons learned from the Cuban missile crisis about the quick spiraling of a crisis to the nuclear level, neither side during the Cold War appeared willing to risk the catastrophe of a nuclear war breaking out with such high consequences involved. As a result, any kind of real crisis escalation between the rivals was prevented during the Cold War in large part because of the presence of nuclear weapons.

However, with the end of the Cold War, could we expect nuclear weapons to continue to keep this kind of trend under changed global circumstances?

Throughout the Cold War, more and more states slowly joined the nuclear club, creating an even more precarious international balance. Many small sized states during and after this period sought to acquire nuclear weapons as a way to maintain national security by pacifying a political and/or military rival in a contentious area (ex. India in 1971, Pakistan in 1998, and North Korea in 2006) (Cirincione 2007). In this manner nuclear weapons were adopted with very local and limited goals in mind. Challenging the hierarchy of the US and the Soviet Union was certain suicide. The balance was retained. The absence of that overarching structure may mean that without that externally imposed stability, states could proliferate unchecked. North Korea's recently acquired nuclear capability is one such example. As the number of nuclear weapons around the world grew steadily, many would come to argue against these weapons and their usefulness in guaranteeing security (see Rotblat and Ikeda 2007). As recently as this year in 2010, President Obama was awarded the Nobel Peace Prize for his work at nuclear arms control and eventual goal of disarmament by trying to make nuclear weapons obsolete. For the foreseeable future, nuclear weapons will continue to play an important role.

Many scholars and practitioners today argue over the position of nuclear weapons in the present world context (Tractenberg 1985, Sagan and Waltz, 2003, Obama 2009). Aside from questions of morality and usability concerning nuclear weapons, many today fail to see how nuclear weapons retain any sort of political relevance. There are now more states that have proliferated nuclear weapons and developed nuclear weapons capabilities in this post-Cold War world. The end of the Cold War has also been marked by the propensity for more conflicts

breaking out and escalating (Betts 2007). With both of these factors coming to a head in the changed world environment, I propose the following questions for research: Is the escalation of international crises affected by the presence of actors with nuclear weapons? Does the presence of an actor with nuclear weapons make a conflict more or less likely to escalate?

CHAPTER 2

LITERATURE REVIEW

There is a plethora of literature surrounding nuclear weapons, nuclear capabilities, proliferation, crisis escalation, and international stability and how these concepts are linked. In large part, much of this literature has remained in the theoretical arena with anecdotal evidence used to support claims. Some previous studies have utilized nuclear weapons as part of a number of explanatory variables under consideration in testing general theories of conflict behavior and deterrence.[1] But one of the shortcomings of the current state of research is the few empirical tests on the potential stabilizing effect of nuclear weapons in crisis situations specifically.[2] Modern technology has created a decision-making environment that could quickly become extremely volatile, and nuclear explosives have especially quelled adventurism (Gottfried and Blair 1988, 13). For this reason, looking at nuclear weapons within the context of crises that can emerge and dissipate quickly is valuable within the greater nuclear research. There is much international relations literature concerned with why states will seek to explore nuclear options.[3] But this thesis is not concerned with why states develop nuclear capabilities and consequently the body of literature in the proliferation subject area will not be reviewed. What is more important for the purposes of this thesis is determining what states actually aim to do with nuclear weapons once

[1] See Bennett and Stam (2004), Huth et al. (1993), Huth et al. (1992) and Organski and Kugler (1980).
[2] See Bueno de Mesquita and Riker (1982), Geller (1990), Asal and Beardsley (2007), Rauchhaus (2009), and Beardsley and Asal (2009) for some notable exceptions.
[3] See Jo and Gartzke (2007) for a review of this literature.

they have them and how that shapes their resulting behavior. What I am specifically interested in looking at is the impact nuclear weapons on the development of crises, once initiated.

Nuclear Weapons Debate. Do nuclear weapons make the world more or less safe? Regardless the answer to this question, it is possible that "we may very soon be approaching a nuclear 'tipping point,' where many countries may decide to acquire nuclear arsenals on short notice, thereby triggering a proliferation epidemic" (Reiss 2004, 4). This tipping point is the result of the world being on the verge of a nuclear renaissance, where more states than ever before will have the ability to develop and possess nuclear capabilities (Cirincione et al. 2005). Since nuclear weapons arrived on the scene, the world has been more on edge when a conflict arises than ever befor This is in part because "nuclear weapons dramatically reduced the time required to cause death and destruction" (Caldwell and Williams 2006, 42). Now, total destructive annihilation is possible in such a comparatively short amount of time. Because of this fact, both strategists and leaders view nuclear weapons as capable of accomplishing a number of strategic missions and priorities to states that can develop capabilities (Caldwell and Williams 2006). Nuclear weapons now have a place in history as one of the preeminent weapons systems of modern times. Nuclear weapons have marked their importance for mankind, and have set in motion an irreversible course of events on humanity. Nuclear have entered into political decision-making in a way no weapons-system has ever done.

While the influence of nuclear weapons is duly noted, not all scholars are in agreement on whether nuclear weapons make the world safer or more dangerous. As a result, the debate about the prospective consequences for either peace or conflict that nuclear weapons bring about for the world remains unresolved (Sagan and Waltz 2003). Disagreement over the potential

pacifying effects of nuclear weapons produces two opposing schools of thought: nuclear optimism and nuclear pessimism. Each branch of thought holds contending views on the potential for stabilization and peace resulting from nuclear weapons. It is important to note before continuing with an overview of the arguments of each side that the nuclear optimists and nuclear pessimists are not always concerned with the same points of debate. At times, each side argues past the other about differing points such as proliferation and organizational theory. But where the commonality of the debate lies is in the contention over whether nuclear weapons will make the world more (through deterrence and rationality, for the optimists) or less (by accidents and failure of deterrence) stable.

Nuclear Optimists. It the most blatant or severe terms, nuclear optimists "view nuclear proliferation as a solution to concerns about state behavior, not a factor exacerbating those concerns" (Feaver 1993, 159). Cirincione describes nuclear optimists as holding that "nuclear weapons are beneficial, that their presence enhances international stability by discouraging rash or aggressive action, and that their spread is inevitable" (Cirincione 2007, ix). Kenneth Waltz has generally been regarded as the founder and presumed leader of the nuclear optimists. He first argues in his 1981 article "The Spread of Nuclear Weapons: More May Be Better" that nuclear weapons may actually be a tremendous force for peace as they allow states to attain security in a world of deterrence (Waltz 1981). Waltz continues to carry on this theme into his later works. Waltz's main claim in a 1990 article is that the possession of nuclear weapons seems to prevent serious wars from breaking out. Waltz's main basis for this is through what he says has been the successful execution of deterrence in practice, and he concludes that the probability of war between states having nuclear weapons is close to zero (Waltz 1990).

The basis of the nuclear optimists' faith in the potential pacifying aspects of nuclear weapons rests on the combined assumptions of rationality and deterrence. Because of nuclear weapons' capacity to bring about complete destruction, some have claimed an adversary can be deterred by the mere existence of nuclear weapons (Bundy 1984). The nuclear optimists think the catastrophic consequences of an all-out nuclear war would have a sobering effect on nuclear decision makers even in the midst of a limited nuclear war, which would ultimately prevent nuclear action from being taken in the first place (Smith and Singh 1985). The nuclear optimists believe that nuclear action is prevented because of the rationality of the leaders and decision makers involved. Rational leaders would see that any potential conflict has the possibility to escalate to the nuclear level, so nuclear nations would in turn have to become more cautious about engaging in conventional wars (Feaver 1993). The result of this is a more stable international system that is less conflict prone. Waltz maintains that "the slow spread of nuclear weapons will promote peace and reinforce international stability" because states can and will adopt all necessary postures and procedures that will prevent all out nuclear war from happening (1981, 28). So, the nuclear optimists hold that the proliferation of nuclear weapons makes the world more peaceful. However, while well-managed proliferation may reduce the prospects for war, mismanaged proliferation could produce disaster (Mearsheimer 1990). It is mismanaged proliferation that concerns nuclear pessimists the most.

Nuclear Pessimists. While the nuclear optimists see the potential benefits to be wrought from nuclear weapons, the nuclear pessimists see the potential for a nuclear disaster. The Nuclear Pessimists tend to think "the abolition of nuclear weapons is a common wish of thinking people in the world" (Rotblat and Ikeda 2007, 5). The nuclear pessimists would argue that nuclear

weapons are the worst ill facing the world and that humanity should work for disarmament. Smith and Singh describe that "The pessimists point to the absence of any agreed-upon firebreak between different levels of nuclear use after the threshold between conventional and nuclear weapons use has been crossed. They also dwell on the reciprocal pressures in a crisis for preemptive attack and for using before losing vulnerable nuclear weapons" (1985, 26). As Cirincione further illustrates, "Nuclear pessimists warn that nuclear arsenals create instability, that the risk of nuclear weapon use—either by intention or accident—is too great to accept, and that there is nothing inevitable about nuclear proliferation" (2007, 50). The pessimists, unlike the optimists, fail to see the security in deterrence. They believe that nuclear deterrence can and will fail. In this sense, the world was fortunate during the Cold War that there was no major nuclear incident. However, now and in the future, security is reduced because not all states or sub-state actors are reliable to act in a rational fashion (Cirincione 2007). According to the pessimists, as a result, deterrence cannot work as a viable restraint against nuclear weapons, so therefore it is no less likely to prevent war since deterrence can and will fail.

