BEHIND THE BUILDUP: EXPLAINING CHINESE MOTIVATIONS FOR NUCLEAR MODERNIZATION

by

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DEDICATION

I dedicate this manuscript to my husband, Michael, whose support, love, and unending patience made this seemingly insurmountable task possible. You have not only kept me sane, but you have allowed me to be deliriously happy, and, for that, I am forever grateful. I love you.
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<td>Anti-Ballistic Missile</td>
<td>ABM</td>
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<td>Bulletin Board</td>
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<td>Ballistic Missile Carrying Submarine</td>
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<td>Ballistic Missile Defense</td>
<td>BMD</td>
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<td>China Knowledge Resource Integrated</td>
<td>CNKI</td>
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<td>Chinese Communist Party</td>
<td>CCP</td>
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<td>Chinese Military Commission</td>
<td>CMC</td>
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<td>Circular Error Probable</td>
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<td>Central Intelligence Agency</td>
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<td>Conventional Prompt Global Strike</td>
<td>CPGS</td>
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<td>Defense White Paper</td>
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<td>Ground-based Midcourse Defense</td>
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<td>Department of Defense</td>
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<td>Earth Penetrating Weapons</td>
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<td>Foreign Broadcast Information Service</td>
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<td>Fissile Material Cut-Off Treaty</td>
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<td>Hardened and Deeply Buried Targets</td>
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<td>Intercontinental Ballistic Missile</td>
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<td>Intermediate Range Ballistic Missile</td>
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<td>Intermediate Range Nuclear Forces</td>
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<td>International Atomic Energy Agency</td>
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<td>International Institute of Strategic Studies</td>
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<td>Joint Chiefs of Staff</td>
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<td>Land Attack Cruise Missile</td>
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<td>Launch under Attack</td>
<td>LuA</td>
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<td>Launch on Warning</td>
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<td>Life Extension Program</td>
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<td>Limited Test Ban Treaty</td>
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<td>Maneuverable Re-entry Vehicle</td>
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<td>Mobile Erector Launcher</td>
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<td>Multiple Independently-Targetable Re-entry Vehicle</td>
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North Atlantic Treaty Organization ................................................................. NATO
No First Use .................................................................................................... NFU
Nuclear Nonproliferation Treaty ................................................................. NPT
Nuclear Posture Review ............................................................................. NPR
People’s Liberation Army .......................................................................... PLA
Plutonium ....................................................................................................... Pu
Science of the Second Artillery Campaigns .............................................. SSAC
Sea-based X-band Radar ............................................................................ SBX
Second Artillery Force ................................................................................ SAF
Short Range Ballistic Missile ..................................................................... SRBM
Submarine-Launched Ballistic Missile ....................................................... SLBM
Stockholm International Peace Research Institute ..................................... SIPRI
Strategic Arms Limitation Talks ................................................................. SALT
Strategic Offensive Reductions Treaty ....................................................... SORT
Strategic Arms Reduction Treaty ............................................................... START
Strategic Nuclear Delivery Vehicle ............................................................ SNDV
Tactical Nuclear Weapon ............................................................................ TNW
Theater Missile Defense .............................................................................. TMD
Threshold Test Ban Treaty ......................................................................... TTBT
United Nations ............................................................................................ UN
Upgraded Early Warning Radar ............................................................... UEWR
World News Connection ............................................................................ WNC
ABSTRACT

BEHIND THE BUILDUP: EXPLAINING CHINESE MOTIVATIONS FOR NUCLEAR MODERNIZATION

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Dissertation Director: Dr. Mark N. Katz

Since the end of the Cold War, China is believed to have doubled the size of its nuclear arsenal, while the other NPT nuclear weapon states have cut their forces in half. My dissertation explores the motivations behind China’s decision to diverge from its NPT counterparts and buildup and diversify its nuclear force. To identify contributing variables, I analyze a variety of Chinese language sources, including government reports, journal articles, news articles, public speeches, conference notes, and military manuals. These sources indicate that China views the unipolar world structure helmed by the United States as a direct threat to China's national security. China must thus manage its "smaller" regional deterrence relationships in the context of US-dominated world order, and it must base its security decisions on the security decisions made by the US. Specific decisions by the US over the past twenty five years have not alleviated China’s concerns. In particular, China finds US missile defense and US advancements in conventional high-precision weaponry to be indicative of a larger shift in US nuclear strategy from limited
deterrence to maximum deterrence. In consideration of the inimical consequences of a this kind of shift to Chinese interests and regional stability, China has responded by reconsidering its own nuclear strategy and nuclear force structure, moving away from minimum deterrence and toward limited deterrence. This transition and China’s requisite force growth have also allowed China to display a growing capacity for technological and scientific innovation and for it to narrow the qualitative gap between China's nuclear force and the forces of the nuclear superpowers. This gap will likely continue to lessen and China’s nuclear force will likely continue to grow unless US action is taken to mitigate Chinese concerns.
CHAPTER ONE: INTRODUCTION

Among the five nuclear weapon states recognized under the Nuclear Nonproliferation Treaty, China is the only state which has chosen to pursue quantitative and qualitative advancements to its nuclear force since the end of the Cold War. These advancements have resulted in an additional 100 operationally available Chinese nuclear weapons distributed across four new nuclear weapon systems. The United States, Russia, Great Britain, and France, by contrast, have all reduced their total number of nuclear weapons and retired several of their nuclear weapon systems. This dissertation explores the factors influencing these decisions, describing first the influence of a state’s nuclear strategy on its force level decisions, and then discussing the impact of external and internal factors on a state’s nuclear strategy. In the case of China, in particular, I find that its decision to grow and diversify its nuclear force over the past twenty five years correlates with the threat it perceives from the United States and the prestige it associates with larger and more modern nuclear arsenals.

A study identifying the variables underlying China’s decision to expand and modernize its nuclear arsenal has the potential to impact both the policy arena and to advance our theoretical understanding of nuclear proliferation. Most immediately, research of this kind may enable the United States and China to build the military rapport they both seemingly desire, but have yet been able to obtain. This is particularly true in
the nuclear realm, where Sino-US conversations have been encumbered by extant miscommunication, misperception, and distrust. Much of this is fueled by mutual uncertainty. Empirical research on the drivers of China's nuclear arms growth can lessen this uncertainty by providing pertinent information to the United States and by demonstrating to China an earnest attempt to push past presumptions. By decreasing the uncertainty that holds bilateral conversations hostage, such research can serve as a stepping stone toward realizing an official bilateral nuclear dialogue.

In addition to advancing Sino-US bilateral relations, a greater understanding of the motivations behind the expansion and modernization of China's nuclear arsenal has the potential to further the global conversation on nuclear nonproliferation. A vibrant debate has emerged in recent years regarding the merits of sustaining, minimizing, or eliminating the world’s inventory of nuclear weapons. Since the turn of the century, the notion of nuclear weapon elimination, in particular, has received increased attention, especially considering President Barack Obama's call for a "nuclear weapons free world" in 2009. So far, the policy prescriptions set to advance this objective include prohibiting the development of new nuclear weapon programs, tightening the security of existing nuclear weapons technology and materials, and reducing the oversized arsenals of Russia and the United States. No systematic effort has yet been made to address arms buildups outside the US-Russian dyad, especially in regards to China.

To date, the majority of nonproliferation research has focused exclusively on either the causes associated with nuclear weapons acquisition (Lavoy, 1993; Sagan, 1996-97; Campbell, Einhorn, & Reiss, 2004; Babbage, 2004; Singh & Way, 2004; Jo &
Gartzke, 2007; Solingen, 2007) or the causes associated with nuclear weapons dismantlement (Reiss, 1995; Levite, 2002-2003). Much less research has been conducted on the causes associated with nuclear force structure.1 My research reframes the classic acquisition and dismantlement accounts to ask why a state decides to increase, decrease, or stabilize its nuclear force. Answering this question in even one case can help inform the larger question of the correlates of arsenal size.

The next section surveys the current theoretical landscape of international relations and highlights the contributions and limitations of previous nuclear proliferation scholarship. Where possible, explanations relating to nuclear weapons acquisition have been extended to provide potential hypotheses for nuclear weapons buildup. The aim of this section is to show an expansive, yet largely untested terrain of hypotheses relating to vertical proliferation and to analyze the implications of these theories as they relate to China.

**Hypothesized Causes of Proliferation**

Scholars of international relations have proffered several competing and complimentary explanations for why states seek to acquire nuclear weapons. In general, these studies can be divided into those that focus predominately on state capabilities (the “supply-side”) and those that focus on governmental intent (the “demand-side”). The consensus has become that both sides play an instrumental role in the story of state weapons acquisition. The same is likely true of nuclear arms buildup.

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1 Exceptions include Vipin Narang’s 2010 article and 2014 book on nuclear posture and Gartzke and Kroenig’s 2014 article on nuclear posture.
Capabilities

The “supply side” of the horizontal proliferation argument focuses on a state’s capability to produce or purchase weapons grade Uranium (>90% enriched U-235) or Plutonium (Pu-239). In most cases, this is operationalized in terms of economic capability (Gross Domestic Product) and specific scientific/industrial capabilities (i.e., mining, reactor development, enrichment/reprocessing, weapons fabrication, etc.) (Singh & Way, 2004; Jo & Gartzke, 2007). However, the supply side of nuclear modernization looks different than the supply side of acquisition, because nuclear weapon states already have either highly enriched uranium or plutonium—or both. They also already have a weapon of some kind (either implosion or gun-type), and, more than likely, they have a delivery vehicle. The next question then is, what does it take for a state to advance to the next level? What factors play a role in a state’s decision to build new nuclear weapons platforms and systems?

Tai Ming Cheung frames these questions in terms of technological innovation, answering that a state’s military innovation is the product of both its hard and soft capabilities (2014). According to Cheung, technological military innovation does not happen in a vacuum. Instead, a high level of advanced technological growth, or “disruptive innovation,” occurs when a state is able to accept risk and seek to extract knowledge from others. This learning is best facilitated when a state builds an extensive network of systems. This, in turn, can lead to the product (hard capability) and process (soft capability) necessary for technological advancement.
Cheung defines hard capabilities as the input factors necessary for technical product development. These factors are tangible and quantifiable and include the size and sophistication of a state’s research and development apparatus and defense manufacturing apparatus, the size and quality of its scientific community, its access to capital markets and investment funds, the role of defense conglomerates, access to foreign technology and global networks of innovation, and advantageous civil-military interactions. Soft capabilities, by contrast, encompass less-tangible, process-related activities, such as technological diffusion, supplier-consumer dynamics, strategy and doctrine, institutional culture and governance norms, the age of the regulatory and standards-based regime, and the threat environment. He considers both hard and soft capabilities as necessary conditions for nuclear arsenal buildup and modernization, with intent occupying the other side of the equation.

**Intent**

In addition to both soft and hard innovation capabilities, a state’s intent also plays a primary role in determining the likelihood of a state’s nuclear arsenal buildup and modernization. This section explores the most prominent explanations for state intent found in the literature on horizontal proliferation, including those drawn from Realism, Liberalism, Constructivism, and Organizational Theory.

**Realism**

Realism has long been the theoretical heavyweight in explanations of nuclear proliferation, explaining acquisition in terms of a state’s security interests. More specifically, Realists contend that once one state acquires nuclear weapons, it is in the
security interest of its adversaries to follow suit, since the fear of mutual destruction will likely deter military aggression and increase the likelihood of a state’s survival (Waltz, 1979). Moreover, even if a state is faced with non-nuclear adversaries, the possibility of using nuclear weapons to deter conventional aggression could incentivize its development of a nuclear weapons program. Studies confirming this logic illustrate a strong direct correlation between the number and severity of conventional and non-conventional security threats and the likelihood a state will acquire nuclear weapons (Sagan, 1996-97; Singh & Way, 2004; Sasikumar & Way, 2009). The extension of this logic would be that these dynamics also influence a state’s nuclear arms buildup.

Realism would explain China’s alternate nuclear trajectory by pointing to the variance in its security environment compared to the other NPT nuclear weapon states. After all, China’s situation differs substantially from France, Great Britain, and Russia, in that it is neither a long-standing ally of the United States nor does it have a history of intense bilateral communication with the US like the Soviet Union/Russia. Instead, the US and China have had a relatively short diplomatic relationship, and China’s rapid ascendance on the world stage has allowed it to be perceived as the primary challenger to American hegemony. As the US moves to counter the Chinese threat, China can be expected, according to Realism, to do the same. China is further distinguished by its regional dynamics, since it is the only NPT nuclear weapon state that has shared a border with two nuclear adversaries (Russia & India) and that is in close proximity to a nuclear-capable rival (Japan). According to Realism, these external security factors would push China to increase its national defense, including its nuclear arsenal.
Liberalism

Liberalism approaches the question differently. As a theoretical construct, Liberalism assumes that states are comprised of a plethora of different private actors and groups that all vie to shape the state’s policies, and that war is not inevitable, but can be mitigated and even sometimes eliminated through institutional reform or collective action (Moravcsik, 1997). The application of Liberalism to studies of nuclear proliferation and non-proliferation has produced a wide range of alternate hypotheses.

Mitchell Reiss was among the first to advance such a Liberal theory of nuclear proliferation. In his 1988 book, Without the Bomb, Reiss argues that a state’s decision to acquire nuclear weapons is not the sole consequence of systemic pressures, as Realism contends, but is equally the product of domestic pressures, such as those resulting from the increased economic, political, and environmental costs it takes a state to build a bomb. Reiss’s focus on sub-systemic factors laid the groundwork for other analyses, the most influential of which focus upon the impact of regime type and regime orientation on state behavior.

The Democratic Peace Theory arose as an explanation for the absence of conflict in the post-Cold War context. Its primary contribution is in finding a direct correlation between differences in regime type and the presence or absence of inter-state conflict. In particular, Democratic Peace Theory argues that democracies do not wage war with one another. The significance of this finding propelled additional research on the effect of regime type on other important questions in international relations—including whether or not regime type influenced a state’s decision to develop a nuclear weapons program. This
logic was initially tested using a binary classification of democracy/non-democracy and found lacking explanatory power (Singh & Way, 2004; Solingen, 2007; Jo & Gartzke, 2007; Sasikumar & Way, 2009). Recent research, however, finds that differences between non-democratic states can make a difference in predicting the likelihood of nuclear weapons acquisition (Way & Weeks, 2011). These analyses indicate that fine differences among regime types—those beyond the democratic/non-democratic distinction, might also correlate with nuclear force level decisions.

Another tangential analysis that prioritizes sub-systemic factors in explaining matters of state security is Etel Solingen’s argument of regime survival (2007). Solingen’s theory, like Democratic Peace Theory, focuses on the regime rather than the state. It is different, however, in its analysis of regime orientation rather than regime type. According to Solingen, a regime’s decision to acquire nuclear weapons is a rational calculation depending upon whether or not acquisition will increase the likelihood of the regime’s survival. Solingen’s analysis indicates that there is a strong correlation between regimes that are “inward-looking” (those that practice import-substitution) and weapons acquisition, and “outward-looking” regimes (those that are more integrated into the economic world system) and non-acquisition. Although Solingen is explicit in the application of her theory to new nuclear weapon states and not states that acquired weapons prior to the Cold War, it would be an interesting extension to see if her logic applies to more than mere weapons acquisition. An extension of her argument would follow that outward-looking regimes are more likely to restrain or reduce their nuclear
arsenals, while inward-looking regimes might pursue larger arsenals to bulwark their survival.

Another variant of Liberal theory emphasizes the impact of international institutions on state behavior (Keohane, 1984). The NPT is among the most well-known international treaties and it represents the foundation of the larger nuclear nonproliferation regime. Its primary objective is to thwart the proliferation of nuclear weapons by increasing the costs of weapons acquisition (defection) and framing non-acquisition (cooperation) as more advantageous to state security. A secondary objective is to reduce the world’s existing nuclear arsenals. The NPT’s effect on slowing the spread of nuclear weapons has been well documented (Sagan, 2011), but its effect on arsenal size has been more varied. In the specific case of China, it appears as though the NPT is not an overriding factor in its force level decisions.

**Constructivism**

The third theoretical construct to examine is Constructivism. Unlike Liberalism and Realism, Constructivism does not agree with the primacy of the state or with the anarchic nature of the international system in shaping state behavior. Instead, Constructivists see the state as one of many actors able to influence international outcomes, all of which are defined by and shaped by ideas (Wendt, 1992).

While the explanatory power of Constructivism was initially seen as limited to peripheral, non-security issues, recent scholarship has shown that the explanations and predictions offered by Constructivism can apply to security decisions as well—including the development and buildup of nuclear weapons (Katzenstein, 1996). Jacques Hyman’s
2006 research provides a good example. Hyman’s research indicates that a state’s proclivity to acquire nuclear weapons depends largely upon what he calls its “National Identity Conception” (NIC). Hyman finds that leaders who perceive the world in “us versus them” terms and who have developed a superiority complex in regards to other nations are more likely to want to acquire nuclear weapons capabilities. He labels this NIC ‘type,’ “oppositional nationalism.”

Hyman’s findings are echoed in the work of Fravel and Medeiros who also identify leadership ideology as an influential factor, but in the case of nuclear posture (2010). Another study emphasizing the influence of leadership on nuclear weapons acquisition includes Peter Lavoy’s 1993 theory regarding “the myth of nuclear security.” Lavoy argues that some state acquisition decisions are driven by national elites that serve as “nuclear mythmakers,” convincing the state’s decision makers that acquisition is the solution to solving the state’s insecurity and that the state has the political, economic, and technical ability to carry it out.

Perhaps the most well-known Constructivists argument regarding nuclear weapons acquisition and the one that is included in most of the newer quantitative work on the subject is prestige. According to Scott Sagan, prior to the NPT, the nuclear weapon was a symbol of a state’s international importance. In the case of France, specifically, nuclear weapons were seen as a means to restore grandeur (Sagan, 1996-1997). A similar case has been made for nearly all the other nuclear weapon states including Great Britain (O’Neill, 2006), China (Kristof, 1993); India (Betts, 1977); Pakistan (Betts, 1979; Ahmed, 1999), and Iran (Betts, 1979; Krastev, 2009).
Organizational Theory

Another theory used to explain state behavior in international relations is Organizational Theory. Like Constructivism, this theory finds fault in the state-centric views of Neorealism and Liberalism, arguing that a state is not a solitary unit, but is comprised of competing organizational subunits (Allison, 1971). The most often explored dynamic in this theory in regards to security decisions is the level of cohesion or conflict among a state's military and civilian populations. The theory predicts that greater military control will produce more aggressive military policies, including increased nuclear weapons development, and greater civilian control will correspond with military restraint, including nuclear stabilization and/or reductions. As applied to China, recent scholarship indicates an increased differentiation between military and civilian professionals and the preeminence of the state in strategic military decisions (Yuan, 2006; Swain, 2012). As such, this theory would predict that China will prioritize international engagement and cooperation over nuclear aggrandizement.

The theories outlined above provide scholars with useful guideposts to explain state decisions relating to nuclear arsenal size. Yet, theoretical legitimacy comes from predictive power. The table below illustrates the application of each theory to the question examined herein, namely, why China has grown and diversified its nuclear arsenal while its NPT counterparts have pursued nuclear force reductions. Table I illustrates the direction each theory would predict China’s nuclear arsenal to go given the circumstances of the past twenty five years.
Table 1: Theoretical Predictions of China’s Nuclear Behavior

<table>
<thead>
<tr>
<th>Theory</th>
<th>Influencing Variable</th>
<th>Predicted Arsenal Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Realism</td>
<td>External Security Environment (US hegemony + nuclear neighbors)</td>
<td>Increase</td>
</tr>
<tr>
<td>Liberalism</td>
<td>Regime Type (Authoritarian)</td>
<td>Increase</td>
</tr>
<tr>
<td></td>
<td>Level of Interdependence (High)</td>
<td>Decrease</td>
</tr>
<tr>
<td></td>
<td>Regime Orientation (Outward looking)</td>
<td>Decrease</td>
</tr>
<tr>
<td>Constructivism</td>
<td>Leadership Ideology (Deterrence through Assured Retaliation)</td>
<td>Increase</td>
</tr>
<tr>
<td></td>
<td>Prestige (Desire for greater prestige)</td>
<td>Increase</td>
</tr>
<tr>
<td>Organizational</td>
<td>Civil-military relations (Increased differentiation + civil control)</td>
<td>Decrease</td>
</tr>
<tr>
<td>Theory</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Methodology**

The aim of this dissertation is to explain why China’s present nuclear behavior differs from the other NPT nuclear weapon states, and under what circumstances we might expect this behavior to change. International relations theory provides scholars with several competing hypotheses concerning state nuclear behavior. Only a few of these theories accurately predict China’s nuclear arsenal increase, including those that emphasize external security, regime type, ideology, and prestige. I have chosen to test the influence of these variables in the case of China by analyzing a large collection of Chinese sources published over the past twenty-two years (1991-2013). My research
involves a variety of open-source documents, including newspapers, journals, military manuals, conference notes, government white papers, and public speeches.²

Fortunately, due to modern technology, searchable full-text versions of these sources are now available through comprehensive online databases, like the World News Connection (WNC), NewsBank, and China Knowledge Resource Integrated (CNKI) Database. Unlike the Foreign Broadcast Information Service (FBIS), which was once considered the premier online service in open-source data collection and translation, these newer commercial databases and services are designed to serve a wider audience (not just US intelligence) and thus they are less likely to suffer from selection bias (Stockmann, 2010). In addition to analyzing news and journal articles retrieved from these databases, I also include in my dataset other types of media, such as government White Papers and spokesperson remarks retrieved from the Chinese Foreign Ministry website, and public and internal military texts. I also analyze conference notes from various Track 2 and Track 1.5 dialogues provided to me by conference organizers.

The sources chosen for this analysis were purposely selected to represent the perspectives of different actors within China. While State officials in China undoubtedly represent the most authoritative voice in shaping China's nuclear decisions, the realization of necessary cross-sector collaboration has led the state to include more voices

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² Many Chinese studies using the method of content analysis also include Chinese blogs and posts on Chinese Bulletin Boards (BB). These sources have not been included in this analysis, because PLA members and State officials in China are prohibited from owning their own blogs (Jakobson & Knox, 2010) and, to date, the majority of Chinese scholars and experts have chosen not to use this medium to disseminate their research and/or their professional opinion (Carlson & Duan, 2010).
in its nuclear decision making process (Gill & Medeiros, 2000). In fact, recent research reveals a direct correlation between the strategic importance of a decision in China and the number of individuals involved in discussing and deliberating that decision (Cabestan, 2009; Sun, 2013). This means that decisions flow down the chain-of-command from the Chinese President and his national security advisor, which consult daily, to the CCP’s nine-member Politburo Standing Committee, which meets weekly, to the 25-member Politburo, which meets monthly, to the 204-member Central Committee, which meets annually and finally to the National Party Congress which meets every five years and which has over 2,000 delegates.

In cases of the highest strategic importance, actors outside of Party leadership are also consulted, including those from China's State Council. Representatives can be called upon from the Ministry of Foreign Affairs, the Ministry of Public Security, the Ministry of State Security, the Ministry of Commerce, the Office of Taiwan Affairs, the Office of Hong Kong and Macao Affairs, the Office of Overseas Chinese Affairs, the Information Office, the Central Publicity Department, the International Department, and the General

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3 Here and elsewhere I use the term “state officials” or “government officials” to refer to those employed in a decision-making capacity in China’s government, and I equate the Chinese state with the Chinese Communist Party (CCP). The two are, in fact, distinct entities, with different organizational structures and administrative bodies. Yet, nearly all state leaders are CCP members, and the CCP is unequivocally the deciding force in all state policy.

4 The Politburo, Politburo Standing Committee, Central Committee, and the National Party Congress are all organs of the Chinese Communist Party (CCP) and not the state. Yet, due to the unique relationship between the CCP and the Chinese state, these organs serve as the de facto governing authorities. Large decisions typically go to the National People’s Congress (a state body), but they are generally made by the Party and passed to the NPC for execution. The NPC thus represents an impotent force in Chinese decision making.
Staff Department. In matters of national security, officers from the People’s Liberation Army (PLA) and experts from China’s Central Military Commission (CMC) are also consulted and have the ability to influence decisions.

In addition to garnering perspectives from other state officials and military personnel, the CCP also often receives, and sometimes requests information from China’s various research institutions and universities. In the military realm, the primary research institutions of influence include the Academy of Military Sciences, the China Institute for International Strategic Studies, the China Foundation for International Strategic Studies, and National Defense University (Jakobson & Knox, 2010). Though technically administered by the CMC, experts from these institutions do not necessarily have perspectives that align with the position of the CMC. They can, and often do, represent a distinct voice. In fact, the more an individual is perceived to be an expert, the greater license he or she is given for expression. This is also true for Chinese academics (Jakobson & Knox, 2010).

The practice of pluralism in Chinese decision making is partnered with the requirement that all Chinese policy be decided by consensus. According to Chinese President Hu Jintao, this dual focus is meant to “prevent arbitrary decision making by an individual or a minority of people” and to ensure that China’s policies are the product of broad-base deliberation (2007). In acknowledgement of this fact, this dissertation examines data from three different sectors of influence in Chinese nuclear decisions (the

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5 Since 2000, representatives from these ministries were represented in the National Security Leading Small Group—a group formed by the Central Committee to provide additional input and to coordinate decision making efforts in the realm of security.
state, military, and academia) to provide a more multi-dimensional view of the motivations of China’s nuclear modernization. Yet since consensus is an institutionalized feature of China’s decision making, my analysis will focus less on identifying and analyzing individual divergent views if and when they appear and more upon whether or not change appears over time across sectors.

For the state, the literature that is analyzed includes China’s National Defense White Papers (published every two years since 1998) and its White Papers on arms control and disarmament (published in 1995 and 2005). I also include news articles on nuclear strategy and nuclear weapons published by Xinhua, Renmin Ribao, Wenwei Po, Renmin Wang, and Ta Kung Pao as proxies of the state perspective since these newspapers are required to have a government sponsor and are directly subordinate to the Chinese Communist Party’s Central Publicity Department. These sources also increase the overall number of analyzed state material, since their frequency of publication greatly exceeds that of official government White Papers. I’ve taken a similar approach to military document collection, including in my analysis articles published by Jiefangjun Bao (PLA Daily) and select public and internal military publications such as She Zhan (Comprehensive Deterrence), Dier Paobing Zhanyi Xue (The Science of the Second Artillery Campaign), Zhanyue Xue (The Science of Strategy), and Zhanyixue (The Science of Campaigns). Lastly, I also look to represent China’s academic and technical

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6 The increased pluralism in Chinese decision making has led, in some cases, to the involvement of other actors such as business leaders and citizens/netizens. In matters of national security, however, influence from such outsiders is severely limited (Jackobson & Knox, 2010).

7 The military documents cited here vary in their intended audience. Those considered open access are generally available to both domestic and foreign audiences, while those classified as neibu are restricted to domestic audiences only, and those classified as jun nei faxing are restricted further to only Chinese
community. Documents representing this group are easily collected and include nuclear articles published in China’s Core Academic Journals as well as notes of Track 2 and Track 1.5 Dialogues held between US and Chinese nuclear experts.⁸

In an effort to avoid indeterminacy, not every source was cleanly classified as representative of one sector. Instead, in instances where one source contained multiple competing or overlapping voices, I extrapolated individual perspectives and categorized them appropriately. For instance, Chinese news articles sometimes quote Chinese military officials or researchers. In these instances, these quotes are taken as representative of the military or academia and not the state. Similarly, while the majority of Chinese Track 2 and Track 1.5 Dialogue participants hail from China’s research academies; a minority are retired military personnel. In the case that an active or retired military official is quoted or if his or her perspective is conveyed in the conference notes, then it is cited in this analysis as representative of the military perspective.⁹ The sources used for this research are outlined in Table 2.

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⁸While a myriad of Track 2 and Track 1.5 dialogues have taken place between the US and China, only a handful have specifically addressed nuclear issues. Of these, the US-China Strategic Dialogue sponsored by the Pacific Forum, CSIS, the Center for Contemporary Conflict, the Naval Post Graduate School and the Defense Threat Reduction Agency is the only one to consistently facilitate annual exchanges and to publish annual reports. This is the primary series of dialogues referenced in this dissertation since it provides the most data points.

⁹The Track 2 and Track 1.5 Dialogue notes published after each conference do not directly attribute any quotes. Instead, direct quotes or paraphrased statements are preceded by such qualifying statements as “A
Table 2: List of Sources

<table>
<thead>
<tr>
<th>Source</th>
<th>Sector</th>
<th>Original Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>China’s National Defense White Papers</td>
<td>Government</td>
<td>English</td>
</tr>
<tr>
<td>China’s White Papers on Arms Control</td>
<td>Government</td>
<td>English</td>
</tr>
<tr>
<td>Xinhua</td>
<td>Government</td>
<td>English/Chinese</td>
</tr>
<tr>
<td>Renmin Ribao</td>
<td>Government</td>
<td>Chinese</td>
</tr>
<tr>
<td>Wenwei Po*</td>
<td>Government</td>
<td>Chinese</td>
</tr>
<tr>
<td>Renmin Wang</td>
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<tr>
<td>Ta Kung Pao*</td>
<td>Government</td>
<td>Chinese</td>
</tr>
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<td>Jiefangjun Bao</td>
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<tr>
<td>CFIS &amp;CSIS US-China Strategic Dialogues</td>
<td>Academia</td>
<td>English</td>
</tr>
</tbody>
</table>

*These papers are owned by the CCP, but are published in Hong Kong.

Just as source transparency is important, so too is the importance of justifying ones’ methodology and acknowledging the limitations of that methodology in answering the research question at hand. As the title indicates, the primary question of concern in this dissertation is what motivates China’s nuclear modernization. Framed differently, I ask why China’s nuclear modernization looks different than its NPT counterparts. The ideal way to answer this question would be to observe many of the closed door meetings that take place between Chinese state officials during policy formulation. This, however, is generally not an option provided to researchers, especially in areas of such sensitivity as state nuclear weapons strategy.