The two contrasting theories of nuclear potential each have their strong points, and their shortcomings. Peter Lavoy (1995, 86) provides a comprehensive critique of the strength of the arguments put forth by Waltz and Sagan that highlights the lack of empirical testing. He argues that there are two problems with both authors' empirical arguments that detracts from the validity of their assessments. The first problem is the lack of cases of nuclear weapons, and the limited historical context that the world has provided. The second problem is the abstract level at which both authors pitch their arguments. Lavoy says that "Waltz theorizes about the logical behavior of states operating within the constraints of nuclear "reality" and international politics.

Sagan describes the "typical" behavior of professional military organizations and then summarizes the behavioral effects were these organizations to oversee a nation's nuclear operations" (1995, 86) Lavoy hits on two big points concerning why it has been hard for scholars to test their claims empirically when dealing with nuclear weapons. On the one hand are data constraints, and in the other is the difference in the level of the arguments. When combining these two problems in force where the concept of deterrence is evaluated, the lack of empirical evidence and testing becomes apparent.

Deterrence. Deterrence has been a fundamental concept in war craft for a long time. The Romans had their own conception of deterrence, which they immortalized in a single phrase: "If you want peace, prepare for war." In essence, deterrence is a means of preventing action by a potential aggressor. Deterrence can be most generally be defined as the absence of war. Or, as John Mueller puts it for states, "If they are not at war, then it is reasonably easy to conclude that each is currently being deterred from attacking the other" (1987, 246). Although the concept of deterrence has been around for ages, deterrence changed when nuclear weapons were introduced. With deterrence and nuclear weapons, the threat is annihilation, not just military defeat. According to Schelling, introducing nuclear weapons in to the equation changes the original war, and instead it becomes a feat of bargaining and demonstration (Schelling 1960). Huth (1988) has offered his own assessment of deterrence that is perhaps most effective and encompassing:

> "Deterrence as a policy that seeks to persuade an adversary, through the threat of military retaliation, that the costs of using military force to resolve political conflict will outweigh the benefits. A policy of deterrence, then, seeks to prevent an adversary from using military force

> to achieve foreign policy objectives through the threat of a counterack. The deterrer's threat of retaliation may be based on the military capability to repulse an attack and thereby deny the attacker its battlefield objectives and/or prevent the loss of one's own territory (or that of an ally), or the capability to inflict heavy military losses on the adversary in an armed conflict of attrition." (15)

The critical assumption of deterrence is in threat credibility. The main problem of nuclear deterrence has been credibility, and to rectify this problem particular attention has focused on techniques of signaling intention. According to Vesna Danilovic, "the deterrer of the nuclear age faced the difficult task of persuading its adversary that it would be willing to endure costs disproportionate to the issues at stake whenever its international commitments were challenged" (2002, 7). According to Huth, a threat of nuclear retaliation is likely to be credible in most cases where one is defending oneself against a conventional attack and preventing a nuclear attack on one's own territory (1988, 42). But this nuclear credibility is especially challenging as the assumptions of one confrontation does not always hold true to another confrontation. Keeping credibility realistic of a nuclear retaliation will vary greatly depending on a given political-military situation (Huth 1988). Thomas Schelling uses an effective analogy to describe the problems with the reciprocal fear of surprise attack (that in many ways highlights some of the crucial problems within deterrence in general):

> If I go downstairs to investigate a noise at night, with a gun in my hand, and find myself face to face with a burglar who has a gun in his hand, there is a danger of an outcome that neither of us desire. Even if he prefers

> just to leave quietly, and I wish him to, there is a danger that he may *think* I want to shoot, and shoot first. Worse, there is a danger that he may think that *I* think *he* wants to shoot. Or he may think that *I* think *he* thinks *I want* to shoot. And so on. (1960, 207)

Deterrence arises from basic and permanent facts about behavior which have always had a part to play in the management of human relationships. In deciding how to act, people customarily seek, whether consciously or not, to take into account the probable consequences of what they do. They refrain from actions whose bad consequences for them seem likely to outweigh the good ones. And we exploit these universal realities as one means of helping to influence others against taking action that would be unwelcome to us, by putting clearly before them the prospect that the action will prompt a response that will leave them worse off than if they had not taken it.

Quinlan (2008) offer an anecdotal account of deterrence: "When a small boy is told that if he bullies his little sister again he will be sent to bed without supper, he is being subjected to deterrence. Even when the warning is not voiced explicitly, if improvement in his behavior is shaped by his sense of the risk of punishment he is being deterred" (20). No matter how much is written or elaborated upon in the literature on deterrence, the analyses always come down to this simple point about human behavior. While deterrence is a relatively simplistic concept to understand, when the application is put to international affairs and all its intricate complexities, the concept becomes less straightforward. This is partially due to the problems of incomplete information that practitioners of international relations suffer from. Incomplete information becomes difficult because "policymakers do not know exactly which points and messages need to be emphasized and which need to be clarified when communicating with the adversary.

Furthermore, this problem cannot be compounded by lack of feedback about the impact of previous attempts to change the adversary's policies" (Huth 1998, 2-3).

Huth continues on to say that incomplete information is not the only problem states should be worried about. He further points out that problems estimating intentions and capabilities and also be related to the inherent difficulties of interpreting the information that is actually available (Huth 1998, 3). This is one of the main problems that states face in deterrence situations. Successful deterrence requires that correct interpretation of the adversary's acts and intentions be made. For example, South Korea may not know exactly how many troops the North Koreans may have in a boat, where it is going, or why it is so close to its borders, but it does know what kind of boat it is and what purposes it may serve. Correct interpretation of this information is crucial for the South Koreans to not decide to attack what may be a responsive deterrent fleet on the part of the North Korean navy.

Keeping all of these aspects in mind, it is argued that perhaps the most important aspect of effective deterrence is the ability to threaten an adversary with conditions it would find unacceptable and get that adversary to believe that those conditions with be used. As put by Quinlan, successful deterrence "undoubtedly requires that the adversary perceive the existence of capability, and of general will to use it if necessary, to exact in one form or another cost that he would find unacceptable. But it also requires that he have a sufficiently clear understanding of what is the action from which he must refrain" (2008, 23). When looking at deterrence in a nuclear sense, a pretty clear understanding exists that nuclear weapons should not be used.

Caldwell and Williams argue that "even though nuclear weapons are the most powerful weapons ever invented, they do not increase a state's influence unless they are, in some sense,

used" (2006, 46). Since the US first possessed nuclear weapons, the United States has used threats of the first use of nuclear weapons as the final backdrop to the defense of its vital interests around the world (Smith and Singh 1985). Therefore, it is not just the ultimate physical use of nuclear weapons that elicits a reaction and compliance, but also a threat to use that is deemed credible can be just as compelling. According to George Smoke, "If America dare not make nuclear threats…then the overall value of nuclear weapons is of a very limited sort. Their value is only for deterrence, and deterrence can be accomplished as well with a comparatively few nuclear weapons on both sides as with a great man" (1987, 297). Since nuclear deterrence can be accomplished with relatively small numbers of nuclear weapons, even non-great power states are capable of wielding enormous influence if they possess even only a few nuclear weapons and are able to deliver credible threats. Deterrence is what holds together states' nuclear behavior, however, as effective as its threats are credible.

Deterrence Skeptics. The study and practice of deterrence has brought many concerns, leaving many academicians and policymakers skeptical about its lasting affect as a guiding principle of international relations. Scott Sagan (1989) has established himself as one such critic by making comments such as, "The U.S. government has found no permanent solution to the dilemmas of nuclear deterrence in the past, and I see no prospect for eliminating the problems in the future" (177). Stephen Cimbala is another skeptic who further contends that nuclear deterrence throughout the Cold War failed to work as intended. Instead, what happened was that "Leaders were held back because the game of escalation could not be played to the advantage with nuclear weapons during crises or in the early stages of any plausible military conflict. Not the certainty of mass destruction, but the uncertainty of escalation management caused leaders to

take care with nuclear rocket rattling, and eventually to set brinkmanship aside as a preferred approach to crisis management" (1998, 30). One of the pressing skepticisms of deterrence is that when deterrence fails, it gives way to something far less stable and frightening: brinkmanship.

Brinkmanship. Brinkmanship could be thought of as nuclear deterrence on steroids. It adds a very unstable component to the concept that deterrence is trying to provide for in the form of pushing coercion so hard and fast that the risk of war is manipulated. Cimbala (1991) defines brinkmanship as "the exploitation of the shared risk of war for the purpose of coercion." Furthermore, "Nuclear brinkmanship exploits the shared risk that once fighting has begun it may expand to levels of destruction which would be unacceptable to both sides. If there were no expectation of possible loss of control over events, including the outbreak of war, then brinkmanship would have no coercive utility" (7). But because brinkmanship by its nature carries the expectation of possible loss of control over events, the coercive utility is at a premium and must be managed properly. One misstep and the entire situation can quickly spiral out of control of any nuclear actor.

How Nuclear And Nonnuclear Actors Behave. Nuclear actors typically are defined by a certain set of behavior. Not all nuclear actors might follow certain expectations about their behavior, but there is a growing literature about the certain expectations that can characterize states with nuclear weapons against their nonnuclear actors counterparts (Sagan 1994, and Asal and Beardsley 2007). And even many nonnuclear actors follow action that is out of the norm for their expected range of ability when interacting with nuclear actors. For example, Kugler (1984) has observed that nonnuclear powers can often successfully challenge nuclear powers in contradiction of the idea that states with superior capabilities should prevail. Fearon (1994)

however points out that nonnuclear powers only challenge nuclear powers over interests that are peripheral to the nuclear power, as Vietnam was for the United States. The nonnuclear power has good reason to doubt the resolve of the nuclear power in such a situation because the fight may not be over vital interests that might lead to a consideration of nuclear force.