Chinese military participant said …” or “A Chinese academic said…” Such statements allow me to correctly categorize expressed statements. The corresponding list of participants with each set of published notes confirms the attendance of individuals from both the academic and military sectors.
A valid alternative might be to interview each member of the rule making body or to distribute carefully crafted surveys to determine the weight of various factors in the creation of a specific strategy. Unfortunately, here too, one runs into obstacles, since the authoritarian nature of the Chinese regime generally prohibits such surveys (Carlson, Gallagher, & Manion, 2010). Instead, most researchers studying China who are intent on conducting interviews choose to question individuals employed at China’s non-governmental organizations and/or academic institutions. Such individuals are usually very knowledgeable and open to speaking about more sensitive subjects— including China’s nuclear strategy. At the same time, however, the data collected by such interviews is likely to be reflective of readily available written resources such as the notes from Track 2 Dialogues and published articles in academic and technical journals. In fact, due to the iterative nature of the Track 2 Dialogues and the anonymity provided for participants in the conference summaries, this forum is likely to invoke responses of greater candor than the typical research interview. In addition, it is important to consider the weight of the spoken word relative to text. In a recent report to Congress, for instance, Lawrence and Martin describe China as a “documents based culture,” because the individual interview is never as authoritative as text approved and published by the Chinese Communist Party (2012). This is true at the highest levels. In fact, even the speeches and interviews of Premier Wen Jiabao have been found to be edited ex post to ensure consistency between the Premier’s words and the Party’s message (Lawrence & Martin, 2012).
In a culture where the written word is the penultimate lens through which to analyze the state, content analysis is a logical methodological choice. Content analysis, as defined by Krippendorff, is “a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use” (2013, 24). One of the primary divisions in using this technique is whether one takes a quantitative or qualitative approach. With a quantitative approach, researchers deduce causal links by measuring the frequency of specific words or word groupings in select texts. Qualitative analysis, by contrast, relies upon contextualized readings to reveal new themes or connections in text. Herman Smith (1975) provides another way of characterizing this division; according to him, “qualitative analysis deals with the forms and antecedent-consequent patterns of form, while quantitative analysis deals with duration and frequency of form” (218).

Both methodologies, if employed with rigor, can provide insight into a given problem, yet it is important to understand the benefits and limitations of each method prior to selection. More specifically, while quantitative content analysis can be seen as more systematic and it renders data amenable to statistical analysis, a critique of this approach is that it overemphasizes procedure and sacrifices contextualized meaning and inference. In addition, as a deductive approach, quantitative content analysis is better at testing and confirming established hypotheses than revealing new themes or ideas. Qualitative content analysis, by contrast, is akin to the grounded theory approach which allows themes to emerge organically from the data. This approach is ideal for building theory, because it does not force the data into predetermined categories. At the same
time, though, it can be critiqued for producing results that are less quantitative and cannot be manipulated with statistical tools.

Ideally, a scholar will employ both methodologies in his/her analysis of text, however, in the analysis of Chinese documents, the nature of the language leads most scholars to accept qualitative content analysis as the method of choice. Examples of areas that have been studied using this methodological approach, include China’s Education Policy (Huang & Wiseman, 2011); its East Asian security policy (Li, 2009); its cruise missile modernization (Gormley, Erickson, & Yuan, 2014); its maritime strategy (Sakhuja, 2011); its bilateral arms trade (Makienko, 2004); and its cyber capabilities and strategy (Venusto, 2012), to name a few. Studies of China’s defense industry or policy, in particular, are likely to benefit from this method due to the increased opacity in this sector and the importance of nuanced differences in document structure.

In studying China’s nuclear weapons modernization and buildup, I rely primarily upon qualitative content for three distinct reasons: First, there is the difficulty of applying and testing Western hypotheses generated from the nuclear proliferation literature onto a separate problem exemplified by an Eastern case. A quantitative approach would require that one start with several hypotheses and then build a codebook of words or word-sets to test these hypotheses. In this case, this is difficult, because many of the terms and phrases that the US and China use in the nuclear realm mean different things. This has been rectified, in part, by the recent *English-Chinese, Chinese-English Nuclear Security Glossary*, but large discrepancies still remain. For instance, while one might want to test for the frequency of “limited deterrence” (*youxian weishe*), this word means different
things in English and Chinese (2008, 33). As Chapter 5 will discuss, even the word deterrence (weishe), which is a fundamental word in discussions of nuclear strategy, did not share the same meaning in Chinese and English until relatively recently (2006).

Relatedly, even when terms are analogous, US authors and Chinese authors do not always use words in the same way. In the US, for instance, government documents meant for public consumption are generally very literal so as to avoid misinterpretation. Documents released by the CCP, by contrast, often incorporate metaphorical expressions.¹⁰ One example is the many Chinese words and phrases used to describe the United States. Oftentimes, a Chinese document will not outright name the United States as the perpetrator of unfavorable action, but it will use a known euphemism for the US like “the tiger” (hu). Similarly the word “hegemony” (baquan) is often used to express China’s disapproval of US rule, but it has the benefit of appearing to be a structural critique rather than an outright criticism of the United States. Other times, a document will say that “some countries” are pursuing a certain course of action, but it will not specify which countries it is referring to. In these cases, context is key. If, for instance, an article says that “some countries are actively developing missile defense systems” then it is clear that the article is referring to the United States. Even this, however, is likely too direct, since “missile defense” is also sometimes referred to in metaphorical terms with Chinese authors using words like “shield” (pingbi) and “umbrella” (san) rather than “missile defense,” just as missiles themselves are often referred to as “swords” (jian).

¹⁰ This difference is not to mean that US government is somehow more “truthful” than the Chinese government. While the former may be said to be more transparent and straight-forward in some areas, both states employ strategic ambiguity and keep large amount of information from the public. The difference described here is in regards to how information is conveyed not what is conveyed.
This ambiguity and lexical variation makes accurate quantitative coding extremely difficult.

Lastly, quantitative content analysis is not as well suited as qualitative content analysis to notice and measure the impact of latent content or structure (Kohlbacher, 2006). Unlike the US, China does not publish anything equivalent to the US *Nuclear Posture Review* which directly outlines US nuclear strategy. Instead, it uses its National Defense White Paper to reiterate China’s No First Use policy and highlight the state’s ongoing arms control efforts. This paper does not detail a comprehensive nuclear strategy nor does it deal with China’s nuclear modernization directly. Here and elsewhere, China’s nuclear buildup may be alluded to, but it is not explicitly stated. A logical corollary is that it is also difficult to find direct admissions of what factors drive China’s buildup. Often, rather than a direct causal links between words, insight comes from select omission or from a purposeful reordering of a given sentence, paragraph, or document. These types of things, referred to as “latent content,” are generally not accounted for in quantitative analysis, because it operates on the assumption of uniform and complete empirical patterns. As a result, I have chosen to employ qualitative content analysis for the majority of my analysis, and use quantitative content analysis sparingly in instances where clear terms or linguistic categories exist (see figures 7 and 8).

While caution has been used in interpreting texts, it is important to emphasize one last limitation of content analysis more broadly as applied to Chinese documents. China may be a “documents based culture” as Lawrence and Martin (2012) describe, but this description does not imply that the content being generated is always accurate. In fact,
much of what is produced in China is propaganda. News articles, speeches, white papers, journal articles, and even military manuals are shaped to communicate a particular message to a particular audience and thus certain facts are likely to be obscured and/or omitted. This means that these sources are, at best, an approximation of the author’s true perspective, and any conclusion drawn is likely to be indicative rather than authoritative. This is particularly true in China with sensitive information like its nuclear strategy and nuclear force decisions

This dissertation is structured as follows: Chapter two outlines the empirical evidence on the increase in China’s nuclear arsenal since the end of the Cold War. It outlines, in detail, the quantitative and qualitative changes that have occurred in China's arsenal over the past twenty years and contrasts these developments with the direction taken by other nuclear states during the same time period. Chapter three examines the explanations provided by other scholars to explain this dichotomy - highlighting the necessity of an updated study on the motivations behind China's nuclear force decisions. Chapter four surveys the broader literature on nuclear strategy and outlines a typology of nuclear deterrence strategies that can be used to classify China and other nuclear weapon states. Chapter five explores China's view of deterrence. The subsequent three chapters discuss the primary variables found to influence China's nuclear deterrence strategy and force structure, including China’s international security environment, its regional security dynamics, and its desire to attain international prestige. Chapter Nine provides evidence on commanding constraints of Chinese nuclear policy. The dissertation ends with chapter
ten, which provides an assessment of which theoretical framework best explains China’s nuclear strategy and nuclear structure decisions.
CHAPTER TWO: FORCE STRUCTURE VARIANCE

The modernization of nuclear forces is a common imperative across nuclear powers, and the NPT nuclear weapon states are no exception. All five of the NPT nuclear weapon states have plans to modernize their nuclear forces. The difference in their modernization plans, however, is that the United States, Russia, Great Britain, and France are all modernizing an increasingly smaller nuclear force, while China is modernizing and growing its nuclear force. This chapter details the empirics behind this variance, providing a brief cross-case narrative of the longitudinal qualitative and quantitative nuclear force decisions of the United States, Russia, Great Britain, and France and contrasting this with the alternate modernization path of China.

The United States and Russia

The world’s first atomic bomb was produced by American scientists under the aegis of the Manhattan project in 1945. The perception at the time was that if America did not build a nuclear device, Germany would –and to devastating effect. This perception was later revealed to be incorrect and America enjoyed a brief nuclear monopoly before the testing of the Soviet bomb in 1949. After this test, a superpower arms race ensued, lasting roughly three decades and producing a total of 30,000 nuclear warheads.
In addition to warhead development, the US and Soviet Union also designed and produced a variety of delivery vehicles, including intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), and missiles delivered by bomber. This so-called “nuclear triad,” was envisioned by both countries as a structural requisite for assured nuclear deterrence. It was also justified in terms of providing the state with a range of strategic striking options in case of a nuclear crisis. In addition to triangulating delivery methods, the US and Soviet Union also developed the technology to load multiple warheads onto a single ballistic missile. This weapon, referred to as Multiple Independently-Targetable Reentry Vehicle (MIRVs), made it possible to destroy multiple targets with one missile while also making interception more difficult.

Eventually, the economic costs associated with the rapid buildup of nuclear weapons caused both countries to reevaluate their security situation. Though neither country wanted to unilaterally halt its weapons production, cooperation seemed preferable. Conversations on establishing a joint weapons ceiling began in earnest on November 17, 1969 and lasted two and a half years. The Strategic Arms Limitation Talks (SALT) Interim Agreement became the final product. This agreement effectively froze the number of strategic ballistic missile launchers for both powers and required that the development of new SLBMs be coupled with a complementary dismantlement of other older ICBMs or SLBMs.

SALT I was shortly followed by a bilateral agreement between the US and Soviet Union to limit intermediate range nuclear forces (INF) in 1987. More specifically, the treaty eliminated all ground launched ballistic and cruise missiles with ranges between
500 and 5,500 kilometers (a total of 2,692 missiles). Though the INF Treaty did not encompass strategic systems, it did set several important precedents, including the reduction of weapons through system elimination and verifying elimination through inspection. These precedents helped set the ground work for the Strategic Arms Reduction Treaty (START I) signed in 1991.

Taking nine years to negotiate and containing 19 articles, 7 protocols, and 140 agreed statements, START I provided the world’s two superpowers with an in-depth manual for how to safely and effectively pursue parallel nuclear arms reductions. Once signed, it also constituted a promise between the US, Soviet Union, and the international community. In seven years time, they would each cut down to 1,600 strategic nuclear delivery vehicles (SNDVs) and 6,000 deliverable warheads. According to Gorbachev, this would be the first step to dismantling the “infrastructure of fear” that had been constructed during the Cold War. The second step came in the form of the Strategic Offensive Reductions Treaty (SORT). Signed the following year, SORT lowered the ceiling on deliverable warheads even further, from 6,000 to a maximum of 2,200.

Concomitant with these bilateral commitments, both the US and Russia pursued unilateral disarmament. Under the Presidential Nuclear Initiative issued by Presidents George H.W. Bush, for instance, the US agreed to eliminate all nuclear artillery shells and short range ballistic missiles from its nuclear force. It also collected the tactical nuclear weapons that had been distributed across US surface ships, attack submarines, and aircrafts. The Soviet response, which also took the form of a Presidential Nuclear Initiative, saw a similar undertaking, with Russia destroying all nuclear artillery shells,
nuclear mines, and tactical nuclear warheads atop missiles and removing tactical nuclear weapons from its surface ships, submarines, and some ground-based naval aircraft (Beach, 2004). In addition, Russia, with the help of the US, also collected and secured nearly 500 strategic nuclear weapons residing in Kazakhstan, Ukraine, and Belarus.11 These efforts led to a 75 percent reduction in US and Russian tactical forces (Beach, 2004). They also set the groundwork for negotiations on a subsequent treaty.

The New START treaty, signed in February 2010 by Presidents Barack Obama and Dmitry Medvedev, requires each state to decrease their strategic delivery systems from 1,600 to 700 and their deployed warheads from 2,200 to 1,550 by 2018. Russia met these requirements within three years of signing the treaty. Experts expect Russia to continue with unilateral reductions – cutting an additional 600 SNDVs and 92 warheads from its force by 2020 (Medvedeva, 2013). In contrast to Russia, the United States has not yet met its treaty obligations. At present, its force includes 792 SNDVs and 1,654 strategic nuclear warheads. However, the conversation has already begun regarding the possibility of pursuing additional reciprocal reductions prior to the 2021 deadline of New START to bring the US and Russian arsenals down to somewhere between 1,100 and 1,000 warheads each (United States Department of Defense [USDOD], 2010).

To date, the primary focus of the bilateral arms agreements that have gone into force has been the quantitative reduction of strategic nuclear weapons. Qualitative restrictions have been secondary. The qualitative guidelines provided by START I and

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11 At the outset, Russia, Kazakhstan, Belarus, and Ukraine were all parties to START I, although the latter three were considered non-nuclear states after eliminating nuclear facilities and relinquishing all nuclear weapons to the Russian Federation.
New START include a 3,600 MT throw-weight ceiling for ICBMs and SLBMs, a limit on throw-weight increases for existing vehicles, a prohibition on additional heavy ICBM development, a limit on the number of warheads per missile, and a rule against converting ICBM or SLBM launches to anti-ballistic missile launchers and vice-versa.\footnote{The restrictions on throw-weight and heavy missiles were exclusive to START I and only impacted Russia, since Russia’s throw-weight at the time of signing START I exceeded the 3,600 metric tons, and it had already produced a heavy ICBM.} These restrictions, in addition to the 1992 test ban on nuclear weapons (which was not ratified but was tacitly accepted), slightly curtail the development of new nuclear systems, but they do not greatly impede a state’s overall nuclear modernization. As a consequence, the United States and Russia have been able to gradually modernize their nuclear forces at the same time that they have pursued force reductions. The paradoxical joint pursuit of modernization and force reductions is made possible by both states simultaneously updating nuclear delivery models while retiring a larger number of older systems.

Russia, for instance, retired three of its oldest silo-based ICBMs and replaced these with new road-mobile ICBMs in 1997. Its most recent modernization project includes replacing its single-warhead road-mobile Topol missile with the new MIRVed RS-24 Yars missile. Two additional ICBMs are also under development, though few public details are available regarding their capabilities (Podvig, 2011). At the same time that Russia is upgrading its land-based missile system, it is also overhauling its strategic bomber force to include a new-generation strategic bomber known as a PAK DA. Russia’s sea-based deterrent is also undergoing modernization, as its Typhoon-class
submarines, which entered service in the 1980s, are now being replaced by the new Borei-class SLBM, designed to carry up to 16 nuclear-armed MIRVed Bulava missiles, each of which can carry up to 6 warheads (Podvig, 2011).

Russia's modernization efforts and the efforts of other nuclear weapon states have caused many US Senators to call for similar action (Turner, 2012; Corker & Inhofe, 2013; Fisher, 2013; Kyl, 2013). Current US policy prohibits the development of new nuclear weapons systems, but this does not altogether stop modernization. Instead, US nuclear modernization takes place under the aegis of the “Stockpile Stewardship Program” and “Life Extension Programs” (LEPs). These programs require US engineers to repurpose nuclear components of older systems to create an updated weapon. While these new weapons cannot, by law, introduce new nuclear capabilities, in actuality, the final weapons products of some LEPs differ substantially from their initial design. Historical examples include the upgrade of the B-61 bomb in the 1990s to the refashioned B-61-11 with earth-penetrating capability and the complete overhaul of the 450 Minuteman III. Current US LEPs include updates to the B52 and B52H bombers, rebuilds of the Minuteman III ICBM and Trident II SLBM, and the reconstruction of new Long Range Penetrating Bombers, Air-Launched Cruise Missiles and Submarine Launched Ballistic Missiles.

**Great Britain**

Unlike the United States and Russia, which rely upon a nuclear triad of land-based ballistic missiles, submarine launched ballistic missiles, and strategic bombers, Great Britain relies solely upon a sea-based deterrent. More specifically, Great Britain’s
force now consists of four Vanguard class nuclear-powered ballistic missile submarines (SSBNs) leased from the American government and loaded with a total of 160 operationally available nuclear warheads. This is down from a peak of 520 warheads in the 1970s. From 1989 until 1997, the UK voluntarily dismantled its WE-177 free-fall bombs and WE-177C nuclear depth bombs. These changes were followed in July 1998 with the Strategic Defense Review, which decommissioned the rest of the country’s bombers and reduced the remaining nuclear missiles carried by British SSBNs from 96 to 48 per vessel. It also required that the Trident missiles aboard ships be de-targeted (Freedman, 2009). The subsequent Strategic Defense Review, published in 2010, mandated additional force reductions by decreasing the carrying capacity of each SSBN from 48 to 40 operational nuclear warheads. The fulfillment of these terms will bring Britain’s total operational warheads to 120, with a total arsenal of no more than 180 warheads.

Even with a minimal force, Britain has found it imperative to continuously upgrade its nuclear warheads and delivery systems. By 2002, for instance, it had replaced all its Chevaline warheads with the upgraded Trident and replaced its Polaris SSBN with a quieter Vanguard class submarine. One of the most recent upgrades in Britain’s missile force has been the reworking of the Arming, Fusing, and Firing System (Mk4) on the Trident D5 missile. This advance enables the missile to better destroy hardened targets (Kristenson & Roberts, 2011). Britain’s future modernization plans include transitioning from the D5/Mk4a to a warhead similar to the US W76 with an even more advanced Mk4 system. There are also conversations taking place as to when and how to introduce a
successor missile and submarine into the British force, although a consensus on this issue has not yet emerged (Kearns, 2011).

**France**

Like the UK, France has also taken unilateral steps toward nuclear disarmament. In fact, it is the only nuclear weapon state to have completely dismantled its nuclear test facilities and to have invited international inspectors to monitor and verify their obsolescence (Sarkozy, 2008). It has also dismantled its ground-based nuclear missiles and cut its entire nuclear force in half since the end of the Cold War. Most recently, following President Nikolas Sarkozy’s 2008 promise, it has reduced its air-based deterrent by one third. These unilateral reductions have left France with 290 operationally available nuclear warheads deployed across 20 Mirage 2000N K3 bombers, 20 Rafale F3 bombers, and four Triomphant-class SSBNs.

This force, while leaner, is more sophisticated than France’s historic force, and even though there are claims of additional reductions, it is likely that such efforts will be paired with significant force modernization. Already, over the past two decades, France has replaced its air-to-ground cruise missile, the ASMP, with the longer range ASMPA. Additional modernization plans include the replacement of the Mirage 2000N K3 with the Rafale 3, the transition from the SSBN M45 missiles to the longer range, more accurate M51, and the introduction of the new Tete Nucleaire Oceanique warhead on M51 missiles (Kile, Schell, Kristensen, Fedchenko, Glaser, & Mian, 2012).

The nuclear forces of France, Great Britain, Russia, and the United States look very different than they did twenty years ago. They are more advanced, but they are also
much smaller. Figures 1 and 2 below illustrate trends in force composition and reductions in the US, Russia, Great Britain and France since the end of the Cold War.\textsuperscript{13}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{us_russia_warheads.png}
\caption{US and Russian Strategic Warheads, 1991-2012}
\end{figure}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{french_british_warheads.png}
\caption{French and British Strategic Warheads, 1991-2012}
\end{figure}

\textsuperscript{13} Figure 1 does not include tactical nuclear weapons held by the US and Russia.
China

Unlike the other NPT nuclear weapon states, China does not generally release any quantitative information regarding its nuclear weapons stockpile or operationally available nuclear weapon systems (Patton, Podvig, & Schell, 2013). This makes it much more difficult to accurately assess the Chinese inventory. This fact was highlighted in 2004 when the Chinese government released its first and only official statement relating to the size of its nuclear arsenal. While the statement did not provide specifics, it nonetheless provided enough information for many to recalculate China’s presumed nuclear weapons total. Others used the statement as a baseline to begin annual estimates of China’s force. Today, the US Department of Defense (DOD), the Stockholm International Research Peace Institute (SIPRI), the International Institute of Strategic Studies (IISS), and the Bulletin of the Atomic Scientists, all publish regular assessments of China’s nuclear force.\(^\text{14}\)

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\(^{14}\) SIPRI and IISS provided estimates of China’s nuclear force prior to 2004; however, analysts in both organizations recalculated their totals in 2005 and 2006 based upon the 2004 Chinese Foreign Ministry statement and the published DOD report. The DOD report also marked the beginning of the Bulletin’s assessments of China’s force. The National Resource Council is another source often cited by scholars, but it is not used here, because it has not updated its estimates of China's arsenal since 2002.
Although the numbers vary by year and by source, there is a uniform consensus regarding the upward trend of China’s nuclear arms development.\textsuperscript{15} The increase in China’s nuclear force aligns with the increase in China’s military budget over the past two decades.\textsuperscript{16} Today, China is second only to the United States in military spending, with an annual budget exceeding US$115 billion. Of this, China is estimated to spend between US$4.5 and $9 billion annually on the development, procurement, testing, and maintenance of its nuclear weapons (Zhang, 2012).

Numbers, however, do not tell the whole story, as China’s Defense White Papers repeatedly emphasize that the quality of military weaponry is given first priority.

Professor Hu Side, the former president of the Chinese Academy of Engineering Physics,

\textsuperscript{15} Discrepancies in China’s force totals among sources are primarily due to differences in expert opinion as to whether or not to include air-delivered nuclear weapons in China’s force total. Though China does not have an aircraft exclusively dedicated to the delivery of nuclear weapons, it is believed that several of its aircraft may be nuclear configured and available for contingency missions. This belief is a consequence of China’s use of the H-5, H-6, and Qian-5 aircraft to test nuclear bombs in the 1960s and 1970s.

\textsuperscript{16} China’s defense budget has risen exponentially in absolute terms, but has not risen as a percentage of its GDP.
further explains, “China’s nuclear modernization is impossible and unnecessary to be accomplished through [the] simple increase of the number of nuclear weapons” (Zhang, 2012, 17). The variance investigated here is thus not merely numeric, but also includes China’s increasingly diverse force structure, including upgraded submarines and sea-launched ballistic missiles (SLBMs), and more advanced road/rail mobile, solid-fueled intercontinental ballistic missiles (ICBMs). Figure 4 illustrates how China’s force composition has changed throughout its nuclear history. Figure 5 provides more information such as the change in China’s missile range and yield overtime.

Figure 4: Deliverable Chinese Warheads, 1964-2013

This graph illustrates only deliverable warheads based upon SIPRI estimates of when certain Chinese nuclear delivery systems were said to be operational. This graph does not account for the additional 60 nuclear warheads that are believed to be in storage.
China is modernizing, diversifying, and increasing its nuclear force with the aim to have a capable and credible nuclear triad. Historically, the majority of China’s missile delivery systems has been stored in caves or silos and has been propelled by storable liquid fuel kept in separate tanks (Polk, 2005). Over the past two decades, however, China has reduced its vulnerability by building underground missile storage tunnels and command-control centers and adding road-mobile, solid-fuel ballistic missiles to its nuclear force. China’s newest nuclear weapon systems include the Dong Feng 31 and 31A Intercontinental Ballistic Missiles. China is also believed to be developing the ability to suit one missile with multiple warheads, creating a Multiple Independently-Targetable Re-entry Vehicle (MIRV). Upon deployment, this missile would quintuple the amount of warheads China could send to the continental United States (from 20 to 100) (USAF, 2009).
Complicating the picture further (and arguably causing the greatest alarm) is China’s advancement of the country’s sea-based forces. SLBMs enable nations to have a stronger second-strike capability due to the prolonged submersion time of SSBNs and the difficulty in tracking their whereabouts. Reliable SSBNs can stay submerged undetected for several weeks or even months at a time, making it incredibly difficult for an aggressor to pinpoint their coordinates. According to one report, "they are like a dragon in the deep sea and seldom seen" (Zhen, 2001). This makes them the crown jewel of the nuclear realm. Yet, not all SSBNs are created equal. China’s previous SSBN, the Xia, for example, meant to carry 12 JL-1 missiles, never completed a combat patrol. Instead, much to China’s chagrin, it stayed in port the majority of its existence. This was due to the Xia experiencing significant technical difficulties throughout its development including inadequate hull welding, inaccurate gravity and buoyancy calculations, and late torpedo development, to name a few (McConnaughy, 2005).

Though China’s initial experience developing the Xia was difficult, the reasons for these earlier trials are no longer present (i.e. political turmoil, reliance on foreign assistance, dearth of indigenous technological capacity, etc.) Today, China has a much larger pocketbook, a more stable and supportive governing body, and a more robust scientific community. These factors have enabled China to develop three new Type 94 Jin-Class SSBNs with the capacity to carry up to 12 JL-2 missiles each. In contrast to its predecessor, the Type 94 vessel contains indigenously created systems and systems procured from Russia that enable it to patrol the waters undetected. Additionally, the JL-2
missile it has aboard has a much longer range than the JL-1, reaching 7,500 km (Zhang, 2012).\(^{18}\)

Experts expect that China is also developing a Type 96 Jin-Class vessel, bringing its SSBN total up to five in the next ten years (Kristensen, 2007). Table 3 lists the present level of China’s nuclear arsenal, including the delivery systems mentioned above and the number of warheads each class of weapon is presumed to carry. Since it has not yet been confirmed that China has MIRV capability, the table below assigns one warhead to each missile.

\(^{18}\) While it has not yet been confirmed that the JL-2 and Type 94 Jin-Class SSBN are operational, multiple tests of these systems have been confirmed (Global Security Newswire [GSN], 11 Jan, 2012; GSN, 29 March, 2013).
Table 3: China’s Strategic Nuclear Forces, 2013

<table>
<thead>
<tr>
<th>Chinese Classification</th>
<th>U.S. Classification</th>
<th>Year first deployed</th>
<th>Fuel type</th>
<th>Range (km)</th>
<th>No. of operable missiles/warheads</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Land-Based</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DF-3A</td>
<td>CSS-2</td>
<td>1971</td>
<td>Liquid</td>
<td>3100</td>
<td>~8</td>
</tr>
<tr>
<td>DF-4</td>
<td>CSS-3</td>
<td>1980</td>
<td>Liquid</td>
<td>5500</td>
<td>~12</td>
</tr>
<tr>
<td>DF-5A</td>
<td>CSS-4</td>
<td>1981</td>
<td>Solid</td>
<td>13000</td>
<td>20</td>
</tr>
<tr>
<td>DF-21</td>
<td>CSS-5</td>
<td>1991</td>
<td>Solid</td>
<td>2100</td>
<td>~80</td>
</tr>
<tr>
<td>DF-31</td>
<td>CSS10 Mod1</td>
<td>2006</td>
<td>Solid</td>
<td>&gt;7200</td>
<td>~8</td>
</tr>
<tr>
<td>DF-31A</td>
<td>CSS10 Mod2</td>
<td>2007</td>
<td>Solid</td>
<td>&gt;11200</td>
<td>~20</td>
</tr>
<tr>
<td><strong>Sea-Based</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JL-1</td>
<td>CSS-N-3</td>
<td>1986</td>
<td></td>
<td>&gt;1770</td>
<td>?</td>
</tr>
<tr>
<td>JL-2</td>
<td>CSS-NX-14</td>
<td>2011</td>
<td></td>
<td>&gt;7200</td>
<td>?</td>
</tr>
<tr>
<td><strong>Aircraft</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H-6</td>
<td>B-6</td>
<td>1965</td>
<td></td>
<td>3100</td>
<td>~20</td>
</tr>
<tr>
<td>Fighters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>~20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>~190</td>
</tr>
</tbody>
</table>

This chapter has outlined the variance in nuclear force levels between the US, Russia, Great Britain, France, and China since the end of the Cold War. It has also attempted to tell the story behind the numbers, outlining the shifting force structures of the NPT recognized nuclear weapon states and the common undercurrent of force modernization. Together, these narratives indicate that China has taken an alternate path than its NPT counterparts. Not only is its force-size growing, but the structure of its force

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19 Table adapted from Table 6.6 in (Kile, 2013).
20 Independent estimates of China’s nuclear force vary in their inclusion of China’s JL-1 and JL-2 nuclear missiles. Technically, 12 JL-1 missiles are assigned to the Type 092 Xia-Class SSBN, and 36 JL-2 missiles are assigned to the Type 094 Jin-Class SSBN, for a total of 48 nuclear SLBMs. However, conservative analyses exclude both the JL-1 missiles and the JL-2 missiles, since it is unknown if either vessel is fully operational.
21 Although it is generally believed that China does not have an aircraft dedicated exclusively to the delivery of nuclear missiles, it is thought that a number of Hong-6 (H-6) bombers and Qian-5 attack aircraft have been configured to deliver either conventional or nuclear missiles, since China conducted nuclear tests in the 1970s and 1980s using the H-6. Upward estimates of China’s nuclear arsenal indicate that China has as many as 20 warheads assigned to missiles on the H-6 and 20 warheads assigned to missiles on the Qian-5 or other attack aircraft, for a total of 40 operationally available nuclear warheads.
is shifting from a small nuclear force of medium/intermediate range nuclear weapons to a more diversified force comprised of conventional short/medium range weapons and nuclear medium/long range weapons. It is also expanding the modality of delivery by adding credible sea-based weapons. These changes are logical outputs of a shift in the state’s nuclear strategy. The next chapter explores the existing literature related to China’s nuclear strategy, and more specifically, details the ongoing debate among Chinese and Western scholars regarding minimum and limited deterrence.
CHAPTER THREE: DEBATES ON CHINA’S NUCLEAR STRATEGY

China is often considered the most opaque of the nuclear weapon states, because of its silence on the funding of the Second Artillery Force, stockpile size, force structure, and fissile material holdings. Fortunately, rather than stymie academic research, this relative dearth of information has spurred curiosity and compelled scores of scholars to probe more deeply for answers. Such academic expeditions have resulted in two competing theories regarding China’s nuclear strategy. The first school of thought contends that China has held the most consistent nuclear strategy of all the nuclear weapons states. This school believes that China’s nuclear force structure reflects its commitment to a strategy of minimum deterrence and that fluctuations in its force size and structure over time are the result of changing calculations of what constitutes a credible minimum. The second school of thought argues that while China might have maintained a strategy of minimum deterrence at the beginning, the changing security environment and the increased number of external threats China faces has caused China to shift its strategy to limited deterrence. Scholars on this side of the debate argue that the Chinese leadership is no longer satisfied with relying upon a small, survivable nuclear deterrent, and it wants to build a force capable of taking action in the event that deterrence might fail.

22 The only exception would be Israel, but since Israel has not declared that it has nuclear weapons, it is not technically classified as a nuclear weapon state.
This chapter outlines the contours of this debate and highlights its significant contributors. It also highlights the necessity of research based upon more diverse and recent sources of information. Research on Chinese views of deterrence is important, because it directly shapes China’s nuclear force decisions. More specifically, the answer to the question of why China is increasing and modernizing its nuclear arsenal while other recognized nuclear states are doing the opposite differs depending upon which nuclear strategy China has chosen to employ.

**Minimum Deterrence**

Minimum deterrence, as explained by Johnston, is anchored by the belief that effective deterrence hinges upon a state’s “ability to carry out a simple, undifferentiated countervalue second strike” (1995-1996, 18). This strike, he explains, does not require that a state match its adversary’s nuclear capabilities, but only that a state possess enough nuclear weapons for a few warheads to survive a first strike and be able to strike back against several of the enemy’s high-value civilian targets. In effect, “the adversary’s people and social wealth are held hostage, and the fear of unacceptable damage deters any first strike” (1995-1996, 18). This remains the essential concept of minimum deterrence. By extension, this means that a state will agree only to use its nuclear force for retaliatory purposes, it will only target non-military targets, and it will possess a small nuclear arsenal suited to achieve these aims (i.e., survivable weapons that can be delivered to enemy territory). Many scholars, both in and outside of China, argue that these characteristics describe China’s present nuclear strategy (Lewis & Xue, 1988; Xue, 1995; Hua, 1998; Sun, 2005; Lewis, 2007; Chu & Rong, 2009; Kulacki, 2011). The
evidence cited in support of this conclusion includes the historic development of China’s nuclear weapons program, the declaratory policy of the state, the technological limitations of the Chinese nuclear force, and the ongoing aspirations of China in other areas of foreign policy.

**History**

Although China did not codify a nuclear strategy in the early years of its force development, there was not an absence of commentary on the subject—especially from Chinese Communist Leader Mao Zedong. One of the most cited phrases coined by Mao is his characterization of nuclear weapons as “paper tigers” in 1947. This statement was originally interpreted as an indictment against the West and a denunciation of the utility of nuclear weapons. This understanding was challenged, however, when China tested its own nuclear bomb seventeen years later. Mao's explanation? “It is possible for our country to produce a few atom bombs, but we are not going to use them. Why would we want to produce them if we are not going to use them? We will use them as defensive weapons” (Zhu, 1997, 44). A similar sentiment was expressed by China’s first premier Zhou Enlai when he said, “Only when we possess strategic missiles and nuclear weapons can we not have to use missiles and nuclear weapons. If we don’t have missiles, imperialism surely will use missiles” (Xue, 1995). Mao and Zhou’s words point to China’s acceptance of the *political* utility of nuclear weapons, as opposed to their military utility. They were letting the world know that, as a new nuclear weapon state, China did not intend to follow the nuclear trajectories of the Unites States and Soviet Union, but that it would follow its own path.
The guideposts along this path, as outlined by Lewis & Xue (1988), include: agreeing not to use nuclear weapons first, restraining from the development of tactical nuclear weapons, focusing more on the quality of strategic weapons rather than the quantity, maintaining a diverse nuclear force, prioritizing civilian targets, and preparing to recover quickly from a nuclear war. These “seven principles” were taken from the statements of Mao in the 1960s and 1970s, and are echoed in the words of other influential figures in China’s nuclear history, such as the head of China’s nuclear weapons program Nie Rongzen and later CCP Chairman Deng Xiaoping.

**Declaratory Policy**

The statements of Mao, Nie, and others are beneficial in elucidating elements of China’s nuclear strategy at a time when little other information was available and the comments of China’s leaders were tantamount to state policy. This changed when China began publishing its Defense White Papers in 1995. These papers provided the official perspective of the state, as opposed to the view of one leader. Indicating the importance of nuclear issues at the time and the pressure China was under from the international community, the state's first White Paper focused exclusively on arms control and disarmament. China explained its position by saying:

As early as 1963, the Chinese government issued a statement calling for the complete, thorough, utter and resolute prohibition and destruction of nuclear weapons. China has persistently exercised great restraint in the development of nuclear weapons and its nuclear arsenal has been very limited. It has developed nuclear weapons for self-defense, not as a threat to other countries. It has not joined and will not join in the nuclear arms race and has consistently maintained restraint over nuclear testing.
This paper was followed two years later in 1998 by the publication of China's first comprehensive assessment of its national defense policy. A total of eight of these papers have been published to date, each of which includes a section on China's Second Artillery Force. These papers present a reverberating chorus praising China's decision to maintain a minimal nuclear arsenal. They also repeatedly emphasize China's decision not to use nuclear weapons first, not to entertain an arms race, not to use nuclear weapons in the arena of war, and not to deploy forces outside of its territory. Alongside such contestations, there are words advocating for the state's defensive military orientation, delayed nuclear response, and the elimination of nuclear weapons world-wide. Together, these points form the refrain that has become the undercurrent of the academic argument for categorizing China’s nuclear strategy as one of minimum deterrence.

**Technological Limitations**

While China's nuclear history and its declaratory policy are strong areas of evidence in classifying China as a minimum deterrence state, the strongest evidence in support of this argument is the continued technological limitations of China’s nuclear force. This is a point made by virtually every minimum deterrent scholar. Even though China has never published quantitative data on its nuclear arsenal, outside analyses indicate that China now has 240 nuclear warheads, 150 of which are paired to operational delivery vehicles (Kristensen & Norris, 2013). These vehicles traverse land, sea, and sky. Sixty have a range that enables them to strike US territory. 23 Yet, to fulfill the objectives of limited deterrence (ie war-fighting and the denial of victory), a limited nuclear triad is

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23 These include 12 DF-4s, 8 DF-31s, 20 DF-5As and 20 DF-31As. Only the latter two, the DF-5As and DF-31As, can reach the continental US. For more information on these weapons, see Table 3.
not enough. A state would need to also possess tactical, or short-range nuclear weapons, since these weapons are seen as vital to nuclear battle. There has been continued debate on this issue, but, in general, most scholars argue that there is no solid evidence to confirm that China possesses tactical nuclear weapons (Ferguson, Medeiros, & Saunders, 2003; Chu & Rong, 2009; Lewis, 2009). There is also no evidence to indicate that China’s missiles and warheads are mated or stored together for quick launch, another prerequisite of a war-fighting strategy. These two perceived facts have led scholars to believe that China’s force is meant to fulfill the limited mission of minimum deterrence and nothing more.

In this light, China’s modernization efforts are explained in terms of satisfying the three criteria of minimum deterrence: survivability, deliverability, and penetration. The switch from liquid-fuelled missiles to solid-fuelled missiles and the transition to more mobile missiles are seen to advance the sin quo non of minimum deterrence—force survivability. The addition of SLBMs can also be seen as advancing this objective, since the sea provides an abyss in which missiles can effectively disappear from enemy sight. Deliverability, especially in the case of the United States, is enhanced by China's production of longer-range missiles such as the DF-31A. Lastly, China's MIRV development, while not confirmed, can be easily explained as an effort by China to anticipate the difficulties of penetrating US missile defense.

These changes have resulted in a gradual increase in the overall size and capability of China’s nuclear force over the past two decades. Scholars of minimum deterrence stress that these changes only enhance China's ability to retaliate by launching...
a limited nuclear counter-strike. They do not enable China to engage in a nuclear war.

This interpretation of China’s intentions, scholars argue, is also more in line with China’s broader foreign policy objectives.

**Foreign Policy**

The state inherited by CCP Chairman Deng Xiaoping was one long acquainted with war. Under Mao ZeDong's leadership, millions engaged in war against the Japanese and fought against the Kuomintang for the CCP to seize power. After the establishment of the Communist state, the death toll rose as Mao's agricultural innovations caused millions to die from famine.\(^{24}\) The times of Deng Xiaoping, by contrast, were less turbulent. His leadership took place under a new historic reality in which the People's Republic of China had become a durable player in the global arena. As a consequence, his focus was on increasing China's stature among the world's states. While military might could have been an avenue in which to achieve this aim, Deng preferred to pursue the path of "peaceful development" (*heping fazhan*), allowing China to enter into and participate in the global economy.\(^{25}\) From that point forward, China's economic ascendance has advanced, contributing to China's rising world stature and its continued political stabilization. More money has also allowed China to increase its military and grow its nuclear forces - enhancing the state's comprehensive national power. Yet, Deng and his successors have repeatedly emphasized that this power should not be seen as

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\(^{24}\) The collective death toll of the Second Sino-Japanese War and Chinese Civil War is 26.2 million (Leitenberg, 2006; Anderson, 2011). The Great Leap Forward resulted in an estimated 45 million casualties (Dikotter, 2010).

\(^{25}\) The phrase "peaceful rise" preceded "peace and development" but quickly fell into disfavor with the Chinese government as the word "rise" was seen as a potential threat to the status quo (Shambaugh & Ren, 2012).
threatening the status quo, but as a significant contributor to the construction of a "harmonious world" (hexie shijie). As Hu Jintao explained to the 17th Party Congress:

> Historic changes have occurred in the relations between contemporary China and the rest of the world, resulting in ever closer interconnection between China's future and destiny and those of the world. Whatever changes take place in the international situation, the Chinese government and people will always hold high the banner of peace, development and cooperation, pursue an independent foreign policy of peace, safeguard China's interests in terms of sovereignty, security and development, and uphold its foreign policy purposes of maintaining world peace and promoting common development (Hu, 2007).

In this light, arguments that China is transitioning to a more aggressive nuclear strategy seem at best inconsistent, and at worst, directly opposed to the state's broader foreign policy objectives.

An extension of the foreign policy argument examines China's multilateral commitments to arms control. Does China, for instance, accept constraints on its nuclear behavior in exchange for the perception that it is a responsible global stakeholder? Does its interconnected view of the world directly shape its nuclear policy? Does it see minimum deterrence as a platform for peace? The answer, scholars argue, is yes. While China was at one time reticent to participate in the global arms control regime, its actions over the past two decades demonstrate a stark departure from this position. Moreover, the language Chinese leaders use in multilateral agreements and in multilateral negotiations seem to depict a state underwhelmed with the military utility of nuclear weapons and in support of eventual global disarmament.

The analysis of China's multilateral arms control commitments constitutes its own area of scholarship (Johnston, 1996; Zhu, 1997; Gill & Medeiros, 2000), but it also has

China has also been an active member of the International Atomic Energy Agency since 1984, the Zangger Committee since 1997, and the Nuclear Suppliers Group since 2004, as well as the Conference on Disarmament, which continues to consider the Fissile Material Cut-off Treaty and the Treaty on the Prevention of an Arms Race in Outer Space. China has also more recently shown to be a solid partner in the battle against nuclear terrorism, co-founding the General Initiative to Combat Nuclear Terrorism in 2006 and signing a Memorandum of Understanding with the United States in 2005 and 2011 authorizing the construction of radiation detection stations on the Chinese coast.

The recent agreement between the United States and China concerning the establishment of a China-based Center of Excellence on Nuclear Security is yet another example of China’s public commitment to nuclear security, as it is meant to promote the exchange of best practices between the National Nuclear Security Administration, the Department of Defense, and the China Atomic Energy Authority.
Some argue that these multilateral and bilateral commitments as well as China’s unilateral commitment to a No First Use (NFU) policy and Positive and Negative Security Assurances paint the picture of a country that has calculated the costs and benefits of international cooperation and has valued international nuclear cooperation over nuclear defection (Medeiros, 2007). Minimum deterrence, in this explanation, is seen as the necessary condition for international cooperation and a seat at the table in a new global order.

**Critiques**

History, declaratory policy, technological capabilities, and foreign policy are the common pillars used to support the majority of the scholarship on minimum deterrence. Yet, these arguments are not beyond reproach. One critique of this literature, for instance, is the potential disjuncture between the state’s diplomatic position and the state’s actual military strategy. China's assemblage of white papers serves as a direct affront to claims of the state's opacity. It has even led some, such as Chinese Foreign Ministry Spokesperson Hong Lei, to boast that China has "the most transparent nuclear strategy among nuclear [weapon] states" (Foreign Ministry, 2013). Yet Hong and many scholars on this side of the argument conflate two distinct concepts: declaratory policy and strategy. An argument built upon only state sources such as Hua Hongxun's article (1998), have the potential to unravel if one realizes that the state's policy does not reflect its military strategy—a situation that has occurred other times in history (Sagan, 1979).\(^\text{26}\)

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\(^{26}\) Hua’s article was the first published rebuttal of Johnston’s claims. The limitation of his sources were admitted in a footnote in which he said he “plan[ned] to complete a thorough study of other Chinese
Moreover, it is important to keep in mind the increased pluralization of China’s decision making process. State leaders are now not the only ones responsible for making foreign policy decisions. Increasingly, the military and even academics are represented in the discussion (Shambaugh & Ren, 2012). The challenge is to diversify sources and capture the perspective of all sectors, including the state, military, and academia so as to present a more nuanced understanding of China’s position.

Even in cases where sources are diverse (Xue, 1995; Lewis, 2007; Chu & Rong, 2009), there is a tendency to overemphasize China’s history and words of historic figures. The first source listed in all articles on China's nuclear strategy, for instance, is John Lewis and Xue Litai's book *China Builds the Bomb* published in 1988. Other sources that are commonly cited include the works of Mao ZeDong, the memoirs of Nie Rhongzen, and later primary source research done by John Lewis and his counterparts Xue Litai (1994) and Hua Di (1992).

Time has allowed light to shine through the shroud once covering China’s nuclear developments. Yet, in the excitement of accessing new information, caution is necessary. The words of Mao Zedong, Nie Rhongzen, or Zhou Enlai apply to the times they were spoken, and unless one can connect these words to present nuclear decisions, they need to remain characterized as foundational principles rather than modern voices. What is
necessary is for scholars to demonstrate the consistency of China's position across time and across a variety of mediums, starting with the speeches and texts of the 1950s and 1960s and ending with sources that are more up to date. The documents that have been most used to accomplish this goal have been Chinese military volumes that were published at the turn of the century, including the internally circulated *Science of Military Strategy (Zhanluexue)*, the open-access National Defense University publication, *The Science of Campaigns (Zhanyixue)*, the open-access AMS publication by the same name, and, most frequently, *The Science of the Second Artillery Force (Dierpaobing zhanyixue)*. In fact, some analyses use only these sources to make their point (Chase & Medeiros, 2005; Kulacki, 2011). Yet, even if we discount the suspicion regarding the authenticity of some of these sources (Wortzel, 2012), I argue that modern day analyses need to incorporate more recent sources, since the majority of these sources are now more than ten years old. This critique can be similarly applied to the articles written in support of classifying China's strategy under limited deterrence.

**Limited Deterrence**

The majority of scholars concede that minimum deterrence was, at one point, China's preferred nuclear deterrence strategy. However, growing numbers of scholars have begun to believe that new security concerns might have compelled China to

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29 Xue Litai’s 1995 research largely draws upon works that were published in the 1980s which analyze the words of Mao in the 1960s and 1970s.

30 These were all published in 2000, with the exception of The Science of Military Strategy which was published in 1999. Although most scholars do not doubt the authenticity of these leaked documents, Larry Wortzel (2012) highlights the peculiarity of having so many highly classified Chinese military documents leak at one time and land (conveniently) into the hands of US policymakers and scholars. He warns that perhaps one should at least consider the possibility that these documents were intentionally leaked by the PLA to misrepresent the state’s true strategic direction.
recalculate its view of deterrence and adopt a more advanced nuclear posture, such as limited deterrence. As defined by Iain Johnston, limited deterrence is a strategy which “requires sufficient counterforce and countervalue tactical, theater, and strategic nuclear forces to deter escalation of conventional or nuclear war” (1995-1996, 5). This statement highlights several distinctive features of limited deterrence, including the expanded aims of the strategy (i.e., deterring both nuclear and conventional attacks) and the expanded means of the strategy (i.e., targeting both countervalue and counterforce targets). Several scholars agree that this is the direction China is headed with its nuclear force (Johnston, 1996; Chase, Erickson, & Yeaw, 2009; Mazza & Blumenthal, 2011; Chase, 2013). The evidence cited in support of this argument includes China’s realist strategic culture, its development of new, more advanced nuclear weapons delivery systems that are arguably in excess of the demands of a minimum deterrence, and the internal debate surrounding China’s NFU policy.

**Strategic Culture**

One of the unique contributions of Iain Johnston is his introduction of Chinese strategic culture as a prominent variable influencing China's nuclear force calculations (Katzenstein, 1996). Like his counterparts arguing for minimum deterrence, Johnston also looks at the historic role nuclear weapons have played in Chinese security policy. In so doing, however, he comes to an alternate conclusion. Johnston evaluates the worldview that was adopted at the establishment of the People's Republic, and finds that relative military strength has always been a top priority among the Chinese leadership and that this strength, in large part, has been equated with the state's overall prowess and
international status. He attributes this to the state's realpolitik culture, arguing that China perceives the world in Realist terms. In regards to nuclear weapons, this means that the decisions China makes in regards to its nuclear forces are contingent upon the relative nuclear capabilities of other nations and its external security environment; When these shift, so does China’s nuclear strategy and nuclear force structure. Moreover, Johnston argues that Chinese leaders have always valued the military utility of nuclear weapons and engaged in thought exercises as to how the state could use these weapons in war.

Among the sources he uses to build his argument, Johnston cites a 1988 study published by National Defense University as saying: "nuclear weapons not only cannot be pushed off the stage of warfare, but rather will develop continuously; the question is how to develop the role they will play in future wars" (1995-1996, 9). Like the research done by Lewis and Xue (1988), which anchors minimum deterrence arguments, Johnston's argument of strategic culture reverberates throughout the limited deterrence scholarship (Chase, Erickson, & Yeaw, 2009; Mazza & Blumenthal, 2011; Chase, 2013).\(^\text{31}\)

**NFU Debate**

The strategic culture argument introduced by Johnston relies upon the assumption that normative factors can, in fact, impact security outcomes. While increasing validity is given to this assumption, an argument for limited deterrence can be made without it. The strongest evidence in support of limited deterrence, for instance, is the existence of a debate in China's military community surrounding China's No First Use policy. Even at the time that Johnston was writing, there were several examples of military analyses.

\(^\text{31}\) Johnston is credited with clarifying the concept of limited deterrence and is heavily cited in this literature, but the strategic culture argument originates with Chong-Pin Lin (1988).
where an author would abstractly endorse the idea of a Chinese first strike in a conventional or nuclear conflict while he simultaneously emphasized the state’s commitment to a second strike strategy. Since this time, more emboldened opinions have come to the fore and there has been a couple of high-profile cases where military officials in China have expressed opinions in direct opposition to China's NFU policy. The first case was an anonymous high-level source that admitted to the New York Times that China did not need to fear US intervention in the case of a Taiwan conflict, because American leaders “care more about Los Angeles than they do about Taiwan” (Tyler, 1994). The source of this statement is believed to be PLA General Xiong Guangkai (Lewis, 2005). The second case was more direct. In 2005, Major General Zhu Chenghu claimed at a press conference that China would "respond with nuclear weapons" if America positioned its "missiles and...guided ammunition on to the target zone on China's territory" (Kahn, 2005). These popularized dissentions were immediately discredited by the Chinese government, but it has become accepted knowledge that at least a small contingent of Chinese strategists supports the revision of the NFU policy (USDOD, 2003, 12).

Apart from the countercurrent identified in Chinese scholarship, another source of evidence comes from the wording found in China’s White Papers. While the Chinese government has repeatedly emphasized in these papers its commitment to No First Use, Mazza and Blumenthal emphasize that the words used in the 2006 and 2008 papers indicate increased ambiguity on the subject (2011). The omission of NFU altogether in the 2013 white paper resulted in additional speculation over the possibility of China
abandoning its NFU policy (Acton, 2013a). A similar vein of evidence appears when analyzing the words used by Chinese officials at multilateral meetings such as the NPT Review Conferences. Like Mazza and Blumenthal, James Acton delves into the precise wording of NFU statements made by delegates at these conferences, and he notices an appreciable difference in the level of commitment expressed in relation to NFU (2013b). Such measured subtleties present an interesting contrast when put alongside more apparent evidence like China's force modernization.

**Technological Advances**

While Iain Johnston argued that China was shifting its nuclear strategy from minimum deterrence to limited deterrence, he also argued that this was an ambition that could not be achieved in a short period of time due to the existence of "a large gap between [China's] doctrinal arguments and China's present [nuclear force] capabilities" (1995-1996, 31). For limited deterrence to be an operational strategy, China needed: "...a greater number of tactical, theater, and strategic nuclear weapons that are accurate enough to hit counterforce targets, are mobile, can be used in the earliest stages of a nuclear crisis, and... are capable of penetrating ballistic missile defense systems" (41). This "doctrine-capabilities" gap, as it has been called, continues to be emphasized today by scholars taking the minimum deterrence position. Other scholars emphasize, however, that this gap is closing. Over the past twenty years, China has pursued significant upgrades to its nuclear arsenal. As mentioned, these include shifting from liquid-fuelled to solid fuelled mobile ballistic missiles and adding a sea-based nuclear deterrent. Some analysts see these shifts as an attempt by China to increase its survivability. Others,
however, see these developments as signaling a broader strategic shift. China’s newest missiles, the DF-31A and DF-5A, for instance, are more mobile, but they are also quicker to launch. They also are more precise and powerful. These two aspects, quickness of launch and precision are not attributes of particular importance in achieving minimum deterrence. They are important, however, if a state seeks the ability to use nuclear weapons in other capacities. Speculations surrounding China’s MIRV capacity and development of tactical nuclear weapons are also incredibly important to this argument.

Another factor that has been emphasized includes the believed location of China’s nuclear launchers. According to Mazza and Blumenthal, for instance, China’s medium-range ballistic missiles (MRBMs) are believed to be based in areas within striking distance of India, South Korea, and Japan (2011, 4). Since the latter two, in particular, are not nuclear weapon states, Mazza and Blumenthal surmise that the purpose of these locations is to target US military bases in these countries—indicating a counterforce strategy as opposed to a countervalue strategy.

**Critiques**

Mazza and Blumenthal’s analysis of Chinese force locations and their implications underscores a unique perspective, because, in most cases, the primary object of analysis in limited deterrence arguments is China’s NFU policy. Yet, as chapter four will illustrate, conditions of use is only one dimension of nuclear strategy. Thus, debate in this area does not constitute a strategic shift. This is one of the primary critiques I have of the limited deterrence literature. A powerful claim requires powerful evidence, and this
means evidence across all dimensions of strategy, including conditions of use, targeting, and force structure,

Another critique of this literature is the extrapolation of the view of the state from solely military sources. Johnston admitted that this was a valid critique of his work, yet rebutted that "In [his] study, many of the sources have been written by strategists in military units charged specifically with developing doctrine" (1995-1996, 36). This provides a narrow, short-term view of China's nuclear strategy. It is important to remember that China, like other countries, contains an amalgam of interests, with prominent forces such as the military and the bureaucracy not always seeing eye-to-eye. Moreover, as mentioned, China's decision making process has become increasingly pluralized over time. Therefore, it is not enough to cite sources only from one sector, or to acknowledge yet summarily dismiss the presence of tensions and fissures among different sectors in China’s nuclear conversation (Johnston, 1995-1996; Godwin, 1999; Lewis, 2007; Jia, 2008; Fravel & Medeiros, 2010; Kulacki, 2011). A more complete analysis will systematically explore all sides of the conversation over an extended period of time.

Other Perspectives

Some of these errors have been rectified in more recent literature. Yet, this literature is also difficult to compare, because it has gone in a different direction. While the dichotomy of minimum and limited deterrence was a prevalent discussion in China and the West in the 1990s, the turn of the century has seen scholars pushing past these classifications and introducing new concepts. Senior Colonel Yao Yunzhu, for instance,
stated in 2005 that she personally believed that "the word 'minimum' has too strong a quantitative connotation that is misleading...suggest[ing] a quantitative standard instead of a qualitative standard" (2005). Yet in her article, Yao still framed her argument in terms of minimum versus limited deterrence. Prominent Chinese scholar Li Bin broke this trend by characterizing China's nuclear strategy as "defensive counter-nuclear coercion" (2006). Li argues that what China fears most is not necessarily nuclear attack, but nuclear blackmail—where a state uses its nuclear weapons as leverage to coerce a non-nuclear weapon state to do its biddings. In such a situation, the non-nuclear state is at the mercy of the state with nuclear weapons. It is an unlevel playing field. Li argues that China’s fear of this situation drove its nuclear weapons development and shaped its nuclear strategy. China, as a state subjected to hundreds of years of coercion, wanted to free itself from this calculus, and thus prioritizes a nuclear force that is both survivable and able to deliver an effective counterstrike.

Li’s words are echoed by Jing-dong Yuan in his article “Effective, Reliable, and Credible” published in 2007. The title of Yuan's article sums up his description of China's arsenal. Like Yao and Li, Yuan eschews categorizing China’s nuclear strategy as either "minimum" or "limited" deterrence and describes China's strategy in other terms. In his view, these concepts place too great an emphasis on the quantitative aspect of China's nuclear force as opposed to the many qualitative aspects, such as survivability, credibility, and effectiveness. The most recent example published in China is Wu Riqiang’s article “Certainty of Uncertainty,” which argues that China’s force is best characterized by “first strike uncertainty” (2013). Examples of similar arguments
published in the West include Bates Gill, James Mulvenon, and Mark Stokes' description of China's transition to "credible deterrence" (2001), and M. Taylor Fravel and Evan Medieros’ description of China's shift to "assured retaliation" (2010).32

It seems that an increasing number of scholars have admitted that China's nuclear strategy is shifting, but they are all wary of classifying China's nuclear strategy as one of "limited deterrence." This leaves us with increased ambiguity and an ever growing lexicon of adjectives and phrases meant to describe how China is transitioning its strategy. The trend to eschew the labels of minimum and limited deterrence is understandable, since there are undoubtedly more precise ways in which to describe China’s nuclear strategy. Yet, efforts to accurately describe China’s strategy are made at great expense to the production of generalizable knowledge. How, for instance, does China’s present strategy relate to other nuclear states? If it is, in fact, transitioning to limited deterrence, is this a trajectory that we have seen take place elsewhere? If it is unique, how is it unique and why?

These questions are the fodder of comparative analysis and they help us to elevate and contextualize the case of China among the narratives of other nuclear weapon states; as Gill, Mulvenon, and Stokes (2001, 543) emphasize: "while an independent analysis of China’s nuclear forces is beneficial in informing arguments of minimum versus limited deterrence, one should not discount the value of studying and comparing the evolution of other states’ nuclear force structures in determining China’s nuclear intentions.” Such an

32 Gill, Mulvenon, and Stokes argue that China has three separate nuclear doctrines, which are specific to certain levels of its missile force. These include credible deterrence for China's strategic nuclear forces; limited deterrence for its theater nuclear and conventional forces; and something akin to maximum deterrence for the state's conventional SRBMs.
analysis of strategy is essential, because it serves an intermediary role between proximate drivers and nuclear force outcomes. The solution, I believe, is not to create yet another term to describe China's transition, but to clarify precisely what one means when one uses the terms "minimum deterrence" and "limited deterrence." The next chapter attempts to do this by situating these concepts among a broader array of nuclear strategies, and operationalizing each strategy component.
The majority of scholars studying Chinese nuclear strategy have narrowed their focus to ask whether China has adopted a strategy of minimum deterrence or limited deterrence, and they have not contextualized China’s strategy within a broader continuum of available strategy options. This is largely due to the fact that there is not a widely adopted schema for nuclear strategies. I seek to redress this problem in this chapter by creating a workable, cross-case typology of nuclear deterrence strategies based upon generalizable, identifiable, and measurable criteria. Using this framework, I am able to better explain China’s nuclear strategy selection and position it in comparative perspective, comparing and contrasting it with the decisions of other nuclear weapon states over time.

I begin my analysis by distinguishing between common terms like strategy, posture, and doctrine, since these terms are often used interchangeably in common discourse. I then proceed by outlining five available nuclear strategies, including existential deterrence, minimum deterrence, limited deterrence, extensive deterrence, and maximum deterrence. Each of these strategies is given a section and in each section I provide the unique assumptions, policies, tactics, qualitative and quantitative force requirements, and historical cases that delineate that particular strategy. A summary of this information is provided in Table 4.
Clarifying Concepts

Strategy, though a ubiquitous term, is not often well-defined. In the Western lexicon, one of the most respected definitions originates with the classical strategist, Carl von Clausewitz, who defines military strategy as "the employment of battles to gain the end of war." Though laudable in its brevity, this definition fails to fully encapsulate the multifaceted nature of military strategy over time. More specifically, it fails to consider the military utility of actions other than force to advance a state's objectives. The definition adopted by the US Joint Chiefs of Staff (JCS) in 1987, illustrates a broader understanding of military means and ends. According to the US JCS, military strategy is “the art and science of employing the armed forces of a nation to secure the objectives of national policy by the application of force, or the threat of force” (232).