Nonuse of Nuclear Weapons in Combat. The use of nuclear weapons in combat has emerged over time as a taboo that all nuclear (and non-nuclear) states have become very aware of in practice. On only two occasions have nuclear weapons been used against an adversary, both in quick succession of each other in early August of 1945. For such a powerful weapon with far reaching strategic implications, it might be surprising that this is the case. There is evidence that during the Korean and Vietnam wars, the U.S. considered using nuclear weapons to achieve some tactical advantages on the battlefield. After this point in history though, there is little evidence to suggest that the "nuclear option" on the battlefield was ever considered as a viable strategy.

T.V. Paul (1995) believes that there are many historical, moral, normative, and rational bases of the taboo for why nuclear states have refrained from using their capability against challengers. Others see a more cut and dry approach: "The central problem posed by nuclear weapons has concerned the difficulty of using their monstrous destructive power in ways that would not cause huge loss of life to non-combatants" (Quinlan 2008, 48). Concerned more with the moral ethics of nuclear weapons, Quinlan (2008) argues about moral accountability as "an integral part of what it means to be human, and no aspect of human affairs can claim exemptions from it. The ethical assessment of war, however, has always been an especially difficult and challenging matter, since war entails the deliberate taking of life" (46). Cimbala makes a good

distinction in recognizing that "the true essence of the nuclear revolution is that the most important weapons are useful, but not usable" (1991, 2). It is for this very reason that nuclear weapons have only seen nonuse since 1945.

State Behavior in an Anarchical System. History is laden with examples of states pursing their interests in a world of politics with balancing of power, dilemmas of security, and the competition for dominance. "As the superpower nuclear confrontation began to take shape, maintaining some sort of balance became a major preoccupation, with the attendant fears that the nuclearization of additional state would upset the nuclear balance" (Roberts 1996, 190). However, these concerns have largely gone unmaterialized as no more nuclear weapons have been used for combative purposes since the bomb dropped at the end of World War II on Hiroshima and Nagasaki. Howard (1984) makes the observation that "In general men have fought during the past two hundred years neither because they are acquisitive animals, but because they are reasoning ones: because they discern, or believe that they can discern, dangers before they become immediate, the possibility of threats before they are made" (15). It is this calculating and discerning nature of human beings that when interacting on a grand, international scale leads to certain instabilities.

Stability versus peace. Kenneth Waltz has warned against conflating peace and stability. "The occurrence of major wars is often identified with a system's instability. Yet systems that survive major wars thereby demonstrate their stability. The multipolar world was highly stable, but all too war-prone. The bipolar world has been highly peaceful, but unfortunately less stable than its predecessor" (Waltz 1993, 45). John Mueller argues that nuclear weapons are essentially irrelevant for the obsolescence of major war since World War II (1987). Instead, other more

human, social factors have forced the concept of war out of vogue and consequently made war relatively uncommon in the recent era.

Crisis Behavior. With war out of popularity in the post-World War II era, the world has seen a trend towards lower-level intensity conflicts erupting (Betts, 2008). Instead of major war, the world now sees a greater propensity for smaller scale crises that break out. Theses crises are now serving as a new subfield of research in the volatility of the post-Cold War environment. The relationship between crisis behavior, crisis structure, and crisis outcomes influence escalation prospects has been evaluated (Leng 1993) as scholars have looked to identify a number of factors to influence the behavior, mediation, and resolution of actors in a crisis. Brecher and Wilkenfeld have conducted one of the largest studies of crisis behavior by compiling a substantial dataset. Culminating in A Study of Crisis, Brecher and Wilkenfeld (1997) assess how polarity, geography, ethnicity, regime type, protracted conflict setting, violence, and third parties will have an influence on crisis behavior. One of the many conclusions Brecher and Wilkenfeld draw is that there is a strong link between democracy and peace in crises.

Democracy in Crisis. It has been long acknowledged that democracies interact on the world stage differently than other regime types.[4] Especially concerning crisis situations, there is a growing literature on the behavior of democratic regimes. Building off of the democratic peace literature, research has found that that political structures within democracies tend to encourage domestic audience costs that will make democracies more determined to win in crises, and as a result, democracies self select into crises they think they can win (Fearon 1994, and Gelpi and

[4] See Gartzke (1998) for a review of the democratic peace literature.

Griesdorf 2001). Furthermore, when democracies enter into conflict with one another, the empirical evidence strongly shows that escalation to war or violence is rare (Gowa 1995). The literature shows that regime type is a strong factor in crisis behavior, and that democracy inhibits escalation in crisis.

Crisis Management. Instead of resulting in war, many states have more recently become concerned with policies of crisis management. Crisis management can be defined as "concerned with the difficult problem of how to combine elements of conflictual and cooperative behavior in an overall policy to protect the national interests of a state while avoiding armed conflict" (Huth 1988, 200.) Crisis management aims to prevent a crisis from getting out of hand by establishing certain procedures for regulating and controlling that crisis, and also resolving the crisis in a satisfactory way that vital interests and national security are preserved (Williams 1972). According to Williams (1972), "One task of crisis management [is to temper risks…] while the other is to ensure that the coercive diplomacy and risk-taking tactics are as effective as possible in gaining concessions from the adversary and maintaining one's own position relatively intact" (30). As the world has increasingly moved away from war towards a position of crisis management, the repercussions that nuclear weapons could have in the equation could be significant.

International Crisis Behavior and Nuclear Weapons Dynamics. The nature of nuclear weapons' relationship with international crisis escalation is undecided in the literature, at least partially due in fact to the gap between theoretical arguments that rely on anecdotal evidence and hard tested empirical notions in this subject area. Promising new research that has emerged in recent years that overshadows past studies. One of the earliest recognized empirical studies done

was by Geller (1990). Geller's results ran against most previous arguments by showing that nuclear weapons cannot be relied upon to impede escalatory dispute behavior by either nuclear or nonnuclear antagonists. Instead, he found that crises are more likely to escalate to higher levels when one or both parties possess nuclear weapons (301). Later, these results would be contradictory to results found by Asal and Beardsley (2007).[5] But at the time, other scholars were affirming these results, such as Huth, Bennett, and Gelpi (1992), who conducted a systematic quantitative evaluation of conflict behavior of great powers showing results that indicated that nuclear weapons do not seem to have a systematic impact on the initiation of militarized disputes among Great Powers.

However, others would argue (both before and after Huth et al. and Geller) that nuclear weapons prevent disputes from escalating because of their deterrent power by keeping the fear that the crisis would escalate beyond the nuclear brink. This is what Kenneth Waltz famous argues (1981, 1990, 1993, Sagan and Waltz, 2003) throughout most of his writing on the subject, albeit with his evidence remaining anecdotal. Other works argued along similar theoretical lines that nuclear weapons would make crisis dynamics more stable because of fear without incorporating testable empirical evidence.[6] Most of the case studies relied upon use evidence from the Cold War and other conflicts undoubtedly influenced by bipolarity. This literature may be sparse in terms of empirical tests, but it is abundant in theoretical content.

[5] Rauchhaus (2009) suggests that Geller made good use of the data and methods available at the time of publication, but since then improved capabilities have enabled better studies, such as what Asal and Beardsley did.
[6] See Mearsheimer (1990), Schelling (1960), Williams (1972), and Howard (1984).

More recent research has tended to focus on moving away from anecdotal evidence to testing theoretical notions about nuclear weapons and crisis escalation with empirical tests.[7] With advances in data and statistical modeling, many new studies emerged that take use of resources that were never available before to formulate systematic work. Victor Asal and Kyle Beardsley, two scholars who have repeatedly joined forces to test the nuclear weapons and crisis behavior subfield, were among the first to take part in the recent revitalization of research and have created some of the key literature that I focus on. Their first pairing in 2007, "Proliferation and Crisis Behavior", showed results demonstrating that crises involving nuclear actors are more likely to end without violence and, as the number of nuclear actors involved increases, the likelihood of war continues to fall. Beardsley and Asal further argue next in "Nuclear Weapons as Shields" (2009) that actors with nuclear weapons tend to face opponents that are less willing to use forceful acts of aggression in international crises. This research is focused on how the level of proliferation of an actor affects crisis dynamics. Beardsley and Asal also research find in "Winning with the Bomb" (2009) that nuclear actors are more likely to prevail and emerge victorious in a crisis when facing a nonnuclear state.

There have been a number of other authors recently who have examined the role of nuclear weapons and conflict behavior. Rauchhuas (2009) questions the nuclear peace hypothesis by looking at the arguments of the nuclear optimists and pessimists and asks the question do nuclear weapons reduce the probability of war? He finds some confirmation for the claims of both sides of the debate as the evidence suggests that while nuclear weapons promote overall

[7] In "Nuclear Weapons as Shields", Beardsley and Asal (2009) highlight the lack of empirical testing in the realm of conflict and nuclear weapons, and note this inequality as a primary motivation for their study. Rauchhaus (2009) uses this foundation for his study as well.

strategic stability, they simultaneously allow for more risk-taking in lower intensity disputes. Rauchhaus finds that when a nuclear asymmetry exists between two states, there is a greater chance of militarized disputes and war. But, when there is symmetry and both states possess nuclear weapons, then the odds of war steeply drop. Jo and Gartzke (2009) find that diplomatic prestige by nuclear actors brings a heightened bargaining power in conflicts, so opponents of nuclear states are more likely to attempt to settle ongoing conflicts and to settle them peacefully. While the recent contributions certainly show that there is promising work done in the arena of nuclear weapons and conflict behavior, there is still further work to be done. There is not yet a firm consensus on the role of actors with nuclear weapons in the escalation of international crisis. Up to this point in time, the literature has mostly focused on theoretical notions that could provide explanation.