The addition of threat to the US JCS definition is indicative of the larger shift that occurred in the international arena in the latter half of the twentieth century. Traditionally, the use of force was seen as the preeminent means by which a state could further its military and political objectives. After the introduction of nuclear weapons, however, this presumption was challenged and the use of threat was perceived as a viable strategic alternative. This is because states with nuclear weapons had the advantage of not just threatening harm, but threatening mass destruction and even annihilation—thus having the ultimate leverage to manipulate an adversary’s actions and achieve a specified objective. In most cases, the application of this concept led to states choosing strategies
of nuclear deterrence, where nuclear force was threatened in order to deter adversarial aggression.\footnote{The other application of the use of threat is compellence. According to Thomas Schelling, one of the founders of deterrence theory, a state can threaten violence to achieve one of two ends: either to maintain the status quo (deterrence), or to alter the status quo (compellence) (1966). Though both strategies are available to nuclear weapon states, deterrence has become the preferred form of coercion.}

Nuclear deterrence strategy continues to be the keystone of every nuclear weapon state. Yet as the number of nuclear weapon states expands and as the international environment shifts, the practice of nuclear deterrence is likely to vary, resulting in a broad range of nuclear deterrence strategies. These strategies can vary greatly in their ends, ways, and means. In terms of objectives, for instance, a state can seek to use nuclear weapons to either deter military aggression or coercion, to deny military victory, or to win a military victory. The ways in which a state can achieve these objectives can also vary, with different parameters on nuclear use and different methods for force deployment. These ways are influenced by a state’s means, and in the nuclear realm, state means can differ widely, depending upon the size, structure, and sophistication of a state’s nuclear force. In Table 4 and in the discussion to follow, I categorize nuclear deterrence strategies based upon qualitative distinctions in each of these areas.

I have chosen to frame my analysis in terms of strategy, rather than posture, for three important reasons. First, while nuclear posture has gained traction in the academic literature as a fresh causal and explanatory variable in the study of nuclear proliferation, it has not enjoyed the same popularity outside of scholarly circles. It is also not widely recognized or utilized by non-western scholars and policy makers. In China, for instance, strategy is the primary word used to describe the state's war guidance laws; campaigns
are subsumed under strategy and describe war guidance laws with local implications; and tactics are the means by which campaigns are achieved (Yu, 2004, 3). Moreover, unlike strategy, posture lacks a shared definition. Lastly, the posture typology outlined by Narang (2010; 2012) and now incorporated into other analyses does not encompass the full range of cases—limiting its utility in comparative analysis.
<table>
<thead>
<tr>
<th></th>
<th>Existential Deterrence</th>
<th>Minimum Deterrence</th>
<th>Limited Deterrence</th>
<th>Extensive Deterrence</th>
<th>Maximum Deterrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective(s)</td>
<td>To deter military aggression/coercion</td>
<td>To deter military aggression/coercion</td>
<td>To deny an adversary victory upon aggression</td>
<td>To deter military aggression/coercion</td>
<td>To achieve military victory</td>
</tr>
<tr>
<td></td>
<td>Existential Deterrence</td>
<td>Minimum Deterrence</td>
<td>Limited Deterrence</td>
<td>Extensive Deterrence</td>
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<tr>
<td>Conditions of Use</td>
<td>Nuclear Ambiguity</td>
<td>NFU</td>
<td>First Strike</td>
<td>Counter Strike</td>
<td>First Strike</td>
</tr>
<tr>
<td>Targeting Tactics</td>
<td>Countervalue</td>
<td>Countervalue</td>
<td>Counterleadership</td>
<td>Counterleadership</td>
<td>Counterforce</td>
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<td>Counterleadership</td>
<td>Counterleadership</td>
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</tr>
<tr>
<td>Force Structure</td>
<td>Nuclear bomb</td>
<td>Nuclear bomb + survivable, de-mated, non-deployed, low-alert delivery systems</td>
<td>Nuclear bomb + survivable, tactical, deployed, targeted, high-alert delivery systems, + effective C3 system</td>
<td>Nuclear bomb + survivable, de-mated, non-deployed, low-alert delivery systems</td>
<td>Nuclear bomb + survivable, tactical, deployed, targeted, high-alert advanced delivery systems, + superior C3 system</td>
</tr>
<tr>
<td>Force Size</td>
<td>enough to produce doubt in an opponent</td>
<td>enough to harm</td>
<td>enough to compete with an opponent’s force</td>
<td>enough to inflict unacceptable damage</td>
<td>enough to compete with an opponent’s force</td>
</tr>
<tr>
<td>Beliefs</td>
<td>1. Nuclear use inevitably leads to total war.</td>
<td>1. Nuclear use inevitably leads to total war.</td>
<td>1. Tactical use is possible to achieve limited military objectives.</td>
<td>1. Nuclear use inevitably leads to total war.</td>
<td>1. Tactical use is possible to achieve limited military objectives.</td>
</tr>
<tr>
<td></td>
<td>2. Nuclear weapons are qualitatively different than conventional weapons.</td>
<td>2. Nuclear weapons are qualitatively different than conventional weapons.</td>
<td>2. Nuclear weapons can be used like conventional weapons.</td>
<td>2. Nuclear weapons are qualitatively different than conventional weapons.</td>
<td>2. Nuclear weapons can be used like conventional weapons.</td>
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<td></td>
<td>3. Deterrence is achieved by possessing a nuclear bomb.</td>
<td>3. Deterrence is achieved by having the ability to strike back after a first strike.</td>
<td>3. Deterrence is achieved by demonstrating an array of nuclear options.</td>
<td>3. Deterrence is achieved by having the ability to destroy an aggressor after a first strike.</td>
<td>3. The threat of a preemptive strike in response to an enemy's actions is more effective than a second strike.</td>
</tr>
<tr>
<td></td>
<td>4. Nuclear war cannot be won. Damage is total.</td>
<td>4. Nuclear war cannot be won, Damage is total.</td>
<td>4. Nuclear war cannot be won. Damage can be limited.</td>
<td>4. Nuclear war cannot be won. Damage is total.</td>
<td>5. Nuclear war can be won.</td>
</tr>
</tbody>
</table>
Existential deterrence is the least demanding of nuclear deterrence strategies and is most often employed by nascent nuclear states in an effort to avert nuclear or conventional war. States subscribing to this strategy generally assume that the mere possession of a nuclear bomb, regardless of its operability or method of delivery, is enough to deter aggression (Bundy, 1984; Hagery, 1998). The presumption in such cases is that a nuclear weapon is qualitatively distinct from a conventional weapon in terms of...
its destructive capacity. Nuclear weapons inflict violence of greater scope and greater speed than any other weapon previously developed, and the corresponding assumption is that it also generates greater fear. Under existential deterrence, this fear is viewed as capitol.

**Force Structure**

So what nuclear capabilities are required for such a strategy? Generally, for a state’s threat to be credible there must be evidence indicating that the state has the necessary components to create a nuclear weapon. This means, first and foremost, having access to either plutonium (Pu-239) or highly enriched uranium (>90% U-235)—neither of which is found in nature. Instead, weapons-grade plutonium is produced by reprocessing uranium spent fuel and HeU is produced via a process of gaseous diffusion, gas centrifuges, or laser separation. Indigenous production of either material requires the necessary scientific infrastructure (ie at least one nuclear reactor). In addition to a Significant Quantity of either Pu or HeU, a state would also need to have the ability to configure this material into a weapon—another technologically sophisticated task. While a state’s outright purchase of several nuclear weapons is not beyond the realm of comprehension (and a state can certainly claim as much), in most cases, existential deterrence hinges upon a state demonstrating some degree of indigenous nuclear weapons capability.

**Conditions of Use**

States with less developed nuclear weapons programs are acutely aware of their qualitative and quantitative disadvantage vis-à-vis other more mature nuclear weapon
states, and they respond by intentionally casting a tenebrous picture of their nuclear weapons capabilities. In such cases, verifiable evidence of weapons production or the intent of production is enough to sow doubt in other states, but it is also an invitation for preventive attack. To hedge against this possibility, states under existential deterrence must convert doubt into fear. This conversion, in most cases, requires a policy of ambiguity not only on nuclear capability but also on nuclear use. This amounts to a state keeping the nuclear option open while sending signals that strategically intermix fact with fiction. A state can consistently deny its nuclear weapons capabilities or exaggerate its capabilities, while at the same time remaining silent about when or if these capabilities could be used. It could also issue vague threats to the effect that if it is attacked, it can and will pursue matched counteraction. Under existential deterrence, a state signals the possibility of retaliation rather than its surety, and this possibility is believed to enhance a state’s security.

**Targeting**

States with minimum capabilities subscribing to a strategy of existential deterrence will most likely aim to attack civilian centers, rather than military complexes or missile silos (a military tactic known as countervalue targeting). With this tactic, states that are less technologically advanced can use less sophisticated and less precise weapons to greatest effect. This is because cities, in contrast to missiles or even military complexes, are large targets with diameters usually tens of miles long. Theoretically, even a bomb delivered in a suitcase or a van will be able to accomplish the specified aim. Thus, even a few weapons can effectively hold an enemy’s city hostage.
Cases

The state of Israel has long relied upon a strategy of existential deterrence. While state officials often reaffirm that Israel “will not be the first to introduce nuclear weapons into the Middle East,” it is widely believed that Israel has had nuclear weapons capability since the late 1960s. This capability was made possible by France, which supplied Israel with a 24 megawatt nuclear reactor and plutonium reprocessing center in 1957. This center at Dimona, was later ‘discovered’ by an American engineer in 1960. Later that decade, the US President concluded that “Israel might very well…have a nuclear bomb,” or, if it didn’t, it at least "had the technical ability and material resources to produce weapons grade uranium for a number of weapons” (Burns & Siracusa, 2013, 348). This conclusion was also included in a 1974 report by the Central Intelligence Agency alongside speculation involving Israel’s development of a nuclear-capable ballistic missile (Central Intelligence Agency, 1974).

Israel did not admit to having either a nuclear weapon or a nuclear-capable delivery system—though its refusal to sign the NPT and its rejection of the International Atomic Energy Agency (IAEA) inspections sent strong signals to the contrary. These signals were seemingly substantiated by the public confession of nuclear technician Mordechai Vanunu in 1986, who supplied the Sunday Times of London with 60 photographs and a detailed description of the nuclear weapons program taking place at the Dimona facility.

Yet even Vanunu’s statement did not break Israel’s silence. Israel never admitted to having nuclear weapons, nor did it ever issue veiled threats implying nuclear use. The
only thing that has been admitted in Israel concerns the political utility of a policy of nuclear ambiguity; As Israel’s Prime Minister Ariel Sharon expressed: “Israel has to hold in its hands all the elements of power necessary to protect itself by itself...our policy of ambiguity has proved its worth, and it will continue” (“Sharon Sticks to Nuclear Policy,” 2004).

The Democratic People’s Republic of Korea (henceforth North Korea) has been more vocal than Israel. It has repeatedly issued nuclear threats, and it has demonstrated its nuclear weapons capability through several nuclear tests. Yet, even so, the scope of the North Korean nuclear program remains largely a mystery, since it too has chosen to pursue a strategy of existential deterrence.

North Korea’s nuclear capabilities date back to the early 1960s when it constructed the Yongbyon Nuclear Research Center with help from the Soviet Union. The Soviet IRT-2000 nuclear research reactor was used to produce civilian nuclear energy and was under IAEA safeguards. North Korea later expanded its operations to include uranium milling, fuel rod fabrication and plutonium reprocessing, yet it still signed the NPT as a non-nuclear state. It also signed a joint declaration with South Korea in 1991, promising to “not test, manufacture, produce, receive, possess, store, deploy, or use nuclear weapons” (Joint Declaration of South and North Korea on the Denuclearization of the Korean Peninsula, 1991).

This promise was short-lived, as was North Korea’s NPT membership. In 2003, North Korea withdrew from the NPT. That same year, North Korea’s highest ranking defector, Hwang Jang-yop, revealed that in his personal correspondence with President
Kim Jong-il, the president confirmed that the state had developed a nuclear bomb (Hwang, 4 July 2003). Jang-yop’s statement was later supported by another defector’s statement that described, in detail, the nuclear bomb he saw in the Yongbyon nuclear facility in 2005 (“DPRK Engineer Refugee,” 27 July 2008). These statements were seemingly confirmed by state nuclear tests in 2006, 2009, and 2013 and by a military parade in 2012 showing off North Korea’s road mobile ICBMs.35

Although North Korea’s rhetoric and actions are much more ostentatious than Israel’s, both countries perceive value in keeping their nuclear capabilities and conditions of use ambiguous. This is likely because, thus far, nuclear ambiguity has enabled both states to avoid military conflict. In fact, there is a historical precedent of states successfully employing existential deterrence to avert war. Pakistan and India are a prime example; as Pakistani Ambassador Maleeha Lodhi explains:

Although existential deterrence had its doubters both in and outside of the region, it was believed to work by substantially reducing the chances of preemptive escalation because of the profound first-strike uncertainty imposed by nuclear ambiguity. Since neither [India nor Pakistan] could be sure about the number, location and operational readiness of the other's nuclear weapons, this minimised the possibility of preemption or launching successful counterforce strikes (Lodhi, 1998).

Lodhi’s statement applies to the particular historical context of India and Pakistan in the early 1980s through the late 1990s, when both countries concurrently employed strategies of existential deterrence. In the case of India, its nuclear weapons capability was the result of indigenous uranium fuel production combined with technological assistance provided by the US, Canada, and Great Britain in 1955. Yet even as late as the

35 Later analysis of the ICBMs on display at the parade revealed evidence that these weapons were most likely mock-ups rather than actual operational missiles (Schiller & Schmucker, 2012).
1990s, when the US estimated that India had produced enough plutonium for
approximately 60 nuclear weapons, the Western consensus was that its nuclear program
remained peaceful. A similar judgment was made for Pakistan, which developed a
uranium enrichment facility in the early 1980s under AQ Khan. CIA Director Bob Gates
stated explicitly that the US “had no reason to believe that either India or Pakistan
maintain[ed] assembled or deployed nuclear bombs…” (Perkovich, 1999, 87). This belief
wavered when both India and Pakistan refused to sign the NPT, and it was shattered in
1998 when both states conducted nuclear tests. Shortly thereafter, both countries
officially announced the end of their existential deterrence (Burns 1998a & 1998b).

**Minimum Deterrence**

In most cases, the strategy of existential deterrence is ephemeral due to the
difficulty of constant obfuscation; the minute the truth is revealed, the state becomes
highly vulnerable to a preventive attack. As a consequence, states may plan to only pass
through this “valley of vulnerability” on their way to a more stable and viable nuclear
strategy (Nye, 1988). Minimum deterrence is often the next destination. Under minimum
deterrence, states rely less on ambiguity and more upon a demonstrated minimum nuclear
capability. This minimum is defined in terms of what is called a “second-strike
capability,” or enough nuclear weapons to ensure that at least a few nuclear weapons can
survive an attack and then strike back against an aggressor.

Like existential deterrence, minimum deterrence assumes that conventional
weapons and nuclear weapons are qualitatively distinct from one another in terms of
destructive capacity and that this distinction factors into the calculus of a state’s military
decisions. According to this logic, the threat of a nuclear counterstrike, no matter the extent, is enough to thwart adversarial aggression, because it is believed that a state’s leaders will not likely assume the risk of even one nuclear weapon entering their territory and killing their civilians. Nuclear war, it is assumed, is not an enterprise that can be won, and is not entered into lightly by any state. States will thus only strike if they know they can do so without harm to themselves. Since the extent of harm is viewed as irrelevant, states subscribing to minimum deterrence find little utility in large or advanced nuclear arsenals. Deterrence is achieved by maintaining a minimum arsenal.

**Force Structure**

Though several scholars and policy makers have attempted to calculate the necessary number of weapons to achieve minimum deterrence, (Wang, 1984; Sundarji, 1996; Kulkarni, 2011; Cimbala, 2011), in general, precise quantities have been eschewed for variable numbers based upon a state’s available resources and its external security environment. In some cases, this has even been calculated according to the number of critical cities within an adversary’s territory. Nonetheless, the question is less about how many weapons are enough than it is about what type of weapons provide an adequate defense. A thousand bombs that must be delivered by suitcase or truck are less threatening than bombs than can be delivered in a manner of minutes atop a missile. In order to credibly threaten a nuclear counterattack, a state’s weapons must meet three criteria: they must be survivable, deliverable, and able to penetrate an aggressor’s defenses.
Existential deterrence requires only the capacity to make a nuclear bomb. Minimum deterrence, however, requires that a state be able to deliver a bomb and thus deliver upon its promise of retaliation. While bombs can feasibly be delivered via a variety of methods, to make a threat of counterattack credible, a state would need to demonstrate that it has developed the technology to reliably and efficiently strike an intended target within enemy territory within a reasonably short amount of time. The traditional means of doing so include gravity bombs delivered via aircraft, or warheads delivered by short, intermediate, or long-range missiles launched from land or sea based vehicles. Of course to launch these missiles in a second strike operation, a state needs to know with a degree of certainty, that some of its missile will be able to survive a conventional or nuclear first strike. Two traditional methods for increasing force survivability include storing nuclear missiles deep underground and/or storing them at ground level in hardened missile silos (Wang, Wang, & Feng, 2006). Other methods include hiding missiles in civilian structures like fake bridge towers or railway cars (UN, 1991, 31). In the face of advanced, more precise offensive weapons, however, additional measures are often deemed necessary, such as the development and deployment of Submarine-Launched Ballistic Missiles (SLBM) and Mobile Erector Launchers (MEL) for land-based missiles.36 In addition, states have preferred to shift from liquid fuel to solid fuel, allowing missiles to be pre-fueled, stored, and transported safely and discreetly

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36SLBMs are particularly crucial for force survivability, because their survivability rate is estimated to reach 90 percent (“Expert: Chinese Nuclear Submarine,” 2013). By comparison, silo-based units have a 5 percent survival rate; other land-based units are expected to have a 15-20 percent survival rate, and the strategic bombers are expected to survive 50 percent of the time (“Chinese Nuclear Submarine has High Resistance,” 2013).
and eliminating the need for an accompanying fuel truck. These measures simultaneously increase force survivability and decrease missile launch time (UN, 1991).

The last qualitative requirement of a state subscribing to a strategy of minimum deterrence involves its ability to penetrate an aggressor’s defenses. After all, if a state threatens ex post facto retributive action, then it must be able to penetrate enemy defenses. This can be done in a variety of ways. The less sophisticated (and less expensive) way is to deploy missile decoys. Decoys are meant to resemble warheads, either in appearance or infrared signature, and they can be used to varying effect throughout a missile’s trajectory to overwhelm the enemy’s countermeasures and allow the actual warheads to reach their intended target. Another method, which is much more advanced, is to overwhelm enemy defenses with actual warheads. This can be done by using either a Multiple Re-entry Vehicle (MRV) and/or a Multiple Independently-Targetable Reentry Vehicles (MIRV), both of which allow multiple warheads to be loaded on a single ballistic missile. These vehicles make enemy interception more difficult by increasing the number of warheads that need to be destroyed per missile. A different defensive approach is to alter the trajectory of a given missile at the terminal phase of its trajectory via a maneuverable re-entry vehicle (MARV). Using fins or other aerodynamic surfaces, MARVs enable missiles to depart from ballistic free-fall and follow a pre-planned alternate trajectory. This shortens the time available for interception.

37 MRV and MIRV are distinct in their ability to hit separate targets. MRV missiles can release multiple warheads at once and are generally meant to form a pattern around a single target, while MIRV missiles release warheads that can be set on slightly different trajectories to strike different targets (UN, 1991).
**Conditions of Use**

While defenses are paramount under minimum deterrence, there must be prescribed conditions of when nuclear weapons are used. Unlike existential deterrence, which relies upon the fear of uncertainty to achieve deterrence, minimum deterrence requires that a state clearly communicate its ability and intent to retaliate. It is thus the *certainty* of retaliation that allows for the maintenance of the status quo. This threat must be explicitly relayed via official statements and reports and made credible by a state’s force demonstrations such as bomb and missile tests, military parades or showcases, military exercises, or the deployment of operational nuclear forces. While the conditions of retaliation may vary, the most logical policy of use under minimum deterrence is one of No First Use (NFU). No First Use means that a state will only use its nuclear weapons in self-defense after a nuclear first strike. This position is a logical output of the position of a state with a small nuclear arsenal situated among states with much larger, more diverse nuclear arsenals. In this context, a state with a small but capable nuclear arsenal cannot afford to launch a nuclear first strike, because, in most cases, its aggression would be met with a debilitating counterattack. Considering guarantees of extended deterrence, even an attack on a non-nuclear state could invite a similar response.

**Targeting**

Because minimum deterrence relies upon a small number of nuclear weapons, these weapons must be used to greatest effect. Holding an enemy's population centers hostage is one way of doing this. Thus, city-targeting, or countervalue targeting, is most
often the preferred targeting tactic of states under minimum deterrence. Another reason for choosing countervalue targeting is because it requires less precise weapons and it can be carried out without the assistance of high-quality intelligence and/or reconnaissance satellites. The targets are known, and they are large.

**Cases**

Throughout history, five nuclear weapon states have employed a strategy of minimum deterrence, including Great Britain, France, China, India, and Pakistan. These states found it in their best interest to build past the slim requirements of existential deterrence, and increase their costs to lessen their vulnerability. French General Francois Beaufre explained this decision by stating: “Unstable situations arise…if the odds of retaliation are nonexistent or very low. As soon as the risk of retaliation is evident, stability is more or less absolute” (Ledgerwood, 2003, II-62).

The United States and Soviet Union, the world’s first two nuclear powers, subscribed to this principle, but they also believed that the scope of retaliation was critical. They assumed that deterrence required the threat of crushing retaliation and this led them in the second half of the 20th Century to produce thousands of nuclear arms. Great Britain, by contrast, stabilized its nuclear forces after reaching only a few hundred nuclear weapons. These, it thought, were sufficient to communicate credible retaliation. Great Britain was thus the first state to embrace a strategy of minimum deterrence.

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38 It is important to note, however, that while targeting population centers seems an intuitive output of a state with a small nuclear arsenal, history indicates that in most cases, states adopting minimum deterrence focused on targeting cities but did not automatically preclude targeting other sites such as an enemy’s industrial centers, military bases, political hubs, and/or remaining nuclear weapons.
Britain’s decision is contextualized by a 1952 Global Strategy Paper that explained the state’s unique view of nuclear deterrence: “The world is passing out of the era when the number of atom bombs is the crux of the matter,” it explained, “and [it is] entering an era when the main problem will be to ensure by all means that the weapons can be delivered without prohibitive loss to the attacker” (Baylis & Macmillan, 1993, 32). In other words, in the case of Britain, force quantity was eschewed for quality. Deterrence, it was assumed, could be equally achieved with a small nuclear force as with a large force, as long as that force was able to survive a first strike and deliver a second strike.

Britain’s force has always reflected this assumption. While relatively small, it has always been highly mobile, having, for half a century, both nuclear capable bombers and ballistic missile submarines, and now retaining only SSBNs. In addition, Britain’s missiles can carry and deliver up to eight nuclear warheads. These qualitative advancements increased the likelihood of Britain’s pre and post-launch survivability and allowed it to meet its “Moscow Criterion.” Despite its name, the “Moscow Criterion” is not an example of straight-forward counter-value targeting. Instead, the idea is that the centralization of the Soviet Union—and now Russia—allows for most of the state’s assets and “sources of power” to be located in one place. Thus, the thought is that if Britain can hold this one city hostage by communicating its ability to destroy it in retaliation, it can
successfully deter Russian aggression.\(^\text{39}\) This criterion shaped Britain's nuclear force decisions both during and after the Cold War.

Britain's trepidation regarding Russian aggression echoed across Western Europe and resonated, in particular, with France—a country that recognized the vulnerability associated with its proximity. Only "a deux etapes du Tour de France" (two stages of the Tour de France) away from Russia, France saw the Soviet test of a thermonuclear weapon in 1953 as directly threatening. It thus began developing its own nuclear deterrent. In choosing a nuclear strategy to shape its force decisions, France had the option to adopt the strategy of the United States and Russia—which emphasized certain retaliation with oversized nuclear forces—or the minimum deterrence strategy employed by Great Britain. The question was: how much is enough to deter a great power adversary?

France's answer was similar to Britain's. It chose a strategy it called "proportional deterrence" (Gallois, 1960). This strategy did not conclude that stability required numeric parity, as the name suggests, but emphasized how the status quo could be maintained between two asymmetric powers as long as the weaker of the two powers retained the ability to inflict harm on its adversary that could negate the benefits of aggression (United States Department of State, 1987). This concept was also described in terms of "la dissuasion du faible au fort" (the deterrence of the strong by the weak) and later in terms of "strict sufficiency." It was a direct counter to the strategies of the US and Soviet

\(^{39}\) This task is complicated by the deployment of anti-ballistic missiles (ABM) deployed around Moscow, but it is not altogether impossible. Instead, Russia’s ABM system has encouraged the development of British decoys and MIRVs.
Union. According to French Prime Minister Pierre Mauroy, his country’s nuclear force was purposely “limited to the minimum strictly necessary to ensure [its] deterrent’s credibility,” and it was “in no way comparable with those of the United States and the Soviet Union, which, for their part, have a nuclear overkill capacity” (Laird, 1985, 19).

Like Britain, France found an “overkill capacity” unnecessary to achieve nuclear deterrence. Its strategy demanded only a nuclear force that was able to deliver a counterattack. In the French case, this meant hardened nuclear silos and the triangulation of delivery methods (land, air, and sea). It also meant MIRVed missiles capable of evading an anti-ballistic missile system and striking a city (since its strategy focused on countervalue targeting).

Although the force structures of Britain and France have changed dramatically over the past half century, both states have found it imperative to retain their second-strike capability. Britain now has a couple hundred nuclear weapons deliverable by sea-launched ballistic missile and France has approximately 300 operational nuclear weapons across two delivery systems. The systems of both states are highly mobile and survivable. Thanks to MIRV technology, they are also both likely to penetrate an adversary’s defenses. The remaining nuclear forces of both states are well-suited for defense. Yet, neither Britain nor France will state that this is the sole purpose of their nuclear arsenal. Both keep the option of preemption on the table. The first state to explicitly go against this trend was China.

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40 France and Great Britain’s membership in the North Atlantic Treaty Organization complicates matters slightly since the US is legally bound under Article V of the NATO Charter to come to the aid of either state if their security is in jeopardy. Yet, historical documents of both France and Great Britain indicate that this assurance did not greatly influence their nuclear strategies. This is, in part, due to their doubt that the US would follow through on its promise in all circumstances (Giles, 2003; Ledgerwood, 2002).
China tested its first atomic weapon on October 16, 1964, and it wasted no time telling the world its intent. A statement following the test claimed that “On the question of nuclear weapons, China will commit neither the error of adventurism, nor the error of capitulation” (Topping, 1964). In the decades that followed, China developed a limited land-based nuclear arsenal. This arsenal was protected initially by underground storage in caves, and was later protected even further by man-made underground tunnels. These efforts were later supplemented with technological advancements enabling greater missile mobility. China has also reportedly been working towards creating MARVs and MIRVs in order to evade enemy defense. These advancements, as well as China's forays into developing a credible sea based deterrent, have increased the survivability of China’s nuclear arsenal and the certainty of its retaliatory capability. Its efforts have lent credibility to its threats.

The primary threat issued by Chinese leaders over and over again is that any nuclear attack on China will be met with a nuclear counterstrike. This threat is echoed throughout China’s Defense White Papers, reports, and speeches. Yet it is also partnered with a promise not to use nuclear weapons first under any other circumstances. This, in conjunction with the restraint China has displayed in nuclear weapons development, has allowed China to be perceived as the archetype of minimum deterrence. Now, however, this title may more accurately describe India, which was the first state to officially adopt the term “credible minimum deterrent” to describe its nuclear force.

This descriptor was first used by Indian Prime Minister Atal Vajpayee in December 1998 shortly after India declared itself a nuclear weapon state, and it was
accompanied by a promise that India would not engage in an arms race or be the first to use nuclear weapons. At the time, this was an acute concern, because Pakistan was thought to be just a “turn of the screw” away from assembling its own nuclear weapons. Moreover, India was not a member of the NPT, and thus its weapons development directly contravened international law. It needed, at that time, to assuage the world’s concerns. Even when the world shifted its focus, however, India did not alter its strategy. According to Indian analyst, Tanvi Kulkarni, this is because “India does not possess the capacity (in terms of fissile material, number of reactors or the level of technology) to indulge in nuclear adventurism of the maximalist-type.” Moreover, he states, “…for India’s policy-makers, minimum deterrence is closely associated with moral standing - that of a 'reluctant' nuclear power which exercised its nuclear option only when 'forced' by security circumstances” (2011).

India’s nuclear force structure reflects this assessment. At present, its nuclear force is comprised of 80-100 nuclear warheads and only a handful of viable delivery systems. While the force remains limited, development is underway on rail and road mobile missiles as well as missiles with MIRV technology. India’s sea-based nuclear deterrent is also developing—albeit slowly, with its first ballistic missile submarine taking over thirty years to complete (Kristensen & Norris, 2012).

In many ways, India’s present situation is unique among the nuclear weapon states, because its weapons development takes place in an acute dyadic context. Only eleven days after India declared itself a nuclear weapon state, its neighbor and longtime nemesis, Pakistan, did the same. Many speculated after the tests whether the two states
would enter into a nuclear arms race (Talbott, 1999). Some even likened the India-
Pakistan dyad to the US and Soviet Union during the Cold War (Albright, 1993);
however neither India nor Pakistan had the resources to expend to make the analogy go
very far. Instead, in 2000, Pakistan adopted the language India had been using to describe
its nuclear strategy. It claimed it had no intent of entering into a nuclear arms race and
that it was “committed to a policy of responsibility and restraint by maintaining a credible
minimum deterrent” (Sagan, 2008). This was reiterated in 2001 by Pakistan’s Foreign
Minister Abdul Sattar who said that minimum credible deterrence was the guiding
strategy of the Pakistani nuclear program. Sattar explained that this strategy operated
upon the assumption that “more is unnecessary if less is enough.” Pakistani army chief
General Mirza Aslam Beg provided another explanation: “In the case of weapons of mass
destruction,” he said, “it is not the numbers that matter, but the destruction that can be
caused by even a few….the fear of retaliation lessens the likelihood of full-fledged
war...” (Perkovich, 1999, 89).