Summation. A great number of noted scholars have contributed much to our understanding about the advent of nuclear technology and what it means for the stability of the world. American novelist Wilkie Collins once said, "I begin to believe in only one civilizing influence—the discovery, one of these days, of a destructive agent so terrible that War shall mean annihilation, and men's fears shall force them to keep the peace" (Quinlan 2008, 5). According to the noted historian John Lewis Gaddis, prior to the advent of nuclear weapons, "improvements in weaponry had, with very few exceptions, increased the costs of fighting wars without reducing the propensity to do so" (1997, 136). French NATO General Gallois explains that when nuclear weapons showed up on the scene, "Few people were able to grasp that because the new weapons have a destructive power out of all proportion to even the highest stakes, they impose a far more stable balance than the world has known in the past." He further explains that

it is not “any easier to make people realize that the more numerous and terrible the retaliatory weapons possessed by both sides, the surer the peace…and that it is actually more dangerous to limit nuclear weapons than to let them proliferate” (1960). This is ultimately at the heart of the debate over the pacifying effects of nuclear weapons.

Have nuclear weapons made the world more or less violent? The answer to this question is where a gap in the literature occurs. However, in the end what can be concluded is that “like many of the major issues concerning nuclear weapons, then, the debate about whether nuclear weapons have helped or hindered the cause of peace remains unresolved” (Coleman and Siracusa 2006, 2). This thesis aims in a small way to help contribute a piece of the puzzle in this debate by looking at the escalation of crises and the presence of nuclear weapons.

CHAPTER 3

RESEARCH QUESTION

Do nuclear weapons lead to a more peaceful world, or a more violent one? This is a question debated by many of the scholars in international relations literature, and has grown into an overarching point of contention surrounding the nuclear policy field. Within the greater context of the arguments of the nuclear optimists and the nuclear pessimists about the prospects for stability with nuclear weapons in the world, I propose a smaller research focus surrounding the prospects for peace with nuclear weapons. Is the escalation of international crises affected by the presence of actors with nuclear weapons? Does the presence of an actor with nuclear weapons make a conflict more or less likely to escalate?

Could nuclear weapons actually be a force for peace in the world? The side of the debate that would answer "yes" to that question follow with the argument proposed and advanced by Waltz and his subsequent proponents (see Asal and Beardsley 2007, and Karl 1997). They would argue that, yes, the presence of more nuclear weapons is better for the world because leaders will realize the dangers of an all out nuclear war and will do what is necessary to avoid its costs. Therefore, since the use of nuclear weapons is not actually feasible in reality, more nuclear weapons proliferation will only level the playing field between states further and make the world more stable and less conflict prone. However, the opposing side (see Feaver and Sagan 1997; Rothblat and Ikeda 2007; and Bruce and Milne 1999) argues against the pitfalls of relying on deterrence to prevent a nuclear disaster because deterrence is not guaranteed to work. This side

of the debate would also say that the disarmament of all nuclear weapons is desirable and the world should continue to work toward this goal.

Both the nuclear optimists and the nuclear pessimists bring much controversy to the field, and it appears as if their debate has little hope in the near future for reaching any kind of resolution. One reason for this impasse is that arguments on both sides have remained largely theoretical, with little empirical work having been completed. While this thesis does not aim to resolve the debate between the nuclear optimists and pessimists, it hopes to contribute to the discussion with its expected results by taking a side in the debate and hopefully shedding some empirical results in a focused area of debate in crisis escalation and nuclear weapons. As evidenced from Chapter 2, there is a growing literature on crisis dynamics and nuclear weapons.

One method of evaluating empirically if the presence of nuclear weapons affects the war-proneness of the world is to evaluate how the escalation of crisis is influenced by nuclear weapons. Choosing to look at crisis specifically instead of another kind of conflict is motivated by finding an appropriate level of conflict to study. Not looking at war is a choice that is mostly motivated by available events of the recent era with nuclear weapons. War has become an increasingly uncommon event. Instead, the world has experienced a propensity for lower-level conflicts breaking out. Looking at these lower level crises can overcome some level of selection effects where actors may choose not to even start a war that they know they may not win or want to fight. Of course, choosing crises instead of war does not fully take care of selection effects[8], but it does provide for cases where war would be likely and gives a foundation for potential escalation. Crisis dynamics are a promising field of study as it incorporates so many differing

[8] More concerns about selection effects in the conclusion

aspects of conflict. Long term and short term conflicts can arise in the crisis arena, leading to plentiful exploration of many different natures of international clashes at various levels. War is so high of a level of conflict that many cases of conflict would be lost, while non-crisis disagreements do not represent a level high enough to be taken seriously on the greater discourse of conflict escalation. Crises reach the appropriate level of conduct for my research to take place.

Since nuclear weapons can be a factor in either preventing or inducing a conflict, their consequences might just have an effect on those prospects for peace. This is where my specific research question within the debate over the merits of nuclear weapons comes into the equation by the addition of crisis escalation. My research question is a crucial element for solving the debate between the proponents of more proliferation and the proponents for disarmament, and the implications of the outcome. By looking at the process of crisis escalation, it is possible to discern and predict if and where nuclear weapons are going to have ramifications for whether a given conflict will expand or dissipate, and subsequently if the prospects for peace will be altered. What can be established from my research question is if actors with nuclear weapons capabilities are more or less conflict prone than those without nuclear weapons. This can in turn demonstrate the either the pacifying effects of nuclear weapons in a crisis or their terrifying potential to bring about more heightened conflict between states.

In order to be successful, my research question will have to address two fundamental arenas of security studies, deterrence and the security dilemma. Since much of the modern understanding of deterrence has grown out of the nuclear age, there is a wealth of information and study in this aspect of security studies (Coleman and Siracusa 2006). For my research question, deterrence in its most basic form is expected to play a crucial role and be a key causal

element to understanding whether crises will escalate or not. In essence, successful deterrence is what would be expected to take place if a crisis fails to escalate when nuclear weapons are taken into consideration. Another aspect that should fit into the framework of considerations is the security dilemma (Booth et al. 2008; Butfoy 1997; Caldwell and Williams 2006; Jervis 1978; Mutimer 2000; and Smith and Singh 1985). The security dilemma is important to my research question as it is a crucial aspect of international crisis escalation. The security considerations of states vis-à-vis other states factor greatly into the decision-making progression that leads to crisis escalation or de-escalation. For my research questions, the security dilemma evaluated will have a nuclear component. The fundamental problem that my question seeks to address is the extent to which the security dilemma plays out in crisis situations with nuclear actors that might dramatically change the security considerations. Since security concerns are such of a central part to my research question, it is necessary to understand its conceptions to the fullest.

CHAPTER 4

THEORY AND HYPOTHESES

Above all, while defending our own vital interests, nuclear powers must avert those confrontations which bring an adversary to the choice of either a humiliating defeat or a nuclear war.

–President John F. Kennedy, June 10, 1963

Keeping in mind the previous scholarship discussed in the literature above, the theory this thesis advances favors the side of the nuclear optimists. I argue that because rational states will not be willing to run the risk of achieving minor gains that entail major costs, nuclear weapons will have an effect on whether or not a crisis will escalate into a escalated conflict. In a situation of conflict, states will evaluate their security situation vis-à-vis other states and will formulate their own course of action to preserve their vital interests. When nuclear weapons are included, the security situation vastly changes. To preserve its interests, a state will take into consideration all of the resources it has available at its disposal, including a nuclear resource. Because nuclear capabilities (even very minute capabilities) are hard to hide, complete information is usually present on the existence of nuclear weapons by one side or another. Even though mere possession does not indicate intent or willingness to use nuclear weapons, the existence of a nuclear arsenal alone brings a certain status to the actors who attain them. This information

should be taken into account by states when formulating their security considerations. If this is the case, deterrence will prevent a crisis from lapsing into something more destructive if nuclear weapons are involved in the security calculations by preventing an actor from accepting the possibility of a nuclear use.

In an international crisis, many factors enter considerations into whether a state will stand firm, give in, or back down. In these considerations, the concepts of cost and gains are among the most important of concerns. With regards to nuclear weapons and international conflicts, the costs of using a nuclear weapon come at such a high price that some scholars consider their use is not a viable option for most states (Geller 1990). Waltz and Sagan perhaps put it best that "States are not likely to run major risks for minor gains. War between nuclear states may escalate as the loser uses larger and larger warheads. Fearing that, states will want to draw back. Not escalation but de-escalation becomes likely. War remains possible, but victory in war is too dangerous to fight for" (2003, 37). As a result, nuclear weapons can deter the threat of retaliation by posing unacceptable damage (Cimbala 1998). The presumption exists that "threats and even limited nuclear attacks might be effective because the other side might not be willing to escalate to the next step toward nuclear holocaust" (Smith and Singh 1985, 27). Particularly in conventional crisis with a nuclear state it is argued "that deterrence works precisely because nuclear states fear that conventional military engagements may escalate to the nuclear level, and there they draw back from the brink" (Sagan and Waltz 2003, 37).

Because of this exceptional threat posed by nuclear weapons, "when nuclear actors are present, states – both nuclear and non-nuclear – resort to violence less often, because they do not want to risk the exceptional costs of a nuclear strike" (Asal and Beardsley 2007, 151). Nuclear

weapons then have deterring effects in an international crisis because neither side should be willing to see events escalate into an elevated confrontation between nuclear rivals

All situations involving a nuclear power should have a deterring effect, and not just nuclear matchups involving nuclear rivals. This should manifest itself in a variety of situations. In a nuclear versus nuclear power situation, neither side should be willing to run the risks of threatening something that if used can be then legitimately used in return against it for retaliation. Conversely, in a situation where a nuclear power is against a nonnuclear power, the nonnuclear power should be afraid to run the risk that it could be destroyed and not be able to retaliate should nuclear force be threatened. As more and more states acquire nuclear weapons, the applicability to security calculations should go up. And since states will not want to run the risks of nuclear destruction, less war (where the possibility of escalating to a nuclear level) will break out.