A legitimate fear requires a credible threat. In Pakistan’s case, this means
developing 90-110 nuclear warheads that can be delivered by air or by land. Pakistan’s
air-based deterrent consists of approximately 35 F-16A/B aircraft and 50 Mirage Vs. Its
land-based missile force serves as its primary deterrent. This force is comprised of both
liquid-fuelled and solid-fuelled ballistic missiles, the latter of which are road or rail
mobile. This mobility has increased the survivability of Pakistan’s nuclear force.
Additional measures believed to have been taken to achieve this end include missile
camouflage, silo hardening, and the burying of nuclear facilities (Lavoy, 2007).
In Pakistan’s case, its efforts toward increasing force survivability are a direct response to its fear of a preemptive Indian attack. Another fear driving Pakistani action is the fear of Indian conventional aggression. In fact, this is often cited by Pakistani leaders as the driving force behind Pakistan’s weapons development. Logically, this means that Pakistan would not commit to a No First Use policy. Instead, it has adopted what Pakistan’s Foreign Minister Abdul Sattar called a policy of “No First Use of Force” – meaning that Pakistan promises not to be the first to attack with either nuclear or conventional weapons. Of course, this means that Pakistan leaves open the option of responding to a conventional attack with nuclear weapons.

Presently, Pakistan is outpacing all other nuclear weapons states in the development of nuclear weapons (Joshi, 2013). This growth, in addition to the type of weapons it is adding has caused some to speculate that it is shifting its nuclear deterrence strategy (Salik, 2012). Over the past several years, Pakistan has reportedly been able to develop a miniaturized warhead that can be delivered via a tactical nuclear weapon. This weapon, the Hatf IX, is believed to be intended for Indian military bases in the case of a conventional war (Joshi, 2013). Unlike the other missiles now in Pakistan’s nuclear arsenal, the Hatf IX, according to a former Pakistani official “is slated as [a] battlefield weapon system” (Khan, 2012, 250).

To produce a nuclear weapon suitable for battlefield engagement, a state must believe that nuclear weapons have military utility, not just political utility. In this context, nuclear weapons are perceived to be instruments of war alongside conventional weapons.
This logic directly contradicts the premise of both existential and minimum deterrence, and it is the foundation of a third nuclear strategy, limited deterrence.

**Limited Deterrence**

Rather than deter war, limited deterrence seeks to limit war. A state subscribing to a strategy of limited deterrence accepts the possibility of a nuclear attack and devises a plan to limit the damage in the subsequent exchange of attacks. In contrast to minimum deterrence which has “one trick” in its bag—a second strike—limited deterrence allows a state’s government and military to evaluate and deliberate options of scale. There are different ways to respond depending upon the method and severity of the first attack. In contrast to the belief that nuclear weapons only lead to total war, limited deterrence operates on the assumption that nuclear weapons can be used tactically like conventional weapons to limit war and deny a military victory—a belief Hans Morgenthau called "conventionalization" (1976). Limited deterrence thus represents a distinct departure from the other two types of nuclear deterrence that have been previously discussed.

**Force Structure**

To embrace “conventionalization” does not mean to have the same number of nuclear weapons as conventional weapons nor does it mean that a state must have a numerically superior nuclear force than its adversary. The strategy of limited deterrence and the assumption of conventionalization only require that a state have a competitive nuclear force—one that is advanced enough to match its adversary on nearly every rung of the escalation ladder. This signals to an adversary the potential for costly, protracted warfare and it increases the uncertainty of the outcome. The idea is that the first strike is
not a solitary act of aggression, but an invitation to war, where each attack is likely to be met by an equally severe counterattack and the conflict is likely to escalate until the adversary surrenders. “Escalation dominance,” as it is sometimes referred to, is not about planning for, or aiming for, military victory, but about threatening protracted warfare and presenting the possibility of political victory. Just as existential deterrence requires some amount of weaponized fissile material to make the possibility of retaliation credible, limited deterrence requires certain weapons to make the possibility of victory seem credible.

In most cases, this means an arsenal comprised of both strategic and tactical nuclear weapons. Thus far, only strategic weapons have been discussed (ie SRBMs, IRBMs, ICBMs, and SLBMs). Strategic nuclear weapons allow a state to launch a nuclear weapon situated in one state and strike inside the territory of another state. They are generally large and have a longer range. Strategic nuclear weapons delivered from air, land, or sea are often necessary if a state wants to threaten a credible second strike. As mentioned, this ability is strengthened by the diversification of delivery systems.

The ability to achieve battlefield victory is similarly strengthened by diversification, but this includes not only the diversification of delivery systems, but also the diversification of weapon types. Depending upon the intended target, different types of weapons are appropriate. Large surface targets, like cities, for instance, are relatively easy targets, and they do not require extremely precise weapons. Moreover, the power or yield of the nuclear weapon is a decision made depending upon the level of destruction
desired; a high yield weapon is desirable, but not required. Hardened and deeply buried targets (HDBTs) present another scenario.

HDBTs refer to state assets situated inside structures that are difficult to penetrate. In most cases, this means structures that are situated deep underground or those that are above ground but surrounded by several feet of reinforced concrete (a process known as “hardening”) (Report to the Congress, 2001). These targets are generally considered impervious to conventional attack and must be destroyed by nuclear weapons that are precise and powerful. Weapons suited for this purpose are sometimes called “bunker-busters” or “earth-penetrating nuclear weapons,” and they are classified as tactical nuclear weapons (TNWs). TNWs are distinguished from strategic weapons by their ability to strike smaller targets at a shorter distance (Woolf, 2012). This means they are better suited for battle—allowing a state to strike known military targets and better the chances of a military victory. TNWs also include weapons like the so-called “mini-nuke,” a smaller nuclear weapon (less than 5 kilotons) designed to be particularly adept at striking mobile targets. TNWs, like mini-nukes and bunker-busters, are useful for limited deterrence because they have the potential to destroy an enemy’s forces and/or his control and command facilities, and effectively undercut his ability to win a nuclear war.

**Conditions of Use**

A state’s development of TNWs is an indication that it might not consider a second strike alone to be a sufficient deterrent. Instead, it may want to be prepared to strike back in a variety of circumstances, such as when it knows it is currently under nuclear attack or when it knows an attack is imminent and enemy missiles are en route.
These are known as Launch under Attack (LuA) and Launch on Warning (LoW) policies. Depending upon one’s definition of “use,” (i.e., whether “use” requires detonation), LuA and LoW policies could be considered consistent with a “No First Use” policy. However, the most accepted interpretation of NFU precludes use prior to detonation. NFU, as it exists today, is a commitment made by a state that it will not use nuclear weapon unless another state strikes it with a nuclear weapon. Limited deterrence is not consistent with this interpretation. This is because in addition to considering nuclear use in response to an impending nuclear attack, states under limited deterrence also leave open the option to use nuclear force to respond to large-scale conventional attacks and/or chemical or biological weapon attacks. The idea, in general, is to create uncertainty in regards to a state’s intent. This ambiguity of first use, in conjunction with a state’s known nuclear capabilities, is perceived to be the most effective means of denying an aggressor’s objectives and minimizing harm.

**Targeting**

Under limited deterrence, it is assumed that the earlier an attacked nation strikes back, the more likely it is that the aggressor still has unlaunched nuclear and conventional weapons that can be targeted and destroyed. By attacking the remaining weapons, a state can potentially disarm the aggressor and likely slow hostilities. A similar scenario can be imagined if a state uses its nuclear weapons to strike an enemy’s political and military leaders, command and control centers, troop concentrations, critical passageways, and/or formation headquarters. The goal here is not just to inflict damage for the sake of damage, like minimum deterrence, but to inflict a wound that will impede an adversary’s
ability to effectively fight back. Most often such targeting is referred to as “counterforce”
targeting. However, since limited deterrence does not limit a state to only target an
adversary’s forces, a more accurate description would include “counterleadership
targeting” and “counterindustrial targeting” (Sagan, 1989). According to this logic,
civilian causalities are likely, but they are not the ultimate goal.41

**Cases**

Limited deterrence is a prime example of a theoretical strategy that does not find
an exact representation in history. It is also difficult to describe a precise point in time
when a state transitioned to limited deterrence. This is because the two states with the
longest-standing strategies most resembling limited deterrence, the United States and
Russia, came to adopt it as a result of government decisions made over two decades. In
the US, the transition to limited deterrence began with the Schlesinger doctrine in 1972,
which expanded the number of nuclear options available to the President to include
limited strikes upon Soviet military and industrial targets.42 This meant that, unlike
before, the US had the potential to significantly hinder the warfighting ability of another
state, not just harm its population. In his report to Congress, US Secretary of Defense
James Schlesinger justified this transition by saying:

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41 In reality, although a state may distinguish between certain types of targets in its military war plans,
civilian and military targets are not always independent of one another. For instance, many military hubs
are situated near large cities. Also, some states might use a city as a shield or reinforcing barrier to protect
its strategic assets. To get to a leadership bunker, for instance, a state might have to bomb a city.
42 Some cite the US strategy of “Flexible Response” enacted under Kennedy as a significant turn in US
nuclear strategy. In reality, however, this policy did not represent a dramatic shift from the previous US
strategy of “massive retaliation,” because it still required a full-scale response (Burr, 2004). New evidence
presented by Frank Gavin (2012) further indicates that “flexible response” was more of a rhetorical move
than an operational one. In reality, little changed between the Eisenhower and Kennedy administrations in
regards to nuclear strategy. I say here that it marked the beginning of the shift from extensive deterrence to
limited deterrence, because it did introduce the idea that nuclear weapons could be used as instruments of
war—a thought not previously accepted.
We are determined...to have credible responses at hand for any nuclear contingency that might arise and to maintain the clear ability to prevent any potential enemy from achieving objectives against us that he might consider meaningful. The availability of carefully tailored, pre-planned options will contribute to that end. They do not invite nuclear war; they discourage it (Schlesinger, 1974).

This doctrine later evolved into the “countervailing strategy” enumerated by Harold Brown in June 1980 (PD-59). PD-59 emphasized that in addition to a Launch on Warning policy, the US should also prioritize force mobility; it must, upon notice of an impending attack, be able to respond quickly and efficiently. The list of potential second-strike targets was also expanded to include the Soviet leadership, its strategic forces, its conventional military forces, and its industrial and economic bases (Brown, 1980, 39-40). Although civilian deaths were expected, they were no longer specified targets. The primary aim was to deter war, but to also prepare to fight a war should one occur. According to Brown, to successfully deter nuclear war, the US needed "to convince the Soviets that they will be successfully opposed at any level of aggression they choose, and that no plausible outcome at any level of conflict could represent 'success' for them by any reasonable definition of success" (1980, 38).

As Brown's statement indicates, the US adoption of limited deterrence was directly influenced by US perceptions of Soviet nuclear capability and strategy. By the late 1960s, it was believed that the US and Soviet Union had reached approximate parity in regards to strategic nuclear arms. Both states had also developed more precise ICBMs capable of striking military targets. These facts alone were troubling to the United States, but the most acute concern at the time was the belief that the Soviet Union had shifted its
nuclear strategy based upon the belief that it could win a nuclear war (Pipes, 1977; Ermath, 1978; Gray, 1979).

Interviews conducted immediately after the Cold War reveal that this belief was less intractable than the US thought, and its influence on the Soviet Union’s strategic direction was relatively limited (Hines, Mishulovich, & Shulle, 1995; Battilega, 2005). While the possibility of nuclear victory entered into the calculation of Soviet strategy in the 1950s and early 1960s, there was never an operation definition of the term. As a result, the strategy gradually shifted and was different by the end of the 1960s (Hines, Mishulovich, & Shulle, 1995; Battilega, 2005). Ultimately, the Soviet strategy at this time focused on being able to initially deter a nuclear war, and in the case that this failed, to be able to survive a nuclear war. This meant that the USSR, like the US, accepted a Launch on Warning policy or what they called a “retaliatory meeting strike.” If they knew weapons were on their way, they thought it only logical to launch a second strike while they were in the air. Moreover, while the US leadership thought the Soviet Union retained a massive retaliation strategy (and the USSR purposely communicated as much), in reality, the Soviets also considered limited nuclear options, changing their command and control structure in the mid-1970s to enable the launch of one or two missiles at a time, rather than a full-scale, all-weapon launch (Hines, Mishulovich, & Shulle, 1995).

In both the Soviet case and the case of the United States, the gradual shift to limited deterrence was influenced by the technological innovations that occurred in nuclear weaponry in the latter half of the 20th Century and by the exorbitant costs associated with continuing the strategic arms race. After achieving relative parity, both
states encountered a situation of diminishing returns. Force quality gradually came to usurp force quantity. This laid the groundwork for bilateral negotiations on strategic arms reductions. So vast were the forces of both states that force reductions could occur without altering the core structure and capability of both states (i.e., their strategic nuclear triad and nonstrategic nuclear options).

Over the past fifty years, the nuclear forces of the United States and Russia have changed dramatically. They are now nearly one tenth of the size they used to be, and they include weapons far more powerful and accurate than before. Significant strides have also been made in nuclear defense technology. Despite these developments, the nuclear strategies of the US and Russia have remained unchanged. Even now, as pressure mounts for both powers to consider minimum deterrence, the consensus among scholars and policy makers is that strategic continuity is the most likely trajectory. The same cannot be said for China and Pakistan.

At present, both China and Pakistan self-identify as "minimum deterrence" states, but in both cases, the concept of minimum deterrence has been stretched to accommodate changes made in conditions of use, force structure, and/or targeting practices. Chu Shulong and Rong Yu, for instance, prefer to describe China’s deterrence strategy as "dynamic minimum deterrence," explaining that “its features are continually adjusted to meet the changing strategic environment and threat” (2009, 161). Similarly, Pakistan, which initially followed India’s lead in adopting a strategy of "credible minimum

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43 Goldblat predicted in 1994 that the dramatic shift in TNW numbers meant that the US and Russia “marked an important change in the policies of the nuclear powers” – a change away from war-fighting. This comment was later redacted and Goldblat admitted that though the US and Russia’s nuclear arsenals had changed, the use of TNW remained an integral part of their nuclear doctrines.
deterrence," at one point, dropped the word "minimum," and said its strategy was one of "credible deterrence." This omission was soon redacted after it received negative international attention.

While minimum deterrence may have a degree of elasticity, it is important to recognize when a state is beginning to make different assumptions about its security. Does the leadership in China and Pakistan continue to believe in the qualitative distinction between conventional and nuclear weapons? Do they find a limited nuclear war beyond the realm of possibility? Do they continue to believe that threatening a limited retaliatory attack will prevent nuclear or conventional aggression? A state’s answers to these questions can change over time, and as new answers become accepted, shifts in strategy can be expected. These shifts are more likely to be subtle than seismic, and their summation, a change in nuclear strategy, is likely to occur slowly. In the case of the United States and Russia, the transition to limited deterrence occurred over ten years. The timeline for China and Pakistan is uncertain.

China has consistently and vociferously announced to the world that it will not be the first to use nuclear weapons. It has also reiterated upon every occasion its commitment to a minimum deterrent. Beneath these smooth rhetorical waters, however, mounting evidence suggests a strong undercurrent pushing the state to adopt a more robust nuclear strategy. Many Chinese analysts, for instance, have highlighted the fact that China’s NFU policy has not gone uncontested. Many in China’s military community have pushed the state to consider circumstances in which first use might be necessary or appropriate. The recent omission of the NFU policy in China's 2013 Defense White Paper
has caused more speculation on this subject, and some claim that the state's perspective is beginning to shift (Acton, 2013; Adityanjee, 2013). Another, less speculative indicator of a shift in Chinese thinking is the wording included in the 2004 Science of Second Artillery Campaign (SSAC) regarding the role of China's nuclear force. According to the SSAC, China's nuclear weapons are meant to fulfill a mission of "dual deterrence and dual combat"—serving as a "powerful backup supporting conventional strength" (54, 122). Though not a definitive statement on the military utility of nuclear weapons, this statement is a far cry from Mao's claim that nuclear weapons are "paper tigers." Nuclear warfighting might not yet be a consideration, but the SSAC indicates that the idea of using nuclear threats in conventional conflicts to control escalation is not off the table. Conventional and nuclear weapons are considered together in war planning. This shift parallels the shifts made in China's nuclear force.

In 1996, an analysis of Chinese documents led Iain Johnston to believe that China was transitioning its strategy from minimum deterrence to limited deterrence. He admitted, however, that at the time: "Chinese capabilities come nowhere near the level required by the concept of limited deterrence" (558). The same is not true today. While China's nuclear force is not as advanced as the United States and Russia, it is beginning to meet the force requirements of limited deterrence. Over the past two decades, China has worked to increase the pre and post launch survivability of its nuclear force by creating mobile missiles and by developing MRV, MIRV, and MARV capabilities and penetration aids. These newer missiles have a longer range and a shorter launch time, allowing China the option of employing a launch on warning policy. They are also more
accurate - allowing China to consider counterforce, counterindustrial, or counterleadership targeting.

In addition to advancing its strategic missile force, a 2010 Jane's report indicates that China has also "carefully considered the development of tactical nuclear weapon technology, and a portion of the country's short-range ballistic missiles and intermediate range ballistic missiles have been tasked for this role" (Ong-Webb, 48). The report goes on to estimate that China has developed at least eight tactical nuclear weapons with a yield of 10-150 kilotons. In light of this evidence and evidence collected elsewhere, more scholars and analysts are beginning to agree with Johnston that China shows signs of a state transitioning from minimum deterrence (Gill, Mulvenon, & Stokes, 2002; Chase, Erickson, & Yeaw, 2009; Fravel & Medeiros, 2010, Horsburgh, 2012; Chase, 2013). Limited deterrence is a likely, though not predetermined, destination.

Pakistan, like China, can be described as a state moving away from a strategy of minimum deterrence. This shift is indicated by Pakistan's continued commitment to first strike ambiguity, its increased plutonium production (and consequent weapons development), its advancement in warhead miniaturization, its inclusion of non-civilian targets in its war plans, and its ongoing tests of tactical nuclear weapons. Statements by government officials also seem to signal a shift in strategic direction. Upon the testing of its first TNW, the Hatf IX, for instance, Lieutenant General Khalid Ahmed Kidwai hailed the test as "a very important milestone in consolidating Pakistan's strategic deterrence capability at all levels of the threat spectrum" (Press Release No.94, 2011). A statement two years later by Pakistani Prime Minister Nawaz Shari reiterated Pakistan's
commitment to what he called "full spectrum deterrence." Rather than stretching out the concept of "credible minimum deterrence" to the point at which it is indistinguishable, such statements indicate that another label might be more appropriate. Most scholars concur with Peter Lavoy (2008) that Pakistan’s moves are meant to achieve “escalation dominance” vis-à-vis India, and its new nuclear deterrence strategy most closely resembles limited deterrence. Others however, believe Pakistan is more intent on exacting overwhelming, unrecoverable damage to India, in which case, extensive deterrence would be a more suitable label.

**Extensive Deterrence**

Unlike other types of nuclear deterrence strategies, extensive deterrence finds it necessary to deter adversarial aggression by threatening massive, comprehensive destruction. The threat is not “we will harm you, if you harm us” but “we will destroy you if you harm us.” The difference has to do with the amount of harm that is perceived necessary to deter enemy aggression. This strategy is not discriminating or selective like limited deterrence. Instead, it demands that all available nuclear forces be launched in retaliation so as to deliver immediate widespread destruction on an enemy.

**Force Structure**

A credible threat of nuclear annihilation requires significant military capabilities. In most cases, states subscribing to a strategy of extensive deterrence do not measure their capabilities in absolute terms, but instead take measures to define and quantify what it would take to render a specific enemy inoperable and tailor their nuclear force to meet this requirement. In quantitative terms, this often means evaluating how many critical
cities need to be destroyed to render an enemy inoperable. In qualitative terms, the base force requirements of extensive deterrence are similar to the requirements of minimum deterrence. The primary focus is on survivability and deliverability, and a premium is placed on mobile land-based ballistic missiles and submarine-launched ballistic missiles. Moreover, MIRV systems and decoys are desirable for increasing post-launch survivability. More is needed, however, to fulfill a promise of immediate and total destruction. To fulfill this promise, a state needs to be able to launch a majority, if not all, of its nuclear weapons at once. It cannot wait to withstand an attack if this attack has the potential to eliminate or handicap a significant portion of its force. Consequently, any nuclear response would need to be clearly and promptly communicated to military commanders, requiring an advanced early warning system and an effective command and control apparatus. In addition, in order to promptly follow-through on a request to retaliate, a state’s ballistic missiles would need to be in a constant state of readiness. This means that its warheads would need to be mated to its missiles and all its missiles would need to be on high-alert. Bombers could already be airborne. In both cases, these measures would decrease force vulnerability and lessen the time between warning and attack. Another desired force characteristic would be weapons that are able to destroy hardened targets, since a state subscribing to extensive deterrence would aim to strike heavily protected sites like weapons production facilities, leadership hubs, and economic and administrative centers.
**Conditions of Use**

Like minimum deterrence, extensive deterrence is a second strike strategy, only it does not require confirmed detonation to respond to an attack. Since more than just a few weapons are required to exact overwhelming destruction, it is important to ensure that these response weapons are not destroyed before they are launched. As such, it is logical that extensive deterrence would allow for a launch on warning policy as opposed to a launch on attack policy. If there is warning of an impending attack, a state employing a nuclear strategy of extensive deterrence would need to respond immediately with a large counterstrike. In most cases, the timeframe for such a response would be less than fifteen minutes.

**Targeting**

This prompt counterstrike would likely include cities, governmental buildings, military forces, industrial complexes, weapon production facilities, and economic centers—anything considered vital to the state's operations. Scott Sagan calls such targeting "counter-recovery" targeting, because the goal is to hinder an enemy's ability to recover after a strike (1990). "Counter recovery" targeting is not distinct from "counterforce" and "countervalue," but a hybrid of the two. It is a term not used in history, but one that reflects the historical reality more than other terms.

**Cases**

The first document indicating the US accepted a strategy of extensive deterrence was a classified US Army Air Forces memorandum to Major General L.R. Groves (the director of the Manhattan project) issued immediately after the US bombings on
Hiroshima and Nagasaki. According to the memorandum, US nuclear forces should not be used to "conduct a prolonged war of attrition" but, rather to deliver a decisive blow to "cripple the ability of the enemy to wage war" (quoted in Wellerstein, 2012). The recommended targets to achieve this end included industrial centers, transportation hubs, and cities. The report went on to specify precisely which Soviet cities were worth destroying --a total of 466 for optimal effect. The explanation provided to the public by Secretary of Defense Robert McNamara was that:

Security depends upon assuming a worst plausible case, and having the ability to cope with it. In that eventuality we must be able to absorb the total weight of a nuclear attack on our country...and still be capable of damaging the aggressor to the point that his society would be simply no longer viable in twentieth-century terms. That is what deterrence of nuclear aggression means. It means the certainty of suicide to the aggressor, not merely to his military forces, but to his society as a whole (McNamara, 1968).

McNamara’s acceptance of extensive deterrence stemmed from the understanding that the US had the capability to launch its forces upon warning of a Soviet attack. As McNamara privately explained to Senator John Stennis in 1961, with as little as 15 minutes’ notice, the US could communicate this warning and launch its forces in response (17). This meant that by the time the Soviet’s missiles hit US ground, they would be hitting only empty holes in the ground. It was thus possible to “absorb” a Soviet attack while simultaneously ensuring its total destruction.

Although McNamara early-on presented extensive deterrence as the only type of nuclear deterrence, we can now identify this strategy as one among several different types of deterrence strategies. In fact, even as America’s strategy of extensive deterrence unfolded, voices emerged advocating a more flexible option. In short time, weapons
development made limited deterrence possible and extensive deterrence became a
strategy of the past. A similar situation beset the Soviet Union, but, in its case, the short-
lived strategy was maximum deterrence.

**Maximum Deterrence**

Unlike the other types of nuclear deterrence, maximum deterrence is premised
upon the assumption that it is possible and desirable to win a nuclear war. This belief of
achievable victory derives from the baser assumption that nuclear weapons are not
qualitatively distinct from conventional weapons. Thus, according to maximum
deterrence, war should be conducted similarly regardless of the weapons employed;
nuclear weapons present more risk, but do not shift the entire calculus of war.

Such a strategy requires what is known as a “first-strike capability.” This means
the ability to eliminate, or nearly eliminate, an opponent’s nuclear force upon initial
attack. In cases of “near” elimination, an aggressor accepts the risk of retaliation. It can
prepare for this risk by building bomb shelters for vulnerable population centers or
educating its citizenry on radioactive fallout. Such measures serve the dual purpose of
increasing the likelihood of societal survival *ex post* and demonstrating resolve *ex ante.*
Where other strategies fail to envision nuclear war, maximum deterrence carries a state
through to a war’s end.

**Force Structure**

In terms of force requirements, maximum deterrence is logically the most
demanding of the deterrence types. It requires that a state’s nuclear force be both
quantitatively and qualitatively superior to its enemy’s. In theory, survivability is less of a
concern, because a state under maximum deterrence anticipates launching its forces before another state has the chance to attack. In reality, however, survivability is still likely emphasized, because a state cannot ever be certain that its forces are immune from an enemy attack.

In addition to survivability, a state subscribing to maximum deterrence would prioritize the fast and precise delivery of nuclear weapons. This would likely necessitate targeted weapons preloaded with nuclear warheads. The threat of attack must be prominent and public, but the attack itself, to be successful, must take the enemy by surprise. Any indication of attack, like a movement of forces, can jeopardize this mission. A state must also be sure that it can, upon first strike, eliminate all or nearly all of its enemy’s forces. This means precise weapons able to hit and destroy hardened targets. Such force capabilities mitigate the possibility of retaliatory blow-back.

**Conditions of Use**

In contrast to limited deterrence, maximum deterrence does not require that a threat be “imminent” for a state to take action; it need only exist. The idea of attacking a state to stymie the development of its nuclear weapons program is a prime example. The line between such preemptive military action and outright aggression is ambiguous. Some have even argued that preemption is aggression by another name (Record, 2004). In the case of maximum deterrence, however, it is the threat of preemptive war, rather than the punishment itself, that is emphasized. A state (state A) can hope, for example, to influence another state (state B) not to begin or proceed with a nuclear weapons program by threatening to destroy its development facility before it is fully formed. State B can
demand that State A cease all weapons development or else. If, after the threat, State B continues to carry out its action (which could be perceived as an act of aggression), then state A can retaliate with a first strike. Ultimately, while the strategy of maximum deterrence still requires that nuclear weapons be used in response, the precipitating action is broader than the other deterrence types to include a vast array of actions - including the development of a nuclear weapons program or the buildup of an existing nuclear weapons program. The key, as discussed, is that the state has the capabilities to carry out this threat.

**Targeting**

Preventative strikes are most likely going to be targeted at another state's nuclear weapons and/or its nuclear weapons production facilities. These targets are chosen by the state so as to eliminate the ability of the enemy to retaliate with nuclear weapons. The goal, in most cases, would be to destroy all available weapons as well as the ability of the state to produce these weapons. Cities could be a secondary target—held hostage—in circumstances in which a few enemy nuclear weapons remain.

**Cases**

The Soviet Union is the only nation known to have employed a strategy of maximum deterrence. From 1955 until the late 1960s, many senior government officials in the Soviet Union believed that a Communist victory against Capitalism hinged, in part,
upon the Soviet Union’s ability to wage a preemptive nuclear war against the West. This view was heavily influenced by an incorrect understanding of US nuclear strategy. The relative vulnerability of US ICBMs at the time led Soviet leaders to believe that the US intended to use its long-range nuclear weapons for a first-strike against the Soviet homeland (Hines, Mishulovich, & Shulle, 1995). In response, Soviet leaders incorporated nuclear first strikes into state war plans and presented them to the Warsaw Pact as a feasible line of action to defeat NATO (Malinovskii, 1961). This type of aggressive strategizing easily aligned with the offensive military culture the Soviet Union had already been cultivating. As the Chief of Staff of the Soviet ground forces explained in 1963: “The combat potential of modern armed forces manifests itself to the greatest degree in the offense, not in the defense. Therefore, Soviet military doctrine regards the strategic defense as an unacceptable form of strategic operations in modern war” (Wolfe, 1964).

Eventually, the Soviet preference for the offense waned, because its requirement, qualitative and quantitative force superiority, became unsustainable. The US and the Soviet Union were advancing their arsenals and developing new nuclear technology at an alarming rate. Consequently, as early as 1968, the Soviet Defense Ministry began reporting the unlikelihood of a Soviet victory in nuclear war. Once it was realized that nuclear victory was unlikely and that both countries could destroy one another several times.

45The evolution of the Soviet Union’s nuclear strategy suggested by the Hines interviews contradicts Khrushchev’s diplomatic statements, specifically Khrushchev’s 1956 proposal of “peaceful coexistence” between the US and Soviet Union. It is unclear in Battilega’s account whether or not there was a disjuncture between Krushchev and his military leaders on this point in the latter half of the 1950s and early 1960s or whether Soviet diplomatic statements at this time cloaked a more aggressive military policy (Battilega, 2005).
times over, the idea of a first strike seemed less wise (Battilega, 2005). This caused the Soviet Union to quickly recalibrate its nuclear strategy.

**Conclusion**

This recalibration was missed by many Soviet scholars in the US, and the long-held perception was that the Soviet Union entertained ideas of a nuclear victory throughout the Cold War. This idea was supported by a specially formed committee called "Team B" and put forward publicly by Richard Pipes in his 1977 article "Why the Soviet Union Thinks it Could Fight and Win a Nuclear War." At the time, Pipes concluded that “The strategic doctrine adopted by the USSR over the past two decades calls for a policy diametrically opposite to that adopted in the United States… not deterrence but victory, not sufficiency in weapons but superiority, not retaliation but offensive action” (31).