Consider this point from Dagobert Brito and Michael Intriligator:

> As additional nations acquire nuclear weapons, it becomes more likely that there will be other nuclear powers prepared to exploit any postwar weakness of the initiating power, further reinforcing general deterrence and thus enhancing stability against war outbreak. The probability of a deliberate initiation of a war thus decreases as the acquisition of nuclear weapons restrains the existing nuclear nations. Increasing the number of nuclear nations implies that a nation that initiates a war would be relatively worse off in the postwar environment, both in the case in which the other nuclear nations are belligerents and in the case in which they

> remain neutral. Increasing the number of nuclear nations also increases the uncertainty about how other nuclear powers will react during and after a war. (1996, 207-208)

How the nuclear powers act should reflect the cost-benefit analysis of the environment. Will the state run the risk of a major cost (nuclear war) for some gains (victory)?

A nuclear threat does not have to be explicit to exist. While the costs of nuclear weapons use are so high few could consider use viable, a state does not have to threaten unambiguously to use a nuclear weapon for a nuclear threat to still loom. For a confrontation to reach a level where physical nuclear violence is explicitly threatened takes a pretty exceptional situation. Instead, the presence of a nuclear arsenal alone indicates a more implicit threat that the means are available to take retaliation of an incredible kind. Furthermore, nuclear weapons also bring about a certain status to the actors who can develop them. Some states seek to develop nuclear weapons because of the prestige that a heightened nuclear status will bring to their military and diplomatic negotiations (Cirincione 2007). An elevated level of national prestige that leads to a stronger military and diplomatic negotiating stance is still a powerful tool a state can bring to its conflicts and crisis management. Nuclear weapons do not have to have their use threatened for their incredible influence to be felt, instead, the very presence of a nuclear arsenal can be useful.

As discussed in the previous literature, an international crisis situation is different from a war (although it is still as precarious) as the conditions for a war to breakout are favorable. Michael Breecher and Jonathan Wilkenfeld (2000) give two defining conditions of an international crisis: "(1) a change in type and/or an increase in the intensity of *disruptive,* that is, hostile verbal or physical, *interactions* between two or more state, with a heightened probability

of *military hostilities;* that, in turn, (2) destabilizes their relationship and *challenges* the structure of an international system—global, dominancy, or subsystem." (5) International crisis situations should be a very useful arena for evaluating how nuclear capabilities influence security calculations. Asal and Beardsley (2007) discuss international crisis situations as being "an appropriate set of cases because these are all instances in which some challenge or threat is made, and there is some possibility of deterrence success or failure. In this way, the mechanisms specific to immediate deterrence are tested, which have been generally understudied in the deterrence literature." (144)

Hypotheses

To look at how the presence of nuclear weapons impact international crisis situations, this theory proposes the following two hypotheses for testing that look at crisis escalation in two different ways. The first hypothesis is aimed at the question of the stability nuclear weapons bring by looking at the tension level of the crisis by looking at reoccurrence of the crisis by escalation or reduction in tensions for a five-year period after the crisis. The second hypothesis examines the question of how nuclear weapons effect the level of violence in a more traditional look at crisis escalation in terms of acts undertaken in a ladder of conventional military actions.

Hypothesis 1. Crisis situations where at least one nuclear actor is present will have lower levels of reoccurrence than crisis situations without any nuclear actors.

How does the presence of a nuclear actor into a crisis situation effect the tension of the crisis? Do nuclear weapons push tensions to escalate, or can they have a stabilizing effect of reducing tension? In the great contest between nuclear optimists and pessimists, one of the foremost debates concerns whether nuclear weapons bring about stability or instability. I expect

that nuclear weapons will bring a stabilizing force to tensions in a crisis that could escalate. The inclusion of a nuclear actor in a crisis should force states to evaluate their situation and "cool off" possibly provocative actions before tensions escalate and potentially reach an unacceptable level.

Looking at the stability of a crisis for a duration after the outcome of the crisis is the way this thesis evaluates if a crisis experiences escalation or reduction of tension through reoccurrence of the crisis. By doing so, it can be seen if nuclear weapons are having a potentially stabilizing influence. For tension levels to escalate, the tension must have a place to start from. Typically, a crisis occurrence breaks actors to an initial point of tension. Once the originating crisis backs down though, the tension level can either deescalate or escalate to the point that another crisis happens. This escalation that leads to reoccurrence of crisis is important for my theory. Reoccurrence is not crisis escalation in the traditionally conceived threshold, but it is still an action of escalation. When reoccurrence happens, the tension in the crisis had not cooled enough to prevent further hostilities from happening. Per my theory, the presence of nuclear weapons should prevent the escalation of tension to the event of reoccurrence because of the costs involved in getting into another conflict with a nuclear arsenal involved. Crises with a nuclear actor should be more stable, and one of the antonyms of stability is reoccurrence.

Hypothesis 2. Crisis situations where at least one nuclear actor is present will have lower levels of violence than crisis situations without any nuclear actors.

The increase along a ladder of violence is the commonly appreciated notion of crisis escalation (Asal and Beardsley, 2007). A crisis certainly becomes more serious and concerning as the level of violence in the crisis get more severe. If nuclear weapons are to be a stabilizing

force, then crises with nuclear actors should traditionally experience less escalation in the level of military violence among the actors. When actors are evaluating the costs of a potential military action in a crisis, then the presence of any nuclear actors bring an exceptionally high level of cost that could potentially be actualized. If military confrontations escalate to a high level in a crisis, then nuclear actors could potentially have more options at their disposal than non-nuclear actors who may only have conventional means. Actors who pursue more aggressive, violent courses of action in conflict generally are willing to undergo the risks of violence to achieve their desired success at a potentially great cost. When nuclear weapons are brought to a crisis, actors should not be able to bear the costs of ultimate violence (a nuclear option) for their desired ends.

CHAPTER 5

RESEARCH DESIGN

Can nuclear weapons be a force for peace in the world? The purpose of this thesis is to quantatively evaluate if the presence of nuclear weapons influences interstate crisis escalation. Much of the debate in the international relations literature over whether or not nuclear weapons can help to promote international peace and stability is unresolved as there are very few quantitative attempts at testing the arguments of the nuclear optimists and pessimists by evaluating concepts such as deterrence. In this chapter, I will discuss in detail the dependent and key explanatory variables, their operationalization and measurement, select control variables, research design degrees of analysis, and the data.

Not much of the debate between proponents and opponents of nuclear weapons has been empirically validated. Quinlan (2008) makes a good observation on the state of progress in this area.

> "In the absence of empirical data we have to rely upon concepts, hypotheses, and inferences not directly or fully tested. There is by now a vast and diverse body of reasoning and conjecture about what factors might run if it ever started. Certainty is not available, especially across the huge range of possible situations. The causes, circumstances, and course of conflict involving the use of nuclear weapons could vary widely, and it

> is a simplistic fallacy to talk as though it were a single undifferentiated phenomenon." (14)

It is important to keep in mind that the impact of nuclear weapons has long been a difficult phenomenon for scholars to study. It can never be fully established that nuclear weapons are the force that is doing all of the heavy lifting in persuading against conflictual states anticipating war. Instead, what can be established is the significance of nuclear weapons in a given situation. Getting the concepts correctly specified in this manner is especially important, as Quinlan says later that "It matters a great deal whether concepts are good or bad, since the consequence of getting policies seriously wrong could be unparalleled calamity." (2008, 15) In this thesis I attempt to use as well defined concepts as possible.

To develop my research, I have adopted various parts of research designs from Asal and Beardsley (2007). Asal and Beardsley takes use of many of the same concepts as this thesis employs, but the implementation of the research design differs somewhat. The question that Asal and Beardsley ask is Do nuclear weapons increase or decrease the chances of war? From this question, they side with the nuclear optimists and offer two testable hypotheses: 1) The probability that a crisis will have higher levels of violence will not be affected by the number of nuclear actors, and 2) The more nuclear crisis states involved in an international crisis, the higher the probability that the crisis will have lower levels of violence. Their results show that crises involving nuclear actors are more likely to end without violence and, as the number of nuclear actors involved increases, the likelihood of war continues to fall.

Asal and Beardsley operationalize their variables differently than the research design of this thesis. The most significant similarity between their work and this thesis is that both employ

data from the International Crisis Behavior Project. For their response variable, they use a measure of the severity of violence that identifies the most intense use of violence as a primary crisis management technique by any of the crisis actors. This variable is sometimes measured in a four-category variable or collapsed into a binary variable depending on the model specification employed. As their key independent variable, Asal and Beardsley use a count of the number of nuclear actors involved in each crisis. They use a number of other control variables in the analysis including number of actors involved in a crisis, the gravity of the threat issued, protracted conflicts, differences in capabilities, superpower crisis actors, jointly democratic opponents, jointly nuclear opponents, and new nuclear opponents. They use maximum-likelihood ordered logit estimation to analyze the data in five models.

My research design, and how it builds upon but yet differs from the specification of Asal and Beardsley, continues in the below section. One substantial difference from Asal and Beardsley that I hope to test is the influence that just the presence of a single nuclear actor may have on the escalation of a crisis, and not necessarily the number of nuclear actors. What I hope to get at that Asal and Beardsley missed in their analysis is how a nuclear presence motivates crisis escalation.

Variable Measurement

Dependent Variable. The dependent variable of this thesis is international crisis escalation. Crisis escalation is evaluated in two different ways in this thesis to correspond with each hypothesis. The first dependent variable looks at stability with the escalation or reduction of tension, and the second dependent variable looks at the escalation or reduction of military action with the level of violence.