With the benefit of hindsight, scholars now see that Pipes and other analysts in the United States overestimated the aggressiveness of the Soviet Union and too readily dismissed the reassurances issued by the Soviet government regarding the intent of its nuclear force. They sincerely doubted statements like those of Soviet Minister of Defense, Marshal Grechko, who claimed at the time that the Soviet leadership “has never concealed, and do not conceal the fundamental principal tenets of [Soviet] military doctrine” (Grechko, 1975, 345).46

The fallacious interpretation of Soviet nuclear strategy in the latter half of the twentieth century is partly attributed to the US dismissing the majority of Soviet
statements as propaganda. While certainly not everything that was said was true, more of it was true than US experts wanted to believe. It is easy to see how a similar mistake could be made today in regards to China, especially considering the present context of mutual distrust.

This dissertation attempts to counter this possibility by looking directly at what primary state sources in China are saying about China's nuclear strategy. While these sources might present idealized versions of events and social conditions in China, they are also the platform that the government uses to guide party thought and to communicate party ideas to the public. These ideas can be viewed with skepticism, but the most valid skepticism comes not from the West, but from others within China. As a result, the next chapter looks at three unique perspectives from within China on China’s nuclear strategy, including the military, state, and academic community.
CHAPTER FIVE: CHINA’S VIEW OF DETERRENCE

The previous chapter outlined a range of nuclear deterrence strategies, each of which presents different answers to questions regarding how and when a state chooses to use its nuclear weapons. The position of most states along this continuum is known, but China’s position is continually contested. This chapter provides a nuanced assessment of China’s nuclear strategy by looking for change over time across five dimensions of strategy, including force assumptions and aims, conditions of use, structure, and targeting practices. Each of these dimensions is given a section, and conclusions are drawn in each case based upon the triangulation of China’s relevant state, military, and academic literature. First, though, before discussing China’s practice of nuclear deterrence and how it might be shifting over time, it is necessary to explain the impact time has already had on China’s concept of nuclear deterrence.

Deterrence

The first point to make in any discussion of China's nuclear strategy is that the term deterrence (weishe) has not historically had the same meaning in China as it has in the West. In the West, deterrence and compellence have distinct meanings; deterrence is the use of threat to prevent an adversary from taking action and compellence is the use of threat to force an adversary to take action. These definitions, initially provided by Thomas Schelling (1966) are generally still accepted in academic and political circles in
the West. In China, by contrast, the term deterrence is often conflated with the term compellence, as a means of military art accomplishing the revered aim of "subduing [the enemy] without warfare."\(^{47}\) A more technical definition is provided by the PLA Encyclopedia which defines the strategy of deterrence as "the display of military power or the threat of use of military power, in order to compel an opponent to submit" (Cheng, 2011, 92). In this sense, deterrence is more akin to the Western concept of coercion and thought to encompass both defensive and aggressive action. As a consequence, Chinese leaders were reticent for a long time to use the term deterrence to describe their nuclear strategy.

In fact, the only time the word deterrence appears in China’s earlier White Papers is when the authors were critiquing the strategy of other nuclear powers. In 1995, for instance, China's Defense White Paper firmly states that "The Chinese government has from the beginning opposed nuclear blackmail and the nuclear deterrent policy" (State Council of the People's Republic of China, Sec. VI). China's 1998 White Paper issued a similar indictment, associating deterrence with “a cold war mentality,” and requesting that the major nuclear powers abandon such policies as soon as possible (State Council of the People's Republic of China, Sect. III). In this context, the deterrent strategies of other nuclear weapon states provided a convenient foil for China, which described its own nuclear strategy in terms of self-defense.

\(^{47}\) This phrase was provided in Sunzi’s *Art of War* and is often credited as the first Chinese reference to the concept of deterrence. The complete phrase is: "A hundred victories in a hundred battles, is for one who is adept at not being adept; military art is subduing without warfare" (Zhao, 2005, 1).
In 2000, the tone of China's Defense White Paper shifted slightly, and the word "deter" appeared in the English translation of the paper to describe China's nuclear strategy. The paper explained that "China maintains a small but effective nuclear counterattacking force in order to deter possible nuclear attacks by other countries" (State Council of the People's Republic of China, Section II). At the same time, however, the White Paper also continued to reiterate that its small arsenal was "entirely for self-defense" (State Council of the People's Republic of China, Section II). The English version of the 2002 Defense White Paper went further to say that China's limited arsenal was "entirely for deterrence against possible nuclear attacks by other countries" (State Council of the People's Republic of China, Section II).

It was not until 2006 that Chinese state officials officially used the Chinese term for deterrence to describe the mission of its own nuclear force in the domestic version of the paper. According to the 2006 Defense White Paper, the objective of the state’s Second Artillery Force (SAF) is "to deter other countries from using or threatening to use nuclear weapons against China" (State Council of the People's Republic of China, 2006: Section II.). Elsewhere, the paper also describes the SAF mission in terms of “strategic deterrence.” This wording carried over into the 2008, 2010, and 2012 Defense White Papers. It also allowed deterrence to become a mutually accepted entry into the English-Chinese, Chinese-English Nuclear Security Glossary (National Research Council, 2008).

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48 While China did not incorporate the term "deterrence" into its strategy until 2006, its adoption of the concept of nuclear deterrence is marked by Deng Xiaoping's September 1986 speech. Moreover, the Chinese military did mention the term "deterrence" in its strategic writings as early as 1999 with the publication of Zhanluxue (The Science of Strategy) where the editors distinguished between two different types of deterrence: offensive and defensive. The former was associated with hegemonism, while the latter was the type said to be employed by China.
China’s Defense White Papers are not the only place where one sees the transition from China’s disavowal to its acceptance of nuclear deterrence. As illustrated in Figure Six, the term nuclear deterrence was generally absent from China’s academic, military, and state discourse in the 1970s and 1980s, but has been more frequently cited in the past twenty years. Moreover, a survey of these later articles indicates a trend toward the incorporation of deterrence into China’s military identity, with articles like “On Western Nuclear Deterrence Theory” being published in 1990 (Li), and articles like “The Evolution of China’s Nuclear Deterrence Strategy” being published in 2009 (Rong & Yuan). It is important to note, however, that even while many Chinese scholars, and now policymakers, have adopted the term deterrence, its use does not indicate that China is embracing the Chinese concept of the term, which includes compellence. Rather it indicates that China is shifting its definition of deterrence to more closely reflect the Western definition. This is further exemplified by the English-Chinese, Chinese-English Nuclear Security Glossary, which was written by the Chinese Scientists Group on Arms Control and the U.S. Committee on International Security and Arms Control and which defines deterrence as “the prevention from action by fear of the consequences” (National Research Council, 2008).49

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49 Compellence, by contrast, has a separate entry in the glossary and is defined as “The use of the threat of force to compel a desired action by one’s adversary” (National Research Council, 2008).
The addition of nuclear deterrence to the Chinese lexicon and the consensus regarding its meaning has increased military understanding across both hemispheres. Unfortunately, the same cannot be said for more specific terms like minimum and limited deterrence.\(^50\) These terms are now like the term nuclear deterrence was in the 1970s and 1980s; their meanings are contested, and they are notably absent in the Chinese literature.\(^51\) How then are we supposed to evaluate China’s nuclear strategy? How can we measure a strategic shift over time? This chapter answers these questions by drawing upon primary sources representing China's state, academic, and military communities.\(^52\) It

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\(^50\) While both terms appear in *Zhanluexue* and *Zhanyixue* alongside ‘maximum deterrence,’ their usage did not generally continue into other writings. This is particularly true for limited deterrence, which does not have a consistent definition in the texts and which even lacks a solid definition in the English-Chinese, Chinese-English Glossary of Nuclear Terms.

\(^51\) A search across 9,800 Chinese academic and military journals over the past forty years revealed less than ten articles including these terms.

\(^52\) A large caveat is necessary whenever one attempts to conduct primary source research on a subject with national security implications. This is especially true in particularly opaque countries like China, where one
also discusses, in detail, each of the five dimensions of nuclear strategy presented in chapter three, including nuclear force aims, assumptions, policy, force structure, and targeting.

Assumptions and Aims

Without a declaration that the state is switching nuclear strategies, and without the names of identifiable deterrence strategies in the primary source literature, measuring the direction of a state's nuclear strategy is difficult. One of the most basic ways to measure change is to look for consistency or change in the assumptions held by individuals of influence relating to the nature of nuclear weapons and the role of nuclear weapons in military conflict. Important assumptions include whether or not it is believed that the use of nuclear weapons leads to total war; whether or not nuclear weapons can be used alongside of or in place of conventional weapons; and whether or not victory in a nuclear war is seen as feasible or desirable. Relatedly, different Chinese actors can envision different aims for a state's nuclear force—from preventing nuclear blackmail, to deterring/deescalating nuclear conflict, to deterring/deescalating conventional conflict, to winning a nuclear war. Specific combinations of these assumptions and aims lead to different nuclear strategies.

must be aware of the possibility of strategic misinformation. An explicit admission of such practices is contained within China's classified PLASAF manual. The editors state: "Sometimes building up the momentum requires hiding weaknesses and showing strengths, revealing advantageous forces, and even making exaggerated demonstrations to the opponent. Sometimes one should also conceal the true and reveal the false, making it difficult for the enemy to distinguish between true and false and making it difficult for the enemy to fully comprehend and believe the effect of these forces..." (Yu, 2004, 278). This statement is later followed by a description of how to use propaganda to disseminate misinformation (Yu, 2004, 288). It is beyond the parameters of this dissertation to distinguish with certainty which information has been falsified and which information is authentic. Rather, the aim of this study is to illuminate the discourse across sources and sectors and identify trends and themes that might indicate a shift in strategy.
State

When surveying the government literature produced in China over the past two decades, one finds remarkable consistency in the state’s beliefs surrounding the specific role and nature of nuclear weapons. These include the belief that nuclear weapons are philosophically and materially distinct from conventional weapons, that a war fought with nuclear weapons cannot be contained or won, and that nuclear deterrence is maximized once a state achieves second strike capability. Moreover, Chinese state officials have maintained, from the beginning, that the purpose of the state's nuclear force is to deter nuclear blackmail and foreign nuclear aggression. Evidence of these beliefs appear most often in the literature in the form of definitive statements describing China’s nuclear intent. Examples include statements like “Our weapons are not for warfighting,” “We will never engage in a nuclear arms race,” (Ji, 1999; Bai, Wang, & Wu, 2006; Song, 2007; Chen, 2009; He & Che, 2010; Ji, 2010; Rong & Wang, 2010) and “We will only maintain the minimum amount of arms necessary for national security needs” (Hu, 2009; Ji, 2010; Rong & Wang, 2010).

In addition to these affirmative statements, one can also see evidence of the state’s beliefs in its critiques of the other nuclear powers. In response to the 2002 US Nuclear Posture Review, for instance, Chinese officials accused the US of “blurring the line between nuclear and conventional weapons” (Tan, 2002). Another accusation commonly aimed at the US (and sometimes also at the Soviet Union) is that, despite changing world circumstances, the US continues to employ a “Cold War mentality.” This term in China is associated with the idea of zero-sum security—where deterrence is maximized by having
more weapons than the enemy and nuclear war is an available strategic option. This is the kind of flawed logic that many claim led the US and Soviet Union to engage in an irrational arms race, and it is characterized as anachronistic, "dangerous," "hostile," and "absurd" (Sa, 1997; Ding, 1998; Liu & Ma, 1999; Ji, 1999; Ma & Zhang, 1999; Tan, 2002; Xin, 2005; Wen, 2005; Ji, 2010; Li, 2011).

A similar though less damning indictment can be lodged against India and Pakistan, which have, in recent years, also participated in nuclear brinkmanship. In describing this situation, China has warned both states against the futility of an arms race and the mutual destruction inevitable in nuclear war (Jia, Wang, & Zhou, 1998; Pang, 2002b). One particular article on the subject published by a state-run news agency, reminds India and Pakistan that their acquisition of nuclear weapons “has ended the era of traditional conflict” and, as a result, “no sane politician or strategist would want to launch a nuclear war, because none of them could assume the tragic consequences that would result from such a war…” (Pang, 2002b). In this view, the very nature of nuclear weapons shifts the calculus of conflict. A nuclear war is total and final—presenting a situation where “no one can escape unscathed” and “no one will be able to control the development of the war situation” (Mei, 2002).

The continuity of the state’s nuclear assumptions as displayed in its news media and public speeches is further exemplified in its Defense White Papers. While China's 2006 Defense White Paper is credited for officially announcing China's nuclear strategy, China's White Papers going back as far as 1995 have mentioned several consistent aspects of China's nuclear strategy. The first points emphasized by Chinese leaders
include China’s commitment to maintain a small nuclear arsenal for self-defense and its refusal to enter into a nuclear arms race. These points were repeated in 1998, but also elaborated upon to include a No First Use pledge. In 2000, China added Negative Security Assurances to its list of commitments, promising not to engage in nuclear war with any non-nuclear country. It also committed never to deploy nuclear forces outside of its borders. These points were continued in the 2002, 2004, and 2006 Defense White Papers.

Major General Yao Yunzhu claims that China has the most consistent nuclear strategy among all nuclear weapons states (Yao, 2005). This claim derives, no doubt, from the continued wording used by the state to describe China’s nuclear intent. The words very rarely change, and usually, they even occupy the same position in each Defense White Paper. There are, however, a few perceptible cracks in this smooth veneer. In 2008, for example, the state elaborated upon its concept of deterrence to say that its military strategy called for "the flexible use of different means of deterrence." Additional objectives mentioned in the nuclear context included "effectively control[ing] war situations" and "reduc[ing] the risks and costs of war" (State Council of the People's Republic of China, 2008). This wording was omitted in subsequent White Papers, yet it is also one of the few indications of the state’s position ever fluctuating – if even slightly.

The strategy of minimum deterrence is predicated upon the assumption that nuclear war cannot be won, it cannot be limited, and that nuclear weapons cannot be used in war beside or in place of conventional weapons. The statement above regarding flexible deterrence, strains these assumptions, but does not entirely contravene them. It
also does not go so far as to indicate the state’s acceptance of nuclear warfighting—a fundamental tenet of limited deterrence. The vast majority of statements in China’s state literature are consistent in espousing China’s commitment to minimum deterrence. As a result, there is not enough evidence to support a shift in China’s nuclear assumptions or aims at the state level. The same cannot be said when perusing the academic literature in China.

*Academia*

The subset of scholars studying nuclear strategy in China is relatively small, however, even in this limited community, there are significant differences of opinion (Sun, 2006). More specifically, the assumptions of the state relating to nuclear weapons are not unanimously held among Chinese academics. The primary divide is between scholars whom, like the state, believe that nuclear weapons are instruments of political utility, nuclear war is total, and nuclear deterrence is accomplished by securing second strike capability on the one hand, and scholars who speculate on the military utility of nuclear weapons, the limitation of nuclear war, and the ability of combat capabilities to enhance deterrence on the other.

Those in support of the state view include scholars like Sun Xiangli, Deputy Director of the Arms Control Room at the Beijing Institute of Applied Physics and Computation Mathematics, who wrote about the truths shaping China’s nuclear strategy, truths like “it is unrealistic to fight a limited nuclear war,” (2006,4) “conventional weapons and nuclear weapons cannot be uttered in the same breath” (2006, 2), and [unlike conventional deterrence], “the effectiveness of nuclear deterrence is not related to
the relative size of one’s force” (2006, 3). Sun’s words are echoed by scholars like Tsinghua University Professor Li Bin (2006). Li mentions that the Chinese concept of deterrence is to "win without a fight" (18). He also admonishes any state that has "fuzzy boundaries" between conventional and nuclear weapons (22) and explains that the "psychological effects of nuclear weapons" allows them to have a stable deterrent effect irrespective of scale (21). Other scholars that have published similar views include Tongji University Professor Xia Liping (2010), Wuhan University of Technology Professor Rong Yu (2009), and Hong Yuan, Associate Research Fellow at the Chinese Academy of Social Sciences (2009).

Outside of these published analyses, one also finds support for this perspective in the published briefs of the US-China Strategic Dialogue, which brings together academics, military personnel, and unofficial state representatives from the US and China each year to discuss nuclear security. At the first conference, held in 2005, several scholars emphasized that discussing the conditions of use for tactical nuclear weapon was moot, because no nuclear weapons, regardless of type, had battlefield utility (Twomey, Lavoy, & Stone, 2005, 7). This perspective appeared again in later conference conversations, and its endurance is evidenced by a similar remark at the 2012 conference, where a Chinese analyst stated: "we [in China] do not think nuclear weapons are usable... once war has gone nuclear, it can't be controlled”53 (Glosny, Twomey, & Jacobs, 2013, 28). At the same time that this idea was expressed, scholars also emphasized the totality of nuclear war and the requisite response to a nuclear attack to be the deployment of all

53 Though participant lists are published for each conference, the words said and ideas presented are not attributed in the written report in hopes of cultivating an atmosphere of candor at the event.
remaining nuclear forces (3). These forces should, they claim, be enough to stop aggression—even if China only had a "handful" or a "few" nuclear weapons remaining (8). One scholar even mentioned that if China had only one missile that was able to evade defenses and strike its intended target in retaliation, then he would consider China to have an effective deterrent (8).

Perspectives like these, which reflect the majority opinion in China's academic community, reinforce the state's portrayal of China as employing a strategy of quintessential minimum deterrence. Contrasting views in academia exist, but are rare. Most of the differences in opinion are expressed in closed door settings as opposed to open publications. At the 2012 US-China Strategic Dialogue, for instance, at least one scholar mentioned that China's current nuclear strategy might not be immutable, but contingent upon the state's arsenal size. With more nuclear weapons, he argued, China can have a greater range of nuclear options and the possibility of an enhanced nuclear deterrent (Twomey & Shelor, 2013, 13). This scholar's opinion coincides with the views of several other Chinese scholars who question the wisdom of China sustaining the same nuclear aims in light of changing world circumstances.

The state and most academics stress that the sole aim of China's nuclear force is to prevent nuclear blackmail and to deter foreign nuclear aggression (Li, 2006; Sun, 2006; Zhang, 2008; Rong & Yuan, 2009). Yet, some scholars also argue that advances in long-range conventional ICBMS may be changing the rules of the game. Unlike the conventional weapons developed previously, some of the conventional missiles today have the ability to destroy many of China's above-ground military facilities and forces in
an accelerated timeframe. As a consequence, scholars on this side argue that China may one day find it necessary to expand the aims of its nuclear force to deter large-scale conventional attack (Glosney & Twomey, 2010, 90; Twomey & Shelor, 2012, 11). This possibility is more explicitly acknowledged in China's military sector.

Military

For China, the end of the Cold War brought about a recalculation of its military strategy. Under the leadership of President Deng Xiaoping, the Central Committee of the Communist Party and the Central Military Commission jointly decided that the mission of China's People’s Liberation Army (PLA) should shift from preparing to fight a “large-scale, conventional, mechanized war” to preparing to fight “local wars under high-tech conditions.” This latter strategy was characterized as "active defense."

China's National Defense White Papers provide a top-level overview of this strategy, situating it within the broader context of the state's peaceful development. Yet it is China's military publications, like Zhanyixue, that provide the significant details. Zhanyixue (The Science of Campaigns), is a military publication restricted for "internal circulation." The most recent available version of Zhanyixue, published in 2004, clarifies that "While strategically the guideline is active defense, in military campaigns, though, the emphasis is placed on taking the initiative in ‘active offense.’ Only in this way can the strategic objectives of ‘active defense' be realized" (Wang & Zhang, 2000). But in what ways, if any, does 'active offense' affect China's nuclear strategy?

54 In the Chinese literature, this practice is sometimes referred to as "extended deterrence" (Li, 2006; Twomey & Shelor, 2008), yet in the West, "extended deterrence" describes a commitment between states, where one state promises to use its nuclear weapons to defend another state (typically a non-nuclear state). This discrepancy is noteworthy in analysis and in future US-China nuclear dialogue.
Fortunately, *Zhanyixue* contains a section dedicated to this subject. The editors of the volume clarify that China's nuclear forces are meant to serve as political leverage in international diplomatic situations and to serve as decisive tools on the battlefield. The text clarifies that "In counter nuclear combat, the campaign commander of the Second Artillery has to firmly establish the principles of being ready to fight while deterring" (italics added, Wang & Zhang, 2000, 372). Later, this is also described as preparing for "protracted warfare"—a situation in which China's nuclear forces are tasked to "contain the escalation of the nuclear exchange" (Wang & Zhang, 2000, 369). This theme continues in the military publication *Di'er Paobing Zhanyixue*.

*Di'er Paobing Zhanyixue* (The Science of Second Artillery Campaigns,) is a classified military manual meant for training China's PLASAF officers. Like *Zhanyixue*, it is unequivocal about the necessary expansion of China's nuclear force aims. These aims are outlined in detail in Chapter X, Section II. The first aim that it lists is to deter foreign nuclear aggression by threatening nuclear retaliation. The authors explain that "concern on the part of the enemy to withstand retaliatory strikes...disposes of the enemy's plan to launch war" (Yu, 2004, 273). The second aim is to deter the escalation of war or to "restrict the war to a certain size" (Yu, 2004, 274). The third aim is to use nuclear weapons as a "backstop" supporting conventional missile strikes.\(^5\)

The latter two aims clearly fall outside the parameters of minimum deterrence. They also demonstrate a change in thinking. If nuclear weapons can be introduced to restrict the size and scope of war, then the assumption is that nuclear war can, in fact, be

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\(^5\) The fourth and final specified aim of the PLASAF deals exclusively with conventional missiles: Use missile launch tests to achieve enemy submission.
limited. This is also the implication of statements indicating that nuclear weapons "can directly impact the progress and end results of warfare" (Yu, 2004, 55). Moreover, if the aim is to use nuclear weapons as a failsafe behind conventional weapons, with "nuclear missile forces located in the strategic rear" and "conventional missile forces deployed toward the battle front line" (Yu, 2004, 118), then the assumption is that nuclear weapons are not necessarily operationally distinct from conventional weapons, but that both weapons can be used in tandem to achieve military aims. This idea is underscored by the use of the words "dual deterrence and dual operations" to describe the new strategic direction of China's missile force.

According to Di'er Paobing Zhanyixue, this "double edged sword" is not intended for a defensive jab, or even to inflict a singular lethal wound. Rather, it is meant to fight. This concept is clearly laid out in the manual's introduction: "With the formulation of the strategic principles of the new era, the strategic missions of the Second Artillery Force have shifted from the single undertaking of guided missile nuclear assault to nuclear and conventional 'dual deterrence and dual operation'" (Yu, 2004, 12). Elsewhere it is further explained that "once deterrence has lost its effectiveness, the campaign operation can quickly transit to actual combat" (Yu, 2004, 274). The presupposition here and in other cases where "actual combat" and "actual warfare" is mentioned is that nuclear warfighting capabilities are a necessary prerequisite to successful deterrence. In this way, deterrence and warfighting are not diametrically opposed but are "interconnected,
coexistent, similarly conditioned and closely integrated organic wholes" (Yu, 2004, 126).  

This perspective also appears in another one of China's internal military publications: *She Zhan* (Coercive Deterrence Warfare) published by National Defense University and edited by Zhao Xijun. *She Zhan* is meant to provide a comprehensive overview of the role of missiles in China's military deterrence at the campaign level, and it clearly echoes many of the perspectives that appear in *Di’er Paobing Zhanyixue*, including the aim of nuclear weapons to prevent the escalation of conventional war (Zhao, 2005, 86), the military advantage of using nuclear weapons as a "backing" for conventional forces in battle (Zhao, 2005, 26, 83) and the need to use nuclear weapons for more than psychological deterrence. According to Zhao: "In order to contain the escalation of conventional war and maintain the fundamental national interest...We must exhibit a strong desire to conduct nuclear retaliation and make the enemy realize the severe consequences of our nuclear strike exceeds the benefits they receive" (Zhao, 2005, 31). Later on, Zhao also mentions that the goal of the SAF is "to prevent low-intensity nuclear war from further escalating" (Zhao, 2005, 40).

Zhao's words and the words contained within China's recent military manuals indicate not only that the military is operating under different assumptions than the state, but that the military has different goals in mind for the country's nuclear forces. This is also reflected in the public statement of some PLA officials. At a seminar on military

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56 This is not to imply that deterrence is achieved through warfighting, but that it is achieved through the demonstration of a state's warfighting capabilities. *Di’er Paobing Zhanyixue* mentions that this can be done through signaling, intimidation, propaganda, test launches, military exercises, and counter nuclear deterrence (Yu, 2004, 221).
science in 2000, for instance, PLA Major General Dong Qingfu, mentioned the increased possibility of nuclear war in the 21st Century, specifically, the increased possibility of limited nuclear wars (“PLA Daily Carries Article on Guarding Against Nuclear War,” 2000). More recently, PLA Major General Yin Zhou, recently emphasized the fact that China’s new SSBN force allows China to “effectively deter and fight back against those who want to launch nuclear attacks on China” (“China Showcases its Nuclear Submarine Force,” 2013). The Deputy Director of the International Information Bureau of the PRC Ministry of National Defense expressed a similar sentiment when describing the JL-2, saying "Some people say that peace is the highest reward to military personnel, and the existence of military forces not only serves the purpose of winning wars but also serves the purpose of curbing wars.' Only with the capability of fighting can one talk about peace” (Meng & Zhou, 2013).

The differences between these perspectives and those expressed by state officials are subtle, but important. China's Defense White Papers continually portray the state's nuclear forces as a political instrument—a means to counter coercion and thwart nuclear aggression. These statements, by contrast, highlight the military utility of nuclear weapons—portraying them as a means to fight aggression. This is a difference in assumptions which has direct implications for state military aims and for the state's No First Use policy.

**Conditions of Use**

On October 16, 1964, China tested its first atomic bomb. At that time, Chinese President Mao Zedong also made known to the world that China's nuclear weapons were
intended for defense and would only be used in retaliation for a nuclear strike against the Chinese homeland. This position was then unique among the nuclear weapon states. Half a century later, China remains the only NPT nuclear weapon state which officially adheres to a No First Use" (NFU) policy.

**State**

China's White Papers, state news, and public speeches are replete with references to China's commitment not to use nuclear weapons first. This has been a mainstay in China's nuclear policy ever since its first nuclear test, and it has been consistently emphasized in the Chinese press (Gao & Wang, 1996; Chen & Ban, 1996; He, 1996; Gao & Wang, 1996; Ma & Zhang, 1999; Gu, 2000; Lin, 2002; Liu, 2005; Song, 2007; Hu, 2009; Zhang, 2013). It has also been clearly articulated in every Defense White Paper from 1998 to 2010. China's 2012 Defense White Paper (DWP) proved to be the exception.

The 2012 DWP emphasized many of the points China has made before, including the maintenance of a "lean and effective" nuclear force and the objective to deter nuclear aggression, but it did not mention China's commitment to No First Use, China's negative security assurances, or central deterrence. Of these omissions, China's NFU pledge received the most attention and policy makers and scholars began speculating as to whether or not this indicated a shift in China's nuclear strategy (Acton, 2013a).

In most cases, public officials in China rebutted the "editorial error" by reiterating the state's commitment to NFU. A week following the release of the 2012 paper, for example, Colonel Yang Yuzhun, a spokesman for China’s Ministry of Defense, went on
record to say that “China repeatedly reaffirms that China has always pursued a no first use nuclear weapons policy, upholds its nuclear strategy of self-defense, and never takes part in any form of nuclear arms race with any country. The policy has never been changed” (Zhang, 2013). The spokesperson further explained that the perceived omission was a logical consequence of the state switching from a "comprehensive" format to one that was more "thematic"—a switch that had been explained immediately following the paper's release by one of its authors, Major General Chen Zhou (Yao, 2013).

The official explanation of the omission resonated with many scholars studying China in the West (Fravel, 2013; Kulacki, 2013; Yao, 2013; Zhang, 2013), and a report by the US-China Economic and Security Review Commission, essentially reiterates the explanation provided by Colonel Yang, saying:

"...China’s previous DWPs, published from 1998 to 2010...provided a comprehensive overview of China’s security environment, national security goals, general defense policy, major areas of concern, defense management, and international activity, among other issues. The 2012 DWP...departs in both format and content from previous white papers. It is a shorter thematic paper that is less formal and ideological" (Hsu, Murray, & Wild, 2013).

It is thus logical, the report continues, for the sake of brevity and conceptual clarity, for the report to refrain from discussing certain subjects, including China's defense expenditures and NFU policy.

In many ways, this makes sense. After all, China's Defense White Papers had prior to that point becoming exceedingly lengthy and the number of sections had doubled since the first publication. In later years, China had dedicated an entire section to defense expenditures, and dedicated another section to China's arms control and disarmament
efforts. Yet, to be clear, while China's commitment to negative security assurances and central deterrence were usually discussed exclusively in the arms control section, in every white paper since 1998, China's commitment to No First Use appeared in two places in the paper: the section on arms control and the section on the state's national defense policy. In the latter, the Second Artillery Force (SAF) would be described alongside other forces and its role contextualized amidst the state's larger military mission. This is also where China has consistently reiterated that its nuclear force is "lean and effective" and meant to deter nuclear aggression. China's new Defense White Paper does not include a section on arms control or a section on the state's national defense policy. Yet despite these omissions, the paper's authors included a paragraph describing the nature of the state's nuclear forces. This paragraph reiterated that China's nuclear force is "lean and effective" and that it maintains a mission of deterrence. While, the new style of the paper could easily explain the omission of an overview of China's defense expenditures and China's arms control efforts, the absence of an NFU policy is noteworthy −especially since the paper emphasizes points that are usually made in tandem with this point.

The argument of brevity is understandable for a section, but not a sentence. Also, the point made by the US-China Economic Commission that the 2012 paper is "less formal and ideological," seems to imply something else entirely. If we decide that China's NFU policy should be relegated to the section that discusses state responsibility under existing multilateral arms control, disarmament and non-proliferation regimes or in the section on the state's defense policy, but not in a section discussing the "Building and Development of China's Armed Forces," what does that say? Does it signify that China's NFU policy has
become more of a guiding ideology and less an operational guideline? Is it more a declaratory policy than a part of strategy? These questions are difficult to answer given the available evidence.

The omission of NFU in the 2012 Defense White Paper might well be a signal—if not of a shift in China's strategy, then at least of a deeper debate among China's state officials. It is difficult for an outside analyst to provide direct evidence of top-level differences in opinion, but those within China have alluded to the fact that they exist (Twomey & Shelor, 2008, 4). In addition to potential fissures among state officials, it is more common knowledge that there are those in China's academic and military communities that do not always see eye-to-eye with the state's strict adherence to NFU.