An international crisis is defined as a situation in which confrontational state actors must make immediate foreign policy decisions in response to external threats. Michael Brecher and John Wilkenfeld (2000) define a crisis as an interstate dispute that threatens at least one state's values, has a heightened probability of military escalation, and has a finite time frame for resolution. An international crisis happens because of some international event or incident through a "trigger" that leads to a foreign policy situation for one or more states. A "crisis situation" is defined by Brecher and Wilkenfeld in the International Crisis Behavior Project (ICBP) through nine characteristics (actor level, 2009 version) that present as triggers to a crisis. These triggers are important to evaluate as the authors count a crisis to be happening or escalating if it has one of nine characteristics present. These nine characteristics are:

Table 5.1: Triggers to an International Crisis

Value	*Level*	*Description*	*Case Example*
1	Verbal act	Protest, threat, accusation, demand, etc.	On 15 February 1976 President Idi Amin of Uganda announced that large parts of Kenya and the Sudan historically belonged to Uganda and that Uganda might claim these territories, thereby triggering a crisis for Kenya.
2	Political act	Subversion, alliance formation by adversaries, diplomatic sanctions, severance of diplomatic relations, violation of treaty.	The Egyptian and Syrian proclamation of their merger into the United Arab Republic on 1 February 1958 triggered crises for Iraq and Jordan.
3	Economic act	Embargo, dumping, nationalization of property, withholding of economic aid.	Egypt's nationalization of the Suez Canal on 26 July 1956 triggered crises for Britain and France.
4	External change	Intelligence report, change in specific weapon, system, offensive capability, change in global system or regional subsystem, challenge to legitimacy by international org.	Intelligence reports of the construction of a USSR submarine base in Cienfuegos, Cuba triggered a crisis for the U.S. on 16 September 1970.

5	Other non violent act	Various.	On 30 June 1961 Kuwait requested assistance from Britain against an expected attack by Iraq, triggering a crisis for Britain.
6	Internal verbal or physical challenge to regime or elite	Incitement by media, proclamation of new regime, fall of government, coup d'etat, sabotage act, terrorism, assassination, riot, demonstration, strike, arrest, martial law, execution, mutiny, revolt.	On 25 July 1934 Austrian Nazis killed Chancellor Dollfuss, triggering a crisis for Austria.
7	Non-violent military act	Show of force, war game or maneuvers, mobilization, movement of forces, change of force posture to offensive.	The entry of three German battalions into the demilitarized zone of the Rhineland on 7 March 1936 triggered crises for Belgium, Czechoslovakia, France, Poland, Romania, the U.K. and Yugoslavia.
8	Indirect violent act	Revolt in another country, violent act directed at ally, friendly state, or client state.	The PRC bombardment of Quemoy and Matsu, which began on 23 August 1958, triggered a crisis for the U.S.
9	Violent act	A border clash, border crossing by limited force, invasion of air space, sinking of ship, sea-air incident, bombing of large target, large-scale military attack, war.	The South Vietnam-U.S. invasion of Laos on 8 February 1971 triggered a crisis for Laos.

Each of the nine characteristics indicates a trigger for crisis involvement and/or hostile action by a state, and therefore denotes a crisis and its potential for escalation.

1st Response Variable: Reoccurrence.

I use the variable "Outcome Escalation" from the System-level dataset from the ICBP. Brecher and Wilkenfeld operationalize crisis escalation through a 3 category variable that assesses the tension level among the adversaries after the outcome of the crisis (either escalation of tension, reduction of tension, or recent case that has no outcome yet). Because recent cases

within the past five years have no outcome yet, any case categorized as a 3 (recent case that has no outcome yet) will be dropped from evaluation. I then recode escalation and reduction of tension into a dummy variable I call "Reoccurrence" as follows:

Table 5.2: Reoccurrence Variable

Value	*Level*	*Description*	*Case Example*
0	Reduction of Tension	The crisis did not recur among the principal adversaries during the subsequent five-year period	The Panama Flag Crisis of 1964 involving the U.S. and Panama was not followed by a subsequent crisis between these adversaries within five years.
1	Reduction of Tension	The crisis recurred among the principal adversaries during the subsequent five-year period	The Gaza Raid-Czech Arms Crisis of 1955-56 between Israel and Egypt was followed in October 1956 by the Suez-Sinai Crisis.

While this measure is aptly fit, what it measures is the reduction or escalation of tension by if another crisis reoccurs with the states in the given crisis within a given five year period, which may not be particularly useful if evaluating whether or not a crisis escalates into a bigger conflict (which might not last five years). This is the common perception of the term "crisis escalation", or a conflict escalating beyond the confines of an outbreak of initial hostilities to a higher level. However, this thesis is interested in the hypothesis that nuclear weapons presence influences the stability of crises tensions. How I look at this factor is by examining the reoccurrence of crises to see if there is a stability or escalation in the tension level of a crisis.

Looking at crisis tension escalation over a period of time is an important consideration for evaluating how nuclear weapons effect stability. The key to determining stability is to see if the status quo remains unchanged for a period of time. After a crisis occurs, if tensions reach an

escalated level that a crisis reoccurs among the actors within a certain period of time, than whatever the issue that ended the crisis between the actors the first time around no longer presents an acceptable termination and the post-crisis stability is disrupted. Drawing from the theoretical implications advanced in Chapter 4, the presence of nuclear weapons should keep actors from destabilizing the status quo because of the major risks that can be run. By this standard, looking at a crisis and measuring whether or not there was an escalation in the tensions of the crisis within a five year period is a useful measure for this thesis project.

2nd Response Variable: Violence

To determine the level of violence between the actors in a crisis, I use the variable "Violence" from the System-level data set in the ICBP by Brecher and Wilkenfeld. They operationalized the escalation level of violence through a 4 category variable that identifies the extent of violence in an international crisis as a whole, regardless of its use or non-use by a specific actor as a crisis management technique. I recode their four category variable into a binary variable to highlight the greater discrepancy between different levels of violence:

Table 5.3: Level of Violence Variable

Value	*Level*	*Description*	*Case Example*
0	Minor Violence	No violence or Minor Clashes	Cienfuegos Submarine Base Crisis 1970[9]
1	Serious Violence	Serious Clashes to Full-scale war	Bangladesh, 1971[10]

Key Explanatory Variable. The key explanatory variable of this research project is nuclear weapons presence. Nuclear weapons presence is defined as whether or not at least one actor in a crisis possessed developed nuclear capabilities. I make the choice to code nuclear presence the same way regardless of if the crisis featured nuclear actors on all or just one side of the crisis. Past research has broken down the nuclear variable by level of proliferation, number of nuclear actors, and nuclear possession by dyad. What I chose differently from past work is to look at just the existence of a developed nuclear capability in a crisis and how that may influence escalation. A number of studies have suggested that the entrance of a nuclear arsenal into conflict should keep tensions in check.[11] Essentially, it is this relationship that I want to investigate as it

[9] Secretary of State Kissinger informed President Nixon on 16 September 1970 that U.S. intelligence flights had substantiated reports about construction of the Soviet base, the trigger for a U.S. crisis. Nixon warned Soviet Foreign Minister Gromyko that the U.S. was monitoring events carefully. On 25 September the story broke in the U.S. press. The U.S. major response, that day, was a warning from Kissinger to Dobrynin and a demand for an explanation. Dobrynin's answer, on the 27th, was that there had not been a violation of the 1962 agreement since no offensive weapons had been installed at Cienfuegos. At another meeting with Kissinger on 5 October, Dobrynin reaffirmed the validity of the 1962 agreement. Kissinger asked for a definition of a "base." On 13 October a Tass news agency communiqué denied that the Soviet Union was building a base in Cuba. Reports in the U.S. confirmed that a submarine tender had left Cienfuegos. On 22 October Gromyko, at a meeting with Nixon, reaffirmed the 1962 agreement once again. U-2 photos revealed a slowdown, and later a halt, in construction. On 23 October the U.S. crisis ended when Washington received a Soviet assurance that construction had been halted and that the Soviet naval force had left Cienfuegos.

[10] On 25 March a crisis for Bangladesh (still formally known as East Pakistan and East Bengal) was triggered by a West Pakistani army attack on the student dormitories of Dacca University. The response, the following day, was a declaration of independence by East Bengali political leaders. This triggered a crisis for Pakistan, which responded the same day by outlawing the Awami League and suppressing the East Pakistan (East Bengal) revolt with violence.

[11] See Mearsheimer (1990) and Schelling (1960).

has not been done in past research. Since I focus on the crisis itself, the existence of a nuclear capability in the crisis would be coded the same if one or all actors in the crisis possessed nuclear weapons.

To determine if this nuclearized actor is present in a crisis, I first look at nuclear weapons capabilities by the actors within a given crisis. Nuclear weapons capability, be it by those actors who already have nuclear weapons, those who have no developed nuclear weapons but are attempting to get them, or those who have no nuclear weapons or any demonstrated interest in possessing them, is originally operationalized by Brecher and Wilkenfeld in the Actor-level dataset of the ICBP.

The original categorization by Wilkenfeld and Breecher are set in 4 different categories to show differences in the developed level of nuclear capabilities by states who have nuclear weapons, versus those who are trying to get them or do not have them. The four categories were no nuclear capability, foreseeable nuclear capability, possession of nuclear capability, and superpower nuclear capability. For the purposes of this thesis, the first and second categories were combined for states that did not have a nuclear capability at the time of crisis as "no capability" and "foreseeable capability" both have no nuclear weapons present at the time of crisis and do not have a significant difference between the categorization. Furthermore, the third and fourth categories were combined for states that did have developed nuclear capabilities as the difference between developed nuclear capabilities and superpower nuclear capabilities is small.