**Academia**

In general, most academics tow the state line, identifying NFU as the key distinctive feature of China's nuclear strategy. Other states may claim that their nuclear strategy is defensive, but they still leave open the option of use. As Li Bin (2006) points out, a nuclear weapon state not subscribing to NFU and not embracing a policy of nuclear preemption may allow nuclear use in one of two scenarios: to counter an impending attack or to launch a nuclear warning strike (20). Li points out that China's refusal to do either of these things is based upon certain accepted constraints, including the absence of a comprehensive early-warning system and the palpable presence of the nuclear taboo in China. Li's insistence on China's continued commitment to No First Use reverberates in other academic works (Zhao, 2005; Xia, 2010). It is also the point made most vehemently
at the US-China Strategic Dialogues. In fact, some scholars argue that even discussing possible exceptions to NFU would abrogate the policy (Twomey & Shelor, 2007; 2008).

This intransigent majority is contrasted by a handful of scholars that speak to the potential boundaries of NFU. At an earlier US-China strategic dialogue, for instance, one Chinese panelist emphasized that China's No First Use policy was the practical byproduct of China's nuclear inferiority. This statement, while upholding that NFU is the current state nuclear policy, suggests that this policy is subject to shift based upon changes in China's force structure. If China had a larger, more advanced nuclear arsenal, then it might consider widening the circumstances under which it would consider nuclear force.

One of the circumstances most often mentioned is large-scale conventional attack. Under China's present policy, such an attack would not warrant nuclear retaliation. However, as conventional missiles become more powerful and their launch to strike time shortens, some Chinese scholars argue that the distinction between these weapons and nuclear weapons begins to diminish. More specifically, nuclear and conventional weapons begin to pose an equivalent threat to China's "important military, political and economic targets." To fully protect these areas, China would need to use nuclear weapons to deter conventional aggression. Such an idea was proposed publicly by Chu Shulong, director of the Institute of Strategic Studies at Qinghua University. Chu admits, "If foreign countries launch a full-scale war against China and deploy all types of advanced weapons except nuclear weapons, China may renounce this commitment [No First Use] at a time when the country's fate hangs in the balance" (US DOD, 2006). This idea was also expressed by scholars at two separate US-China Strategic Dialogues (Glosny &
Twomey, 2010; Glosny, Twomey, & Jacobs, 2012). Most recently, Luo Yuan, executive
director of China Military Science Society, has also spoken on the topic.

Luo spoke to Hong Kong-based paper *Wen Wei Bo* regarding the omission of
NFU in China's most recent Defense White Paper. Luo remarked that China remained
committed to its NFU policy, but that "once China's security and core interests are under
threat, resorting to nuclear weapons will be one of our choices" (Meng, 2013). While
defending the White Paper's omission, Luo's statement simultaneously implies a wider
justification of nuclear use. He did not, for instance, specify that China's security and core
interests had to be under *nuclear* threat. The logic behind such an argument was
explained publicly by Shen Dingli, a professor at Fudan University, who said: "Our
current nuclear deterrent only aims at countering a nuclear first strike by another party,
not threats to our core interests." He continued: "What must be clearly established is that
as long as there is a threat to our primary core interests, whether in the form of a nuclear
threat of a non-nuclear threat, the means for protecting our country cannot start by ruling
out some of the state's offensive weapons" (Chan, 2013).

**Military**

Dingli is not the first individual to publicly question China's NFU policy. In fact,
according to Zhao Xijun, "there are quite a number of scholars in the military academic
community in China, who...are studying the issue of the conditional threat of use of
nuclear weapons" (Zhao, 2005, 76). Many of these individuals do not express their
opinions in public, but there are at least two high-profile cases of people who have done
so. This includes an anonymous high-level source to the *New York Times* in 1995,
believed to be PLA General Xiong Guangkai, and Major General Zhu Chenghu in 2005 (Tyler, 1995; Lewis, 2005). Both individuals spoke to the possibility of China using nuclear weapons first in a conflict over Taiwan. This idea was also expressed by a PLA general in a closed-door dialogue between Chinese and US military representatives and scholars in 2011 (Cossa, Glosserman, & Pottinger, 6). Such statements, while given a lot of attention in the West, are usually dismissed in China as being hawkish and unrepresentative of the state's defensive position. It is thus fruitful to look beyond the words of individuals to study the words that guide the thoughts and actions of millions of individuals—such as the authoritative words contained within China's military manuals.

Considering the symbiosis between China’s state and military, it is not surprising that many of the military documents endorse the state's position on not being the first to use nuclear weapons. Yet this refrain is not without its interesting and varied verses. In both *Di'er Paobing Zhanyixue* and *Zhanyixue*, for instance, the editors carry China's No First Use commitment to its logical conclusion and discuss the operational difficulties inherent in the Second Artillery completing a successful second strike. The post-strike environment is described as one where nuclear forces are likely to be reduced, transport routes are likely to be destroyed, and command and control centers are likely to be damaged (Wang & Zhang, 2000, 370). In addition, China's corps must be prepared for the effects of shock waves, light radiation, electromagnetic pulses, and widespread environmental pollution. The implication of such descriptions is that China's nuclear forces must anticipate withstanding injury prior to commencing nuclear action. This line is less clear in *Zhanluexue*. 
In *Zhanluexue* (The Science of Strategy), China's commitment to No First Use is included alongside the following instructions: "When it has been judged reliably that the enemy's nuclear weapons are already on their way, but have not yet exploded, respond swiftly by launching a nuclear counterstrike" (Peng & Yao, 2001, 355). This statement indicates that nuclear *use* may be subject to interpretation, and that China's NFU statement may not be entirely incongruent with a Launch under Attack or Launch on Warning policy.

Again, such statements hint at a potential discrepancy between what may be considered declaratory policy and what is, in actuality, operational strategy. Another point of tension is introduced when one considers the consequences of frustrated intent. What happens to a policy when an intended outcome, such as diplomatic leverage, is weakening? Is China assumed to continue its NFU commitment despite the outright refusal of other nuclear powers to do the same? A statement made by Major General Peng Guangqian highlights that this might not always be a safe assumption:

> China appeals to all nuclear-weapon states to take joint actions and reduce the role of nuclear weapons in ensuring national security. China has never announced unrealistically to take any unilateral actions. As China is a relatively weak member of the global nuclear club, so any unilateral action does not have any practical significance for it, if without the active response of other nuclear powers (Peng, 2009).

To be clear, this statement does not refer to China's unilateral commitment to No First Use, but to unilateral efforts toward disarmament. Yet the logic used by Peng could be extended in the future to justify transitioning from NFU and embracing a policy adopted by others, like LoW or LuA. It could also be used to rationalize China's shifting away from NFU altogether.
The classified military manual of the PLASAF, *Di’er Paobing Zhanyixue*, indicates that this shift might occur sooner rather than later. Like its companions, *Zhanluexue* and *Zhanyixue*, *Di’er Paobing Zhanyixue* repeatedly mentions the state's commitment to No First Use (Yu, 2004, 59; 282; 298; 305; 356). Yet it is clear from the tone of the statement and by later contradictions to this statement that the authors are not all necessarily in agreement with the state. In large part, NFU is portrayed in *Di’er Paobing Zhanyixue* as a "bargaining chip" during peacetime, because it simultaneously prohibits nuclear blackmail and forces the nuclear superpowers to pursue disarmament efforts. It also has the added benefit of winning “the sympathy and support of the third world nations” (Yu, 2004, 229). In times of conflict, however, the benefit of the state's NFU policy is less clear. The authors of *Di’er Paobing Zhanyixue* dutifully claim that the NFU policy precludes nuclear counterattacks in any situation other than in response to a nuclear first strike (Yu, 2004, 298). At the same time, however, the text clearly indicates that there are exceptions to this rule. In fact, Chapter Twelve dedicates an entire section to the subject.

Under the heading "Reducing the Nuclear Deterrence Threshold," the editors list several possible scenarios of nuclear use outside responding to a nuclear attack. These include responding to conventional attack on China's nuclear and/or strategic assets, responding to conventional air raids on major Chinese cities and/or political/economic centers, and thwarting the impending victory of an enemy in conventional war (Yu, 2004, 294). This list undoubtedly extends the range of nuclear use, and in light of China's NFU
policy, the inclusion of this section seems contradictory. This trend continues with the deterrence compendium *She Zhan*.

In *She Zhan*, the same chapter that reiterates China's commitment to NFU warns that "When the enemy uses a high-tech conventional strike or considers using nuclear weapons, they have to face the objective fact that the other side has nuclear weapons and can implement an effective retaliation" (Zhao, 2005, 28). A similar statement appears in *Ta Kung Pao* in an interview with Military commentator Li Yunsheng. Li mentions that China’s nuclear force would only strike back upon a nuclear attack, but he also mentions that certain countries possess precision-guided weapons that might be perceived as equivalent to nuclear weapons, in terms of destructive capacity. As a result, he claims, "if China's nuclear facilities are attacked by such weapons it actually implies the outbreak of a nuclear war, hence the country [China] will consider the use of nuclear weapons under such circumstances" (Shang, 2005).

**Force Structure**

The increased ambiguity concerning the threshold for nuclear use in China is compounded by China's intentional opacity on the size and structure of its nuclear force. In its 50 year history of possessing nuclear weapons, China has never once released quantitative data relating to its nuclear weapons arsenal or its stockpile of fissile material. Instead, China's leaders have preferred to use descriptors such as "small," "limited," "minimal," or, most often, "lean and effective." In general, these statements are believed to be accurate, with independent assessments by the US government and several non-governmental organizations estimating that China's force is comprised of no more than
200 operational nuclear weapons.\textsuperscript{57} China's nuclear force is not large, and it is therefore not suitable for any strategy that requires a first strike capability. It is also not suitable for a strategy that requires enemy annihilation. But does China have enough weapons to fight a nuclear war? Does it have the right \textit{type} of weapons to fight a war? If not, is it attempting to grow its force to this level?

\textit{State}

Each year, China adds new weapons to its nuclear force. This is confirmed by outside sources, and it is subtly indicated in China's own Defense White Papers. China's first Defense White Paper, published in 1998, claimed only that China "possessed a small number of nuclear weapons" aimed at "meeting the needs of self-defense." It did not discuss the development of any additional nuclear weapons. This was also the case in China's 2000 Defense White Paper. In 2002, however, China admitted to the development of new nuclear weapons, with the qualifier that the state undertook "an extremely restrained attitude" in doing so. In 2006, China again admitted to the "limited development of nuclear weapons." In the 2010 Defense White Paper, the words "restraint" and "limited" were not used—the paper said simply that China strove to enhance its “national strategic capabilities.” In 2012, under a new format, China's Defense White Paper provided more details on its nuclear developments, saying:

Following the principle of building a lean and effective force, the PLASAF is... boost[ing] independent innovations in weaponry and equipment, modernizing current equipment selectively by applying mature technology, enhancing the safety, reliability, and effectiveness of its

\textsuperscript{57} Phillip Karber released a study in 2011 indicating that China had as many as 3,000 nuclear weapons (Wan, 2011). Yet this report has been widely dismissed by China scholars in the West and in China (Kulacki, 2011b; Lewis, 2011; Tong, 2011; Nichols, 2011; Acton, 2011), and is generally thought to be based upon flawed information.
missiles, improving its force structure of having both nuclear and conventional missiles, and strengthening its rapid reaction, effective penetration, precision strike, damage infliction, protection and survivability capabilities (State Council of the People's Republic of China, 2008).

The unprecedented detail provided in China's 2012 DWP is indicative of the country's larger shift toward increased military transparency. While opacity used to be the means by which Chinese officials preferred to suggest the state's nuclear deterrent, now, the state is weighing the advantages of select transparency. The methods by which such information can be conveyed are varied, but one of the long-standing avenues has been national military parades.58

A total of four military parades have showcased China’s nuclear forces. The first one, held in 1984, debuted China’s intermediate range missile, the Dong Feng-4. In 1999, China displayed its shorter, smaller and more powerful limited-range missile, the Dong Feng-31. In 2009, China held two parades, one to commemorate the sixtieth anniversary of the PRC and another to commemorate the fiftieth anniversary of the Chinese navy. These parades showcased the state's newest solid-fuelled ICBM, the Dong Feng-31A, the Dong Hai-10 Land-Attack Cruise Missile (LACM), and the Type 094 Xin-Class submarine. Each parade was broadcast on CCTV and discussed in China's state-run news outlets. In each case, reports revealed select facts about the weapons, such as their range, throw weight, and size.

58 From 1949-1959, the PRC held a grand ceremony each year to celebrate the anniversary of the PRC's establishment. However, in 1960 it was determined that such celebrations were excess expenditures, and thus that large ceremonies would occur every ten years, with smaller celebrations occurring every five (“Trump Card Strategic Missiles,” 2009).
In addition to parades, strategic missile tests also present opportunities for a state to showcase its nuclear capabilities. China has been particularly active in this regard over the past two decades. In fact, between 2011 and 2014, China has announced a total of seven nuclear-capable strategic missile tests, including tests of the long-range, land-based missile, the *Dong Feng*-5, the improved *Dong Feng*-5A, the long-range, solid-fuelled missiles, the *Dong Feng* 31-A and *Dong Feng*-41, the sea-based long-range missile the Ju Lang-2, and, most recently, the new maneuverable re-entry vehicle (MARV) hypersonic missile, the WU-15.\(^{59}\) Each test was announced on China's state-run television and in the Chinese press. They were also independently confirmed by US satellites and intelligence.

The range and timing of these tests signal two things: First, China does not intend to replace its older, liquid-fuelled missiles, like the *Dong Feng*-3A and *Dong Feng*-5, with newer missiles. Instead, it will improve upon what it has and add to it. Second, with its newer missiles, China intends to add mobility, speed, precision and range to its nuclear force. These advancements are well documented. The mobility of China’s force increased dramatically when it mastered the development of a solid-fuelled missile, the *Dong Feng*-5A, in 1981. This technology is now incorporated into all of Chinese missile designs. China also made its land-based missiles smaller and able to travel via rail or road. Training exercises reveal that these advancements have enabled China to reduce the launch time of its missile to “only a few minutes” (He, 2003). In addition, with its new weapons, China has extended its striking range. China’s first two land-based missiles, the *Dong Feng*-3A and *Dong Feng*-31 had ranges less than 6,000 kilometers. This range was

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\(^{59}\) These are all Chinese classifications with the exception of the WU-15, which is a US classification. The WU-15 was tested in January 2014, and a Chinese name has not been released.
doubled with the development of the *Dong Feng*-5A in 1981. Today, China’s longest range missile, the *Dong Feng*-41, now under development, can strike targets at a distance up to 14,000 kilometers. It is also believed to be the first MIRVed ICBM developed by China.

In most cases, descriptions of the enhancements in China’s nuclear missiles in domestic news are combined with assurances that these developments are completely in line with the state's minimum deterrence strategy. Chinese officials repeatedly explain that such advancements are routine modernization efforts meant to enhance the survivability of China’s nuclear force against ever-changing weapons technology. In fact, China's No First Use policy is always mentioned in the television broadcasts of a national parade—usually as soon as the camera zooms in on the nuclear brigade. Chinese news articles do the same, interspersing impressive pictures and descriptions of the weapons with reminders of the state’s unilateral NFU commitment and its overall military mission of self-defense. Interestingly, though, some of these advancements seem inconsistent with the aims of minimum deterrence. After all, if the command is to wait until it is confirmed that a nuclear strike has occurred, a quickened launch time becomes moot. Moreover, if the retaliatory target is a city or population center, then weapons that are able to strike select buildings become an unnecessary expenditure.

While these apparent contradictions are not spoken to in state reports, there are several indications of a possible disjuncture between China's nuclear capabilities and its proffered strategy. One CCTV report, for instance, reported that "the mobility, range, precision, and warhead yield [of the DF-31] combine to give it formidable *first-strike*
nuclear capability” (italics added, “Dong Feng 41,” 2012). Another article reporting on the improvement of China's underwater deterrent capabilities states that, "The 094-type submarine is equipped with 16 ballistic missiles, each carrying three to six warheads. Therefore, each submarine can attack 48 to 96 targets...even though China practices a minimum deterrent strategy and there is no need to do so, it has a considerable deterrent power" (Zhen, 2001). Military expert Cao Weidong elaborated upon this power in a later article explaining that “China’s strategic nuclear submarines can launch a counterattack when they themselves are under attack, thus serving as deterrent to the enemy use of nuclear weapons” (“Chinese Nuclear Submarine,” 2013).

If, in fact, “there is no need,” why would China create a weapon with first-strike capability? Why would it feel compelled to develop a powerful sea-based deterrent that could launch weapons while under attack? What do these tests — and corresponding reports—tell us about China’s nuclear strategy?

Academia

The majority of scholars, like the state, argue that China’s new nuclear weapons systems are necessary advancements to ensure that China maintains its second strike capability (Sun, 2006; Glosny, Twomey, & Jacobs, 2012, 26). Developments like MIRVed missiles and MARVed supersonic missiles, in particular, are often explained as direct responses to US missile defenses (Kou, 2009). An alternate explanation is that these weapons are meant to increase China’s combat capability (Yi, 1999; Duan & Yu, 2007). This description, which is sometimes translated as “nuclear warfighting capability,” is understandably contentious (Sun, 2006; Hong & Rong, 2009). Scholar Sun
Xianling argues that this description is likely to be misinterpreted, because it implies that China intends to use its nuclear weapons in protracted warfare. In reality, however, while China may be capable of doing so, its intent remains to respond to an attack with a single counterstrike (2006). Chen Zhou, a research for the Academy of Military Sciences agrees, as he told the *Renmin Ribao*: "It is no matter what kind of sophisticated military technology, weaponry and equipment we have, but when and where they are used and whom they are targeted at" (Ren & Wang, 2013).

The difficulty of distinguishing capability from intent has frequently entered the discourse at the US-China Strategic Dialogues. Yet, most often, it is discussed in relation to US Ballistic Missile Defense. Ironically, Chinese scholars at the conference argue that while the US may say that the US Ballistic Missile Defense system is solely aimed at protecting the US against North Korea and Iran, it has the capability to also undermine China's counterattack capability. Since intentions are subject to change, they argue, China has every right to judge the US on its capabilities rather than its intent (Cossa, Glosserman, & Pottinger, 2011).

So what do we know about China's nuclear capabilities? Most of what is known about the structure of China's nuclear force comes from foreign intelligence. Sometimes, however, Chinese academic and scientific journals provide clues. Prior to the official test of China's MIRVed missile, the *Dong Feng*-41, for example, several Chinese journal articles alluded to the fact that China might be developing MIRV capability (Kou, 2009, Duan & Yu, 2007). This was also the case with China's supersonic MARV missile, the WU-15 (Duan & Yu, 2007). Now, one of the largest questions, especially when trying to
deduce a nuclear strategy shift, is whether or not China seeks to develop tactical nuclear weapons. This has long been an area of ambiguity, since the Chinese government has not explicitly admitted or denied having such capability.

At present, China is estimated to have 240 nuclear warheads. This estimate, while not confirmed by the Chinese government, is provided by a source many Chinese scholars deem authoritative.\(^6^0\) China is also believed to have 148 non-MIRVed nuclear missiles. This leaves 92 other nuclear warheads. The development of the *Dong Feng*-41, which is capable of carrying up to ten warheads, can account for some of the remaining warheads. Another possibility is the land-based missile, the *Dong Feng*-15 and the Land-Attack Cruise Missile, the Dong Hai-10—each of which can carry either conventional or nuclear warheads.

This dual capability again raises the question of capability versus intent. After all, *if* China were to equip its DF-15 and DH-10 missiles with nuclear warheads, it would be considered to have tactical nuclear weapons. Like the state, the academic sector is generally silent on this subject. Yet there is at least one published article in China that speculates on the responsibilities of states with tactical nuclear weapons. This article, written by National University of Defense Technology Professor Al Shu-Zhou, reflects on the ethical implications of using tactical nuclear weapons in war. Al defines tactical weapons as miniaturized weapons, with lower explosive yield, meant to support land, sea,

\(^6^0\) Examples of Chinese scholarship citing SIPRI data for China’s nuclear force figures include Shen Dingli (1990); Xia Liping (2010); Jing-dong Yuan (2010); and x.
and air battle fighting against an enemy. The bulk of Al's article involves the development of an ethical theory on tactical nuclear weapon use.

Al identifies three groups of countries in which this theory is applicable, including: the US and Russia, China, and Israel and India. Each group, he claims, has different aims, and these aims range broadly on the spectrum of morality. Al asserts that even while miniaturized, the power of tactical nuclear weapons cannot be easily contained. Thus, preemptive policies like those employed by the US and Russia are not morally justified. Even more reprehensible are the actions of India and Israel, which, according to Al, use nuclear weapons as bargaining chips to threaten regional and global stability. China, by contrast, continues to uphold a policy of strict self-defense. This, he claims, is the morally upright position. This is why he recommends a policy of "No First Use of tactical nuclear weapons" (2011, 547).

This recommendation is meant to serve as an extension of China's benign intent, but it also hints at China's increased nuclear capabilities. Why would one propose a policy if one did not, at some point, foresee the potential application of such a policy? China already has weapons that are able to serve as tactical nuclear weapons. Does Al anticipate that these weapons will be used or incorporated into war plans or that more of these weapons might be developed? One answer, though not definitive, is that Al's recommendation was aimed at one group in particular—the Chinese military. Individuals in this group, he claims, sometimes have demands that are at odds with the state. While "minimum deterrence is the common point of view," he says, there are "those [in the military] that think we need more warheads [and] more categories of weapons..." (11).
Military

At what point does one judge a state more upon its capabilities than its expressed intent? In the case of China, this is a particularly difficult question to answer, because the state frequently broadcasts its intent while remaining relatively silent on its capabilities. This extends to its military manuals. There is, however, at least one item of interest appearing in the internally circulated publication *She Zhan*. *She Zhan* admits that China's tactical missiles, while usually armed with conventional warheads, "can carry a nuclear warhead or special warhead according to the needs of the task and strike targets" and that these weapons are intended to "support battlefield operation or independent operation, striking targets such as enemy tactical depth missile position, artillery ports and transportation nexus, etc." (Zhao, 2005, 18). In other words, China has the capability to deploy tactical nuclear weapons and use them on the battlefield. It also has the ability to strike military targets.

Targeting

Instruments of increased precision, regardless of range, expand the list of possible targets. China's first land-based nuclear weapon, the DF-3A, had a Circular Error Probable (CEP) of 1,000-4,000 meters. This means that at least 50 percent of the time, the warhead would strike a target within a radius of 1,000-4,000 meters. By contrast, China's most recent ICBM, the DF-41 has a CEP of 100-500 meters. China's sea-based nuclear weapons have also become more accurate, with the JL-2 being more than twice as accurate as its predecessor the JL-1. This increased precision enables China to target more than just cities and economic centers. Now, smaller targets such as enemy missile
silos, weapons storage facilities, ground troop concentrations, transportation hubs, and command and control centers become options.

State

In general, the only information provided by China's Defense White Papers on targeting is a recitation of China's multilateral efforts on the de-targeting of nuclear weapons during peace time. These efforts are exemplified by the bilateral detargeting agreements China signed with Russia and the United States in the 1990s (Joint Presidential Statement on the Non-First Use of Nuclear Weapons and Detargeting of Strategic Nuclear Weapons Against Each Other, 1994; The President’s News Conference with President Jiang Zemin of China in Beijing, 1998). In 2008, China included in its National Defense White Paper a commitment not to target any other state.

What is not specified in these papers and elsewhere is what happens when peace is disrupted. Upon threat, where and at what does China aim its nuclear missiles? Have these targets changed overtime as China's missiles have become more precise? In general, the answers to these questions are state secrets - just as they are in all other nuclear states. However, a few answers have been gleaned by state news sources. In 2006, for example in a column rebutting a recently published report on China’s nuclear force, Yan Guoqun clarified that deterrence, to be successful, must hold hostage something of value to an opponent. "Because of this," he stated, "no nation that possesses nuclear weapons…has declared a policy of not conducting nuclear strikes against population and political centers. This is an explicit and objective fact that nobody has to hide." The answer as to precisely which state's population centers are targeted is answered by other sources.
An article appearing in *Tao Kung Pao*, for instance, made it clear that while Japan was not yet a nuclear weapon state, a move in this direction would be "placing itself in a destructive and dangerous place." This indirect threat was accompanied by the recommendation for Japan to "think carefully" about its actions and the observation that "In fact, Japan is surrounded by seas on all sides and its territory is small. Its people are concentrated in cities with a dense population. It cannot resist nuclear retaliation" (Wang, 2006). This article, published in Chinese, served as a subtle signal to thwart Japan from developing nuclear weapons. A more direct signal, this time to the United States, was published in English several years later when China debuted its JL-2 SLBMs. The article mentioned that a JL-2 warhead delivered via a type 094 SSBN had the capacity to destroy approximately 5-12 million lives. This same article boasted that with China's land-based missiles, specifically the DF-31, China could "easily destroy a whole list of metropolises on the East Coast and the New England region of the U.S., including Annapolis, Philadelphia, New York, Boston, Portland, Baltimore and Norfolk, whose population accounts for about one-eighth of America’s total residents" (Yu, 2013).

As was to be expected, this article attracted a fair amount of attention in the West, and it was construed as an announcement of China's nuclear targeting practices. Yet, even this article aligns with China’s current nuclear strategy. This is because the targets indicated by the article were *population centers*, not military hubs or missile silos. The thought of Chinese nuclear forces having the ability to target US cities is uncomfortable

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61 This article has been erroneously cited in the West to argue that China’s newest SLBMs can reach the US from Chinese waters. The 7,200 km range of the JL-2, however, requires that Chinese subs sail halfway through the Pacific in order to launch a successful strike on the US.

62 In fact, simply stating that China can reach the continental US with a nuclear weapon is a simple communication of deterrence. This was done previously with China's DF-31 ICBM (Liu, 2010).
to say the least, but it also easily aligns with a minimum deterrence nuclear strategy. It is part of a credible threat of nuclear retaliation. In order to thwart potential US nuclear aggression, China must signal that it has the ability to inflict harm on the population of a potential adversary. China's new SSBN force, and the state's strategic messaging, helps to authenticate this claim.

**Academia**

In general, many Chinese scholars agree with the above interpretation, claiming that China is a state adhering to a strict “countervalue” targeting strategy (Li, 2000; Sun, 2006; Shi, 2013). The reasoning for this, claims Li Zhimin (2000) is twofold: first, China's nuclear force lacks the "range, reaction time, and other technical factors necessary to strike enemy nuclear targets" (9), and, second, heavy civilian casualties are more likely to make countries reconsider advancing their war plans (14). The difficulty with this explanation is that China *does* now have the requisite range and reaction time to change its targeting practices. Moreover, a state’s choice of targets is not simply limited to either enemy cities or nuclear forces.

This is when jargon becomes a problem. The terms "countervalue" and "counterforce" present a false dichotomy. There is a range of possibilities beyond enemy cities and enemy nuclear forces. This is why, in the West, terms like "counter-recovery," "counter-leadership," and "counter-industrial" have been adopted by nuclear experts. These latter terms, however, have not been incorporated into the Chinese lexicon. This means that domestic assessments of China's nuclear strategy that include the words...
"countervalue" and "counterforce" must be carefully examined in order to avoid misinterpretation.

Li’s direct explanation is contrasted by other, more ambiguous descriptions of China’s targeting practices. At the 2005 US-China Strategic Dialogue, for instance, the term "countervalue" was used repeatedly to describe China's targeting practices. However, when pressed for more detail on the subject, one scholar explained that this included entities like military bases and political centers (Twomey, Lavoy, & Stone, 2005, 4). At another closed conference in 2010, participating Chinese scholars used the term "key point counterattack" (zhongdian fanji) to describe the state's targeting strategy. When asked for clarification, scholars did not provide a list of potential targets, but only said it was not a counterforce strategy (Glosny & Twomey, 84). This conversation highlights the general aversion in China to use the term "counterforce" to describe its nuclear targeting. This appears to be the case even when the description provided meets the criteria of counterforce targeting.

In Kou Liyan’s analysis of the 2008 Chinese Defense White Paper, for instance, he describes the state's nuclear strategy as simultaneously "peaceful and friendly" and "confident and powerful." The power, he explained, derived from China's operational use of strategic and tactical missiles to target "an enemy's political and economic center, military and industrial bases, nuclear arsenal, [and] transportation hubs" and its "troops, tanks, aircraft, ships, radar, command centers, airports, ports, railway hubs and bridges," respectively (Kou, 2009, 26). This alternate perspective, while conflicting with the state's
espoused minimum deterrence strategy, more accurately reflects many of China's military texts.

**Military**

More authoritative information on targeting comes from China's military handbooks. The NDU version of *Zhanluexue*, for instance, explains that counterforce targeting is an option available only to the nuclear superpowers, requiring weapons of superior precision. Countervalue targeting, by contrast, can be achieved with less precise weapons and is thus the preferable option for states with more limited nuclear capabilities—like China. The association of China with countervalue targeting is clear here, but it is later directly contradicted by a description of China's nuclear mission, specified as "crippl[ing] enemy war potential and strategic strike forces, retard[ing] its strategic operations, sabotage[ing] its strategic intentions, and caus[ing] psychological shock" (Wang, 1999, 355). *Zhanyixue* employs similar language, tasking the country’s nuclear force with impeding the enemy's war potential, strategic intentions, and determination (Wang & Zhang, 2000, 369).

While *Di'er Paobing Zhanyixue* lists similar objectives for the SAF, it is much more explicit in regards to the targets that must be struck in order to achieve these objectives. These targets include "an enemy's command centers, communication hubs, military bases, political centers, economic centers, important industrial bases, and other strategic campaign targets" (Yu, 2004, 298). These words are also echoed in chapter two of the internally circulated compendium *She Zhan*, where it states:

> Strategic missile force can collaborate with other nuclear troops in operation, and can also independently implement strategic nuclear assault,
mainly striking strategic targets such as the enemy strategic nuclear weapons base, strategic rear-area base, state and military command headquarters, and political and economic centers, heavy industry facilities, transportation and communication nexus and heavy military industry groups (Zhao, 2005, 17).