To fit the Actor-level data into the System-level dataset, a new binary variable was created to indicate if at least one actor in the crisis possessed a developed nuclear capability at the time of the crisis.

Table 5.4: Nuclear Presence Variable

Value	*Level*	*Description*	*Case Example*
0	No nuclear capability	No actor possessed a nuclear capability with any operational military significance when the crisis began	Sub-Saharan African states.[12]
1	Possession of nuclear capability	At least one actor had nuclear military capability (weapons) and either delivery means but no second-strike capability, or Superpower or great power with ability to absorb a first strike and retaliate	PRC at the time of the Ussuri River Crisis, 1969[13] or the U.S. and USSR at the time of the Cuban Missile Crisis, 1962.[14]

The analysis extends these categorizations across certain periods of time, as some states either gave up their nuclear ambitions all together at some point, or decided to pursue nuclear ambitions, for example. The analysis will reflect this time difference, as over one period of time, a state may be categorized in one category during one time, and another category in another.

Control Variables.

Certain control variables are very important to this project. I employ two main control variables to test my hypotheses:

A—Democratic Actors. The regime type of a state will affect its behavior in a crisis situation, particularly with nuclear weapons. Democracies both in general and with nuclear weapons will be less likely to use their nuclear capabilities because of accountability and

[12] No state in Sub-Saharan Africa, with the exception of South Africa for a time, has ever established the technology necessary to developing nuclear capabilities. Even still,. South Africa never actually developed nuclear capabilities that were operable in a military sense.

[13] The People's Republic of China first tested nuclear weapons in 1964. Since then, there has been considerable debate over the exact stockpile numbers of PRC's nuclear arsenal. However, in 1969, PRC was not considered to be a nuclear superpower with second-strike (that is, the ability to retaliate against a first nuclear strike) capability.

[14] At the time of the Cuban Missile Crisis, both the U.S. and the Soviet Union were the predominant nuclear powers in the world that shared second-strike capability and mutually assured destruction.

audience costs. Nondemocratic regimes both in general and with nuclear weapons will be more likely to use the persuasive pressure that they can in a crisis situation, even if that includes a nuclear threat because they do not have to pay as much of the audience costs and keep accountability as democracies do. When democratic regimes are interacting together, they will be more likely to adhere to certain conscientious principles than another combination of authoritarian, democratic or other regime type together who might not be upholding those principles.

i. Democratic regimes together will be more likely to resolve and prevent crises from escalating than other regime type combination in a crisis.

Democracies interacting with democracies will behave together in a way that is less conflictual collectively than other regime types. However, when democracies interact with other non-democracies, the same pattern does not hold (Russert 1994). Therefore, it is important to feel out the effect of democratic peace on crises by counting if all the states in a crisis are democratic. If even one of the actors in a conflict is not a democracy, then the democratic peace effect will not exist (Russert 1994, 21).

The variable regime type in the actual ICBP Actor level dataset distinguishes between authoritarian and democratic regimes, as well as between civil and military regimes, at the time of the crisis. The data are coded 1-5 for civil authoritarian, democratic, and varying degrees of military regime types. The criteria Beecher and Wilkenfeld (2009) use for identifying democratic regimes are: competitive elections; pluralist representation in the legislature; several autonomous centers of authority in the political system; competitive parties; and a free press. Since what is particularly of interest to this thesis are some of the implications of democratic peace literature, a

useful measure of regime type will distinguish between democratic and other regime types. As such, I recategorized regime type into a binary variable that merged categories 1-4 (nondemocratic regimes) and left category 5 (democratic regimes) to stand by itself. Then, taking the information from the actor level data, I code if all actors in the crisis identify as democratic regime type as such:

Table 5.5: Democratic Actors Variable

Value	*Description*	*Case Example*
0	At least one actor is not democratic	China-India Border I, 1959[15]
1	All actors are democratic	East Timor II, 1999[16]

From this categorization, some summary information on the Democratic actors variable:

Table 5.6: Summary Democratic Actors Variable

Variable	*Cases*	*Mean*	*Standard Deviation*	*Min*	*Max*	*No. of Cases with all Democratic Actors*
Democratic Actors	328	.1707317	.3768493	0	1	56 (17%)

B—Power Differentials. The differences in power can be a factor in whether a crisis between actors with varying degrees of power will escalate.

i. Powerful actors will be less likely than other actors to see a crisis situation escalate.

[15] A border crisis for the People's Republic of China and India began on 25 August 1959 and ended on 19 April 1960. At the time of crisis, the PRC was a civil authoritarian regime, and India had a Democratic regime.
[16] A crisis between Indonesia and Australia broke out from 4 September to 10 October 1999, precipitated by violence between militia groups in East Timor. Australia led a peacekeeping mission, which involved minor support from 19 other countries. At the time of crisis, both Australia and Indonesia had democratic regimes.

I use the "Power Discrepency" variable from the system-level data from the ICBP. This variable is operationalized as the capability gap between adversaries in an international crisis, whether individual states or coalitions. Capability is measured by six components: size of population, GNP, alliance relationships vis-a-vis major powers, territorial size, military capability, and nuclear capability. The extent of power discrepancy in a crisis ranges from none, when all adversaries are at the same level of capability (e.g., Rwanda-Burundi Crisis 1964), to maximal discrepancy, when the principal adversaries are a superpower and a small power (e.g., Mayaguez Crisis 1975 between the U.S. and Cambodia).

Table 5.7: Summary Power Discrepency Variable

Variable	*Cases*	*Mean*	*Standard Deviation*	*Min*	*Max*
Power Discrepency	328	7.792683	9.034406	0	64

Degrees of Analysis

Unit of Analysis. The unit of analysis for this research project is the crisis.

Temporal Domain. The temporal domain for this study is from 1945 to 2002. The entire ICBP data set ranges from 1918 to 2007, however, since this project is particularly interested in the effects of nuclear weapons, only the period during which nuclear weapons exist can be in consideration. Although the bipolarity of the Cold War is said to have directly influenced both the proliferation of nuclear weapons (through security umbrellas)(Davis, 1993; Waltz, 1981; and Jo and Gartzke, 2007) and the outbreak of conflicts (due to alignment and fear of confrontation between the two superpowers)(Betts, 2008; and Caldwell and Williams, 2006), the world prior to and after the end of the Cold War is of interest. Therefore, temporal parameters are from crises

starting after July of 1945 and the initial proliferant of nuclear technology by the United States until 2002, which is the most recent period available for which crisis escalation can be measured.

Spatial Domain. The spatial domain of this study includes all crises from July 1945-2002 as identified by the International Crisis Behavior Project. The original ICBP System-level dataset has a total of 452 cases, but once I eliminate cases that do not fall within the temporal domain, the population of total cases used is 328.

Data and Statistics

The primary data for this research project will come from the International Crisis Behavior Project (http://www.cidcm.umd.edu/icb/) at the University of Maryland's Center for International Development and Crisis Management. These data have been many years in the making and already the project has undergone several revisions as new cases are added and greater consistency is established. When it comes to evaluating international crises, the datasets available from the ICBP have been used many times and there are a growing number of publications with articles that have utilized ICBP data. The data set employed in this particular thesis is the System-Level data sets from the Primary Data Collections (Version 9.0).

Table 5.8: Summary Statistics for Universe of Cases

Variable	*Min*	*Max*	*Mean*
Number of Actors	1	34	5.722561
Duration of Crisis in Days	1	999	147.4299
Protracted Conflict	1 (Non-protracted)	3 (Long-war protracted conflict)	1.728659

As both of the response variables I choose are categorical in nature, I will undertake crosstabulation of both dependent variables and the key explanatory variable as well as a logit model with the dependent variable, key explanatory variable, and control variables. Crosstabulation can show the actual frequency of the observations. A logistic regression model allows for the establishment of a relationship between a binary outcome variable and a group of predictor variables. Logit coefficients can show the significance and direction of the relationship of the independent variables on the response variable.

CHAPTER 6

RESULTS AND DISCUSSION

This thesis will take a quantitative analysis of the two hypotheses in question. First a cross tabulation of the key explanatory and response variable will be examined, followed by a logit model to see if the results are significant.

Hypothesis 1

Table 6.1: Cross Tabulation of Reoccurrence and Nuclear Presence

Pearson chi2(1) = 2.0140 Pr = 0.156

	Nuclear Presence		
Tension Escalation Outcome	0 – No	1 – Yes	**Total**
0 – No Reoccurrence	132 [126.1] (58.41%)	51 [56.9] (50%)	138
1 – Reoccurrence	94 [99.9] (41.59%)	51 [45.1] (50%)	145
Total	226	102	328

Note: Numbers in brackets are expected frequencies
Note: Numbers in parentheses are column percentages.

From the results of the Cross-tabulation of Reoccurrence and Nuclear Presence, there is little support to the argument that a nuclear weapons presence leads to lower levels of reoccurrence. I expected to see a higher proportion of the crises fall in the category of nuclear presence and no reoccurrence than the category of nuclear presence and reoccurrence. The crosstab shows that crises reoccur at the same proportion regardless of the presence of a nuclear actor. I would have also expected crises without a nuclear presence to have higher levels of reoccurrence as opposed to no reoccurrence. The numbers show that a different relationship is happening.

Table 6.2: Effect of Nuclear Weapons Capabilities on the Escalation of Tension in Crises

Independent Variables	**Odds Ratio**	**Coefficient**	**Pr >|z|**
Nuclear Presence	1.606586 (.4286837)	.4741113* (.266829)	0.076
Democratic Actors	.6320005 (.1936592)	-.4588651 (.3064226)	0.134
Power Discrepancy	.9863032 (.0125689)	-.0137915 (.0127434)	0.279
Constant		-.1951714 (.1582707)	0.218

N = 328 Log likelihood = -222.44848 Pseudo R2 = 0.0120

* Significant at the .1 level
** Significant at the .05 level

Note: Numbers in parentheses indicate standard errors

According to the logit model, none of the explanatory variables are statistically significant at accepted confidence levels of significance (.05). However, if the level of confidence were lowered to the 90% confidence range, the presence of at least one nuclear actor on the tension level of a crisis becomes relevant. But this significant relationship actually runs counter to the expected results. It shows that the presence of at least one nuclear actor in a crisis increases the odds of reoccurrence by nearly 61%.

Hypothesis 2

Table 6.3: Cross Tabulation of Level of Violence and Nuclear Presence

Pearson chi2(1) = 0.0005 Pr = 0.982

	Nuclear Presence		
Violence Level	No Nuclear Actors	At least 1 Nuclear Actor	**Total**
Minor Violence	126 [126.1] (55.75%)	57 [56.9] (55.88%)	183
Serious Violence	100 [99.9] (44.25%)	45 [45.1] (44.12%)	145
Total	226	102	328

Note: Numbers in brackets are expected frequencies.
Note: Numbers in parentheses are column percentages.

The results of the Cross-tabulation of Violence Level and Nuclear Presence is not statistically significant. This result offers no support to the argument that the presence of at least one nuclear actor in a crisis leads to lower levels of violent escalation. It is still worth noting that the proportion of crises that escalate into serious violence remains the same regardless of the presence of a nuclear actor. Minor violence happens at the same frequency regardless of the presence of at least one nuclear actor. I expected that minor violence would occur more frequently with the presence of at least one nuclear actor.

Table 6.4: Effect of Nuclear Weapons Presence on the Escalation of Violence in Crises

Independent Variables	**Odds Ratio**	**Coefficient**	**Pr >|z|**
Nuclear Presence	1.020939 (.2687007)	.0207229 (.2631897)	.937
Democratic Actors	.539653 (.1680401)	-.616829** (.3113855)	0.048
Power Discrepancy	.9985711 (.0117931)	-.0014299 (.01181)	0.904
Constant		-.1271021 (.1565408)	0.417

N= 328 for model Log likelihood = -223.09682 Pseudo R2 = 0.0091

** Significant at the .05 level

Note: Numbers in parentheses are standard errors.

The results of the logit model do not show a statistically significant relationship between the key explanatory variable and the dependent variable. The relationship between violence escalation and democratic dyad is statistically significant, suggesting that actors in a democratic dyad have the bigger effect on the level of violence escalation in a crisis than a nuclear weapons presence does. The odds of a crisis escalating to a level of serious violence is reduced by a factor of 46% if the actors in a crisis are all democratic. The odds ratio for nuclear presence shows that violent escalation is actually made 2% more likely by the presence of at least one nuclear actor, but this is not significant. Ultimately, this shows that crises with at least one nuclear actor present are just as likely to escalate to serious violence as are crises lacking the involvement.

Discussion

The results of the analysis of this project indicate that there is little evidence to support the notion that nuclear weapons promote stability and peace by preventing crisis situations from escalating. If anything, the results of the hypotheses point to an opposite relationship among the variables than the theory predicted. There may be many reasons for why this is the case. The first reason for this outcome may lie in the operationalization of both the dependent and key independent variables. Maybe it is not the presence of at least one nuclear actor, but the total number of nuclear actors (like Asal and Beardsley (2007) researched) that is most useful at predicting crisis escalation. The evidence and past research suggests that other nuclear weapons variables may be successful at predicting the propensity of crises behavior.[17] A more clearly

[17] Asal and Beardsley (2007), Rauchhaus (2009), Gartzke and Jo (2009) and Beardsley and Asal (2009) have all done research that has shown how nuclear weapons influence crisis behavior. The operationalization of their key explanatory variable differs from mine, each to a different degree.

delineated relationship may be uncovered if just the presence of a nuclear actor is moved beyond and other nuclear measures (like the influence of nuclear dyads, nuclear proliferation capabilities, and nuclear first strike policies) were examined. Perhaps the operationalization for the key explanatory was just not a useful measure of nuclear weapons.

The dependent variables may also be to blame for why the presence of a nuclear actor in a crisis does not have a significant influence on the violence escalation of crises or the stability of crises outcomes. The problem in no small part lies in the rationale of the hypotheses themselves. When a crisis with a nuclear actor reoccurs, the crisis may very likely have happened again because the nuclear arsenal was never considered an important enough factor in the first place of the crisis to present fitting deterrent effects. The conflict stays at lower levels of fighting that nuclear weapons do not enter the equation at all for the actors. The same kind of relationship may be happening with the level of violence in a crisis. A crisis may become more violent because the actor knows that nuclear restraint will be exercised, so escalation can happen along a conventional military response ladder without fear of nuclear repercussion. Additionally, the hypothesis regarding the level of violence may be experiencing another obstacle with selection effects. The variable as it stands now does not take into account for actors that may be using more violence to select themselves into crises they think they will win. Both hypotheses have inherent problems that may be influencing results. The results of the model suggests that further research and specification to the model and hypotheses may lead to more conclusive findings in the future.

CHAPTER 7

CONCLUSIONS

Regardless of viewpoint, nuclear weapons are here to stay for the foreseeable future. While their application in conflict is debatable, the effects of nuclear weapons on the strategic nature of international relations is distinct. Since the dawn of the nuclear age, nuclear weapons have featured prominently into the security calculations of states. As a result, the prospects for total disarmament of any nuclear power are not likely. So, nuclear weapons will continue to play an important role in international issues. But the question remains, what kind of role will nuclear weapons play in future international issues? According to Peter Lavoy, "Debate over the strategic consequences of the spread of nuclear weapons is more than an academic exercise. It affects the price officials should be willing to pay for nonproliferation. This in turn influences the number and identity of states which might some day acquire nuclear weapons." (1995, 696) The answers to questions about the role of nuclear weapons will have important implications for not only scholarly pursuits, but also for policy makers.

This thesis aimed to provide some quantitative foundations for some of the pressing questions involving nuclear security, particular the debate between the nuclear optimists and pessimists concerning the potentially stabilizing effects of nuclear actors. While I do not attempt to resolve the debate between nuclear optimists and pessimists, the results of my research can lend some implications to the arguments advanced by each side. Quantitative work has already been done on subjects such as victory prospects in conflict by nuclear weapons possessors, why

states will build nuclear weapons, how the length of nuclear possession impacts conflict behavior, and how nuclear weapons influence the probability of war. This thesis builds upon that previous scholarship by contributing knowledge on the impact of nuclear possession in a crisis situation on the stability of the tensions after the conflict, and the escalation in the level of violence during the crisis among the actors.

Further Research. While none of the models run in this thesis yielded significant results, there is still important work to be done in this area. The lack of significant results can lead us to conclude at this juncture that there is another stronger relationship that is preventing crises from escalating other than nuclear weapons. Overall, the exact relationship in the hypotheses should be refined, as the relationship between nuclear weapons and crisis escalation may be a complicated one. Perhaps nuclear weapons will influence crisis escalation more at higher levels of conflict, while at lower levels the nuclear effect does not enter the equation. Case studies for unique nuclear examples such as Israel (where nuclear possession is not officially acknowledged) and China (with its policy of no first use of nuclear weapons may not influence its conflicts with countries that do not possess nuclear weapons) may show some interesting theoretical investigation.

Should I conduct further research on this project, I would hope to improve the research design to incorporate enhanced control variables that can take into account more economic, military and other dimensions of a crisis situation and perhaps show exactly what relationship is determining the outcome. Specifically, looking at protracted conflicts would help elucidate the crisis relationship with reoccurrence, as I expect protracted conflicts would strongly influence the reoccurrence and level of violence in a crisis. Because protracted conflicts continue to

repeatedly breakout it is likely that even if nuclear weapons were present in the crisis, the consequences of nuclear weapons are far removed from the deliberations that they play a only a weak role in the crisis.

Aside from control variables, there are a few improvements that could advance results. Instead of crises, dyads might provide directionality of the crisis. Along these lines, another dummy variable such as democracy could indicate indicate the presence of nuclear possession by all actors in a crisis I would expect to show strong results Breaking down the violence escalation variable may be helpful for delineating if a ladder of military action, which at the far end would include nuclear weapons use, influence conflict outcomes. I would expect that high levels of violence would be deterred by the presence of nuclear weapons. Ideally, construction of a dataset that could capture levels of proliferation and more indicators of crisis escalation (such as a variable that measures crises onset that later escalates into war) would show more defined results that might be able to get at refined areas of the nuclear weapons and crisis escalation question. Actors that are actively proliferating nuclear weapons may be more aggressive than other kinds of actors. More specification on the model in these ways may also prove to be helpful.

The results of this research project are important for understanding the future position of nuclear weapons, and whether or not there are potential advantages to be had from nuclear weapons for the peace and stability of the international system. The argument advanced through the theory of this research project is that nuclear weapons will have a stabilizing affect on the potential escalation of crisis between two states because rational actors will not be willing to run the risk of achieving minor gains bought at major losses.

With the current standing of past scholarship on the effects of nuclear weapons for the world, my research project has much to contribute to the field. The debate between the nuclear optimists and the nuclear pessimists remains highly theoretical without much empirical testing conducted. My research project seeks to rectify a small part the disagreement between those supporting nuclear weapons for their potential pacifying aspects, and those who see only its potential for destruction. Testing the theoretical arguments of both sides of the debate is the next step for research for the nuclear optimists and pessimists. By putting the arguments of one side of the debate into quantifiable and testable claims, there is hope for filling a substantial missing feature of scholarship. The results of this research project are important for filling in this current gap in past scholarship between the theoretical claims of the proponents of each side, and what the results of empirical testing reveal.

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