The text later specifies that China’s SLBMs, in particular, are weapons suitable to accomplish this mission, since they are able to “independently implement nuclear assaults, striking the enemy’s important political, economic, and military strategic targets (Zhao, 2005, 18).

Nowhere in She Zhan or Di’er Paobing Zhanyixue do the authors mention the strategic advantage of targeting population centers. In fact, She Zhan reminds commanders that "personal casualties should not be used as bargaining chips" (Zhao, 2005, 96). Instead, deterrence is best accomplished by threatening physical destruction. Di'er Paobing Zhanyixue makes this clear when it equates the success of an SAF campaign with the amount of physical damage that is inflicted upon a specified target. If a target is not sufficiently destroyed, then the manual instructs commanders to immediately commence a second wave of attacks (Yu, 2004, 307). The goal is not to inflict psychological damage, but to actually render enemy combat capabilities impotent. While the words “counterforce” are never used in these publications, there is no doubt that these descriptions depart drastically from what is considered acceptable under a strict “countervalue” approach.

Other Considerations

In addition to considering the dimensions of nuclear strategy that are standard across all nuclear weapon states, certain aspects of China's nuclear strategy are unique,
such as China’s chosen method of force protection. Beyond existential deterrence, every nuclear strategy prioritizes nuclear force survivability. To increase pre-launch survivability, in particular, the common methods states use include silo hardening, missile-warhead separation, underground storage, and anti-ballistic missiles. In China’s case, it chose to engineer a network of underground tunnels suitable for enclosing and protecting its entire land-based missile force.

While the thought of hundreds of hidden missiles may seem disconcerting, Chinese scholars argue that China’s tunnels actually reduce China’s need to increase the number of its nuclear missiles. This is because the tunnels enable China to store its missiles "off the roads" and several hundred meters below the earth's surface, providing significant protection from nuclear attack (Twomey & Shelor, 2013, 24). It further increases the time in which China has to assess the situation and plan an effective counterattack. Rather than having mere minutes to respond to an attack, the tunnels extend reaction time to several days to up to one month (Rong & Yuan, 2009, 131; Xia, 2010, 123). This is because all readiness preparations can be done underground, and the necessary items can be delivered via corridor by rail car. One Chinese article calls it a "Chinese-style missile defense system" (Rong & Yuan, 2009, 131).

While it cannot be confirmed that China chose the underground development over more advanced defense methods, it does appear that defense technologies in China are in their infancy. China's January anti-ballistic missile (ABM) test, while sparking much speculation, did not seemingly signal the start of a defense technology competition. In fact, at a closed door conference in Beijing in 2011, panelists admitted that the ABM test
was conducted in order for China to better understand and defeat US defense capabilities and that, at present, "China does not have the capability to do missile defense" (Cossa, Glosserman, & Pottinger, 2011, 13).

**Conclusion**

This chapter analyzes the context in which the Western terms about nuclear strategy are used for understanding China’s nuclear strategy. Classifications like “minimum deterrence” and “limited deterrence” are insufficient descriptors if they are not properly defined, operationalized, and contextualized. The same can be said for constricting categories like "countervalue" and "counterforce," or amorphous terms like "combat capability." In many ways, the confusion in China and the West regarding China’s nuclear strategy derives from attempts by both parties to describe China's nuclear strategy using ill-fitting and imprecise terms that originated in the West.

Another error this chapter corrects is the one-dimensional portrayal of China's nuclear strategy. A state’s nuclear strategy includes the assumptions it has about nuclear weapons, the aims it has for its nuclear force, the criteria it accepts for nuclear use, the number and types of weapons it develops, and the targets it incorporates into its nuclear attack plans. A shift in only one of these areas does not necessitate a shift in another area or an overall shift in strategy. Oftentimes, analysts in the West will analyze only one dimension of China's nuclear strategy, most often its No First Use policy, and equate changes in this dimension as changes in China's larger nuclear strategy (Acton, 2013a). A true strategy, however, is multi-dimensional, as is the process of its creation.
My research indicates that though there may be alternate opinions below the surface, the literature published by the state in China almost uniformly suggests that China's nuclear strategy remains one of minimum deterrence. The academic community, with a greater license for expression, generally shows enthusiastic support or tempered acceptance of the state's position. There is little evidence of scholars directly refuting the state's position, but close reading indicates that some scholars may interpret China's nuclear strategy differently—and, if given the opportunity, provide guidance not entirely consistent with China's present nuclear direction. The greatest disjuncture occurs in the military sphere. Here, certain aspects of a limited deterrence nuclear strategy are seemingly endorsed, including the use of nuclear weapons alongside conventional weapons in combat, the use of nuclear weapons to constrain or limit war, and the use of nuclear weapons to thwart conventional aggression.

Fissures among China's state officials, academics, and military personnel on the direction of China's nuclear strategy have already had effect. In 2006, for instance, President Hu Jintao promised US President George Bush that China engaged in bilateral nuclear conversations; yet this promise went unfulfilled due to the SAF's refusal to participate (Twomey & Shelor, 2008, 19). A comprehensive analysis of all Chinese perspectives thus provides us with a more realistic assessment of China's nuclear direction. The question of what influences this collective is the subject of the next three chapters.

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CHAPTER SIX: THE INFLUENCE OF AMERICA

A myriad of factors influence the decisions made in China regarding its nuclear weapons arsenal and nuclear strategy, including, as one article admits, "new and ever-changing domestic and international situations" (Zhao & Qiang, 2008). The majority of experts in international relations argue that it is the latter that has the most pronounced impact on a state’s security decisions. In the case of China, this would mean that the primary drivers of its nuclear weapons buildup would be the threat it perceives from the current unipolar world structure and from other states in the global arena, particularly those in possession of nuclear weapons and those perceived as nuclear-capable. This chapter focuses on what the Chinese literature indicates is the primary determinant of China’s nuclear strategy decisions: US hegemony, missile defense, and conventional counterforce capabilities. Taken together, these factors are believed by China to be indicative of an aggressive shift in US nuclear strategy from limited deterrence to maximum deterrence, and China, in response, is reconsidering its own nuclear strategy, weighing the possibility of transitioning from minimum to limited deterrence.
**Hegemony**

Since the end of the Cold War and the ascendance of US power, the destabilizing effects of unipolarity have become a prominent theme in the Chinese discourse. One of the portended effects has been a resurgence of state nuclear weapons production and an abandonment of previous nonproliferation efforts (State Council of the People's Republic of China, 1995, Sec. I). While this is seen as regrettable, Chinese officials remain pragmatic in their overall assessment of the situation. If the primary power is not willing to take steps to increase world stability and to mitigate the re-armament of states, than other states in the world system must pursue self-protecting countermeasures. China's Defense White Papers (DWPs), for example, directly display this logic. The first section of each Chinese DWP provides a detailed account of the present international and regional security environment. In most cases, while the authors maintain the possibility of ongoing peace and stability in the world, they also express anxiety regarding the ferocity with which states continue to engage in military competition. The same section also usually mentions the continued challenge this competition presents to nonproliferation and global disarmament. This section is immediately followed by an overview of the requisite changes made to China's military strategy. While not directly stating the cause and effect relationship between the increased instability of the international system and an increase in Chinese military capabilities, this type of relationship is certainly implied.

In general, China's DWPs are a prime example of diplomatically palatable state announcements, where critiques of other states are kept at a minimum and specifics are
eschewed in favor of generalities. Yet China's disapproval of the United States is not
disguised. All of China's DWPs have, at the very least, characterized the international
order under the tutelage of the United States as unstable and contrary to China's security
interests. Several DWPs have also gone so far as to mention specific US military
developments perceived to be destabilizing, including America's military encroachment
into the Asia-Pacific region, its deployment of a ballistic missile defense, and its
development of precise, fast, and far-reaching conventional missiles. Overall, the US
receives more attention in China's DWPs than any other state. Figure 7 indicates that this
trend continues in China's academic and technical literature, with approximately forty
percent of all Chinese articles on nuclear strategy focusing specifically on the United
States.

![Figure 8: State Focus in China's Nuclear Discourse, 1990-2012](image)
In instances where the United States is not named explicitly, China’s disapproval of US order is still palpable. This is most apparent by China’s frequent use of the word “hegemony” in its DWPs and its continued negative association of the word. "As long as hegemonism and power politics exist," claimed one White Paper, "a country must have the capability to defend its sovereignty, unity, territorial integrity and security by military means" (State Council of the People's Republic of China, 1998, Sec. II). Another White Paper, published two years later, personalizes the situation, stating that in the face of hegemonism and power politics, "China will have to enhance its capability to defend its sovereignty and security by military means" (State Council of the People's Republic of China, 2000, Sec. II).

The subsequent six DWPs continue this theme by juxtaposing hegemony and power politics against global stability and peace and by expressing China's resolute opposition to the predominance of unipolarity. Despite characteristic diplomatic deference, the underlying message across all Chinese White Papers is that the preponderance of power allocated to the United States in the current unipolar world system presents a direct threat to Chinese security. This theme becomes more evident when reading China's academic literature (Shao & Chen, 1992; Liu, 1995; Yong-Hong, 1999; Feng, 2003; Pan, 2003; Gao, 2004; Hong, 2007). For example, in his article in *Renmin Ribao*, Xiao Feng expresses a sense of regret that the Cold War came to a close. In a unipolar era, China can no longer play the role of "balancer." Now, China, and every other state, is at the mercy of what Xiao considers to be an overriding and policing
superpower—one with the self-proclaimed authority to encroach upon the internal affairs of other states (1999).

The Chinese press has not been silent in criticizing such infringements when they occur, such as the US-led interventions in Kosovo, Iraq, Afghanistan, and Libya. It has also not missed the opportunity to weave these accounts together to provide a more comprehensive narrative of the peril of US hegemony (Lu, 2002; Liu, 2011; Peng, 2011; Han, 2011; Xin, 2012). In many accounts, China is also portrayed as a victim of US hegemony, since its economic and military growth are perceived to be constrained by the US clenching the top position of power (Long, 1999; Yan, 2000; Han, 2010). As one article states: “...grasping China is an important part of the US global strategy, and guiding China's development is the current strategic choice of the United States.” This is done, it explains, in order to “prevent it [China] from creating obstacles or threats to US hegemony” (Han, 2010). A similar sentiment was shared by an article in Renmin Ribao:

"Since the end of the Cold War, the United States has become the sole superpower and has consistently tried to establish a so-called 'new world order' under US domination... Proceeding from its stance of dominating the world alone, the United States regards China as a nail in the eye and a thorn in the flesh, and it is extremely unwilling to see stability and development in China" (Long, 1999).

Such ominous statements are fairly frequent—forcing readers to reflect on the consequences of US hegemony in China and silently asking what are we going to do about it? When provided, the response is usually vague, with recommendations that China may need to “reexamine its security environment and its needs of national defense” (“China is resolutely against revising the ABM treaty,” 2000) and/or respond with "corresponding countermeasures" (Shi, 2000; Wu, 2003; Shu, Liu, & Shen, 2011).
One of the most frequently cited countermeasures, obliquely attributed to all nuclear weapon states, is the development of additional nuclear weapons and/or the qualitative enhancement of existing nuclear weapons.

Direct admissions of China responding by growing and diversifying its nuclear force are less common, but they do exist. In 2010, for example, an article appearing in the Hong-Kong based publication Wen Wei Po argued that in the face of US hegemony, China must not act impetuously, but gradually work to narrow the gap between US and Chinese GDP, technological output, and nuclear weapons (S-L. Liu). A few years later, military expert Song Zhongping was more specific. "The constant aggression [by the US] against China's core interests gives China no choice but to exert great efforts," he said, including "the proactive construction of an efficient and powerful Second Artillery force with 'dual ability of nuclear and conventional' [weapons]" (2013). Chu Shulong, director of the International Strategy and Development Institute at Tsinghua University has also expressed his opinion on the subject, stating that China should “maximally increase the strategic deterrent capability of [its] missiles and nuclear weapons, in order to defend against the U.S.’ threats and blackmail on a larger scale” (Chu, 2014). These statements highlight how US hegemony is perceived to directly threaten Chinese interests.

Additional analysis reveals that there are at least two specific manifestations of US supremacy that invoke this type of response, including the development and deployment of a US missile defense system and the enhancement and aggrandizement of US conventional forces.
US Missile Defense Capabilities

The largest perceived threat to China’s security and the action mentioned most often as precipitating China’s nuclear arms buildup is America's development of a Ground-based Midcourse Defense system (GMD). The US government has repeatedly stressed that the purpose of this system is to defend the US homeland against an attack by a limited number of ballistic missiles launched from regional adversaries like Iran and North Korea and that it is not meant to protect against larger attacks from states like China and Russia. Wording to this effect is included in the 2010 US Ballistic Missile Defense Review alongside the reassurance that the US considers both Russia and China to be “important partners for the future” (United States Department of Defense [US DOD], 5). Yet opposition from both states continues unabated. China, in particular, repeatedly claims that US GMD threatens its state security and the stability of the world (State Council of the People's Republic of China, 2000, Sec. VI.; 2002, Sec. VII.; 2008, Sec. XIV, 2010, Sec. X). The rationale behind this threat perception is equally part capability and part intent.

Scientists and engineers in China have difficulty accepting the US explanation that its missile defense system is meant solely to defend against the errant nuclear actions of Iran or North Korea. This is because the three US Air Force Early Warning Radars (UEWR) located in California, Massachusetts, and Greenland, and the Cobra Dane Radar located in Alaska as well as the Sea-based X-band Radar (SBX) presently in the Pacific are ideally positioned to detect incoming missiles from both North Korea and China. As it is, there is not a way to protect the American homeland against an attack from North
Korea without also defending against an attack from China, since the missiles from both countries are likely to take a similar trajectory over the Arctic. This means that if China sends a ballistic missile to the US, it most likely will be detected (figure 7). There is also a good probability that it will be destroyed, since the US will soon have twice as many interceptors as Chinese ICBMs.\(^{63}\) Taken together, these facts are said to outweigh the “seemingly pale and powerless soothing political statements [of the US]” (Lu, 2002b).

![Figure 9: Chinese ICBM Trajectories and US Upgraded Early Warning Radar Locations\(^{64}\)](image)

\(^{63}\) This probability is debatable. The US administration has committed to increase from 30 ground-based interceptors to 44 by 2017. This would mean that the US would technically have two interceptors per one Chinese ICBM, since China is believed to have 20 ICBMs capable of reaching the continental US. At present, the strike record of US interceptors is believed to be near 50 percent, judged from the successful completion of 8 out of 16 tests over the past ten years (Missile Defense Agency, 2013).

\(^{64}\) This figure was generated by a Chinese scientist for the Sixth Annual US-China Strategic Dialogue (Qiu, 2011).
Chinese scientists point out the peril of the present situation, but they also warn that the situation could be worse. As Shi Yinhong points out, there is no guarantee that the US will remain satisfied with only 30 or 40 ground-based interceptors (Shi, 2000). Who's to say they won't build more? A Chinese scholar attending the 2011 US-China Strategic Dialogue, for instance, pointed out that the US could easily and quickly advance from having 30 interceptors to having up to 300 interceptors as a part of its GMD system (Cossa, Glosserman, & Pottinger, 2011, 12). This, in addition to its nuclear superiority leads many to believe that "the United States poses a far greater threat to the world than 'the world poses to the United States'” (Lu, 2001). So why does the US find it necessary to invest in defensive capabilities? The answer, many argue, has to do with intent.

The majority opinion in China is that the US pursuit of missile defense technology is not driven by a desire to protect the US homeland from so-called “rogue nations,” as much as it is driven by America's desire to expand the range of offensive military action it can pursue with impunity. “The intentions of ‘Uncle Sam’ are very clear,” claims Tian Yuan, “…to do the same old thing in a new guise and, on the basis of absolute superiority, to build a missile defense system to ensure that it is equipped with both spear and shield, thus reaching its aim of ‘winning without fighting’” (2001). The analogy of the US having both "spear" and "shield" is common in China. It means that the US is able to strike while blocking blows from an opponent. As it pertains to missile defense, possession of both a "spear" and a "shield" mean that the US is able to launch a preemptive attack without fearing nuclear retaliation.
The increased range of US military action made possible by missile defense is not assumed in China to only impact "rogue nations," but to also impact other nuclear weapon states. One reason for this is the perceived volatility of US enmity. Some scholars argue that while the US may today be focused on Iran and North Korea, there are no guarantees that this focus will not one day shift to other states (Huang, 2007).

Another argument is that the US has already shifted its focus and that its rhetoric on Iran and North Korea represents an impuissant attempt at diversion. A military panelist at a recent US-China Strategic Dialogue said bluntly, “We're not idiots in China who think you are transparent in your BMD intentions. It is incredulous to assume that the US BMD efforts are solely targeted at Iran and North Korea” (Cossa, Glosserman, & Pottinger, 2011, 12). Other scholars agree, arguing that the amount of money America has invested to develop and deploy its GMD system (now close to $300 billion dollars), is not justified if it is only used to destroy missiles from small nations (Glosny & Twomey, 2010, 88).

An extended argument is presented by National Defense University Professor Zhang Zhaozhong, who explains that while the US claims that its GMD system is intended to deter states like North Korea, Iran, and Iraq, there is little available evidence to support that these states present a direct threat to American security. Writing in 2000, Zhang argues that there is little empirical evidence to suggest that North Korea possesses ballistic missiles or nuclear weapons. Moreover, while Iran and Iraq might have tactical nuclear weapons, these weapons should be considered moot from the US perspective, because they can only strike targets within several hundred kilometers. Even if these
capabilities were expected to increase, Zhang says, why would America propose a GMD system as the solution? He continues:

Americans have always been impetuous; once they discover the evidence that these nations have missiles or nuclear weapons developmental capabilities, the Americans quickly use the methods of nuclear sanctions, and armed force to destroy such capabilities, so how is it that in this case they have the patience to wait...? The American's development of the NMD primarily is to target Russia and China since the United States knows that these two countries alone have the capabilities to threaten the American mainland (Zhang, 2000).

Zhang's words proved prescient in the case of Iraq, but his point was more that US missile defense should make China and Russia more vigilant. Zhang is not alone in his convictions—quite the opposite. It appears that the 'true' intent of US GMD, countering Chinese and Russian nuclear forces, is either becoming more and more apparent to those across China, or such individuals are becoming less and less reserved in expressing this perspective (Fu, 1999; Zhang, 2001; Net Friend, 2007; “US ‘Anti-Missile System,’” 2007; “China Should Fight Back,” 2012; Kang, 2013). From within this vein, there are also those who have gone so far as to remove Russia from the equation completely, arguing that China is the primary target of US missile defense (Shi, 2000; Bei, 2002; Lu, 2008; Twomey & Shelor, 2008, 12). This belief, they claim, is supported by US Theater Missile Defense and American cooperation with Japan.

The US and Japan began discussions of TMD cooperation in the mid-1990s and since that time, the US has provided Japan with a missile defense system that includes Aegis ballistic missile defense ships with naval and ground based interceptors, early warning radars, and a command and control system. The US justifies this provision by saying that it is intended to defend Japan from an attack launched by North Korea. The
difficulty is that this system, like the GMD system, simultaneously neutralizes the Chinese nuclear deterrent. Some believe that this was always the primary goal of US-Japanese TMD cooperation (Hu, 2004; “China Should Fight Back,” 2012). Others expound upon this theory to claim that the US is using TMD to contain China’s power in the Asia Pacific (Jian, 1999; Xia, 2003; “China Should Fight Back,” 2012).

The response of other states to such measures is a matter of speculation, but the consensus in China has become that the most likely response will include quantitative and qualitative nuclear arms advancements (Shi, 2000; Wang & Li, 2002; Guosheng & Wei, 2002; Lu, 2008; Sun & Wu, 2013). China is usually obliquely included in such references, but occasionally, scholars and statesmen point out that China, specifically, might engage in such activities. Remin University Professor Shi Yinhong, for example, admits in an article in the *Journal of Harbin Institute of Technology* that the most logical course of action for China to pursue in response to US GMD would be to "vigorously improve the quality of [its] strategic weapons systems" and to "significantly increase the number of [its] nuclear missiles" (2000, 14,16). Another Beijing expert, cited in *Wen Wei Po*, agrees, emphasizing that China will need more than just 20 long-range nuclear missiles if it wants to retain a credible nuclear deterrent against the United States (Tseng, 2000). This perspective was also shared by a Chinese government official, when Chinese Ambassador Sha Zukang mentioned in an interview that US missile defense posed a "direct threat to the effectiveness of China's existing limited nuclear force”-and thus that it would likely have an impact on “the scale of [China's] nuclear force” (Tseng, 2000).
Years later, the trend continues. Scholars Rong Yu Hong and Yuan Rong Yu (2009), for example, actually recommend that China respond to US missile defense by making qualitative and quantitative enhancements to its nuclear force (130). Hong Yuan, Deputy Secretary-General of the Institute of World Politics at the Chinese Academy of Social Sciences has shown support for this conclusion and clarified that the weapons China needs are those that can "completely break through" America's missile defense (“China Should Fight Back,” 2012). Similar opinions were expressed by several scholars attending the US-China strategic Dialogues (Lindsey, Glosney & Twomey, 2011, 10; Twomey & Shelor, 2011, 14; Glosny, Twomey, & Jacobs, 2013, 33).

These statements, while surprisingly candid, are not necessarily unexpected. The potential influence of the US GMD and TMD systems on Chinese military strategy and behavior has been widely discussed among both Chinese and Western scholars (Garrett & Glaser, 1995-96; Tow & Choong, 2001; Roberts, 2003; Zhang, 2011; Saalman, 2012). In general, scholars have reached the consensus that if America continues to develop its missile defense system, China will likely feel compelled to counter by expanding and modernizing its nuclear arsenal. The US missile defense system, though, is only one aspect of what China perceives to be a grander shift in US military strategy. Another less-explored component includes advancements in US conventional capabilities.

**US Conventional Capabilities**

Traditionally in China, the threat presented by an adversary's conventional military capabilities does not influence the state's nuclear strategy decisions. This is because, in general, it has been assumed in China that conventional weapons and nuclear
weapons operate in different military spheres and serve different purposes. One type of weapon is not used to deter the use of another. However, this perception of categorical separation, a former mainstay of Chinese nuclear strategy, may be changing due to recent advancements in US conventional military capabilities and expressions of intent surrounding these capabilities.

The US has consistently maintained the largest and most advanced conventional military in the world. It has also developed and deployed one of the largest nuclear arsenals. The line between conventional and nuclear weapons has never been as clear in the US as it has been in China, since the US reserves the right to use strategic nuclear weapons in response to a large-scale conventional attack and use tactical nuclear weapons in warfare. In general, however, the line has still existed. Recent developments threaten to significantly diminish this demarcation. In the 2001 Nuclear Posture Review Report (NPR), for instance, US Secretary of Defense Donald Rumsfeld mentions the necessity of a "new triad" complete with "new non-nuclear strategic capabilities" that will bolster the offensive capabilities of US military forces. In May 2003, the US Air Force officially requested funding for this mission, labeled Conventional Prompt Global Strike (CPGS). As envisioned, the mission of CPGS was to shorten the launch-to-strike time of America's high-precision conventional missiles and to distend their reach, enabling the US to strike any target in the world in less than an hour.

One of the methods of achieving this aim is to suit nuclear-capable high-precision ICBMs or SLBMs with conventional warheads. More favorable methods include fielding advanced hypersonic weapons, hypersonic cruise missiles, hypersonic gliders, and kinetic
weapons launched from space. To date, the US has tested two such systems, including an advanced hypersonic weapon and a hypersonic cruise missile (X-51 Waverider). These tests were successful, but the US government has not yet determined whether or not these weapons will be acquired and deployed as a part of CPGS. Presently, the entire program is in the embryonic stage of development, with the technology and the targets still being decided. Among several mentioned targets, the target that appears most frequently in official discourse is an adversary's fortified, buried, or mobile nuclear forces (United States Quadrennial Defense Review, 2006, 49; Grossman, 2009). This description is sometimes left alone and sometimes contextualized in terms of the forces of "new proliferators" like Iran and North Korea.

The ambiguity surrounding CPGS has led to several misconceptions in China. First, there are those who overestimate America's current CPGS capabilities, portraying CPGS not as a concept but as a fully operational system (Lu, 2010) or a system that will soon expand to include "tens of thousands of high-precision weapons” (Li & Li, 2011). Second, many in China seem to question US intent, arguing that the acquisition and deployment of high-precision, long-range, rapid launch weapons by the US poses a distinct threat to China's nuclear forces and the nuclear forces of other nuclear weapon states (Qian, 2011). Like with missile defense, these analysts do not believe that Iran and North Korea are the intended targets. As such, the broader argument has become that the American CPGS system threatens to disrupt the international strategic balance by allowing the United States “absolute security.” This point is made in several of China's Defense White Papers (State Council of the People's Republic of China, 2000, Sec. I;
2010, Sec. I), and it is more directly discussed in China's domestic press (Ren, 2006; Fan, 2010; H. Li, 2010; Lu, 2010; Li & Li, 2011; Zhang, 2011). It was also made by Chinese scholars at the 2008 and 2010 US-China Strategic Dialogues (Twomey & Shelor, 2007, 11; Glosny & Twomey, 2010, 90).

Due to the nascent nature of the program, technical analysis of US CPGS efforts are only now emerging in China (Yuwen & Tang, 2011; Fang, Wang, Cai, & Chen, 2013). These sources are less speculative, but still employ a critical tone when discussing US developments. The consensus across sources is that further CPGS development of will have a negative net effect on global stability. As one article warns: "People of the world should think about the changes that will happen at that time in terms of the United States' actions and methods of handling affairs," (Lu, 2010). Exactly what could happen? Many in China think US preemptive action is not out of the question. This is why they believe that other states, including China, may want to respond by engaging in a race in hypersonic weapons (Yang & Peng, 2012) and/or nuclear weapons (D. Li, 2010; Wang, 2011). It has also been discussed that these developments strain China's commitment to No First Use and that they might compel China to shift its policy stance in the future (Shang, 2005; Glosney & Twomey, 2010, 90).

Compared to US missile defense, US CPGS is a relatively recent development. The US government only released information about its CPGS plans in the early 2000s. This means that even if Chinese officials were to have known of US plans earlier (which is likely), this knowledge still did not influence the decision in China to produce additional nuclear weapons immediately following the Cold War. This decision, it
appears, was likely influenced by China’s knowledge of US GMD and the threat this system was believed to pose to China’s nuclear deterrent. US CPGS serves to expand this threat. A research fellow from China’s Academy of Military Sciences explains the situation by saying that "Although the anti-missile system with defense capabilities alone cannot effectively protect [the US] from... nuclear weapons; once combined with the ability to strike first... the U.S. could offset ... strategic nuclear deterrence” (“Strategic Nuclear Escalation,” 2007). If carried out to completion, US CPGS would effectively increase the offensive capabilities of the United States. In this way, the US can be perceived as sharpening an already sharp sword—and doing so while it is also donning defensive armor. These moves together have been perceived in China to signal a change in US nuclear strategy.

A Perceived Strategy Shift: Coercion to Combat

A comprehensive survey of the literature reveals that China perceives US military advancement in missile defense and high-precision weapons to be symptoms of a larger problem: the shift of American nuclear strategy from limited deterrence toward maximum deterrence. The single most worrying aspect of this shift is the increased possibility of the US launching a preemptive nuclear attack against China. This fear is not irrational if one considers the larger perception of the United States in China. To many in China, the threat is not unipolarity itself, so much as it is the fact that the United States has assumed preeminence. Distrust of US intent predates the nuclear age, and it stems from what is perceived to be a historical precedent of American brute strength and
“unilateral determination.” An article in *Jiefangjun Bao* exemplifies a common assessment of US action:

Since it has been independent, the United States has continuously seized through military force the lands of the American Indians and has won through war the colonies of other countries...After going abroad to launch the Spanish-American War, the United States also continuously used military force to fight in various places abroad and used World War II to occupy the position of a world power...The United States then used an intense arms race..., established a large number of military bases abroad, ...and supported "proxy warfare" to achieve victory in the Cold War and become the world's only super power. Besides direct participation in the Persian Gulf War, the Kosovo War, the Afghan War, the Iraq War, and other wars, the United States also actively participated in the Somali civil war, the Bosnia and Herzegovina civil war, the Libyan civil war, and other hostilities (Han, 2011).

Here and elsewhere it is argued that there is a historical precedent of the US pursuing unilateral military action and engaging in conventional military preemption. One article even likens the United States to Nazi Germany in its ambitions to launch "wars of aggression" and remain "lord of the earth" (“We Urge Hegemonism Today,” 1999). How can a nation protect itself against such action? It can develop nuclear weapons. This idea has been used to explain why Yugoslavia came under attack in 1999 (Xiao, 1999), and why North Korea and Iran seek nuclear weapons today (Dingli, 2006). The overall tone is sympathetic; as one article states: “One of the effective means to prevent Iran from treading in the fatal footsteps of Iraq and Libya is to develop nuclear weapons. For the current regime in Iran, giving up the nuclear program just means a thorough failure” (Wang & Liang, 2012). A similar argument is sometimes made in the case of North Korea, though this case is complicated due to the likelihood that it might cause the nuclearization of Japan. The nuclear narrative of North Korea as told by the
Chinese press differs from Western interpretations. The primary nemeses remain consistent (the US and North Korea), but the roles of protagonist and antagonist are less defined. Instead, the moral of the saga seems to be a general wariness of US intent. China does not see America’s uncompromising position on the denuclearization of the Korean peninsula as a necessary measure to enhance US credibility, nor does it see it as admirable, but instead, the US is perceived as demonstrating “aggressiveness, interference and controlling, if not bullying” (Li, 2011).

Seen from this perspective, the development of nuclear weapons is an insurance policy against US military intervention. But will this always remain the case? What if nuclear weapons were to actually invite US preemption? Over time, the US has pursued bolder and bolder courses of military action, but there has always been a line drawn at nuclear use. This is perceived to have changed over time, and with US missile defense and high-precision, prompt conventional weapons, scholars in China do not find it difficult to envision a scenario where the US leadership no longer fears nuclear reprisal and embraces a strategy of nuclear preemption (Shi, 2000; J. Zhou, 2002, Sun & Wu, 2013). This would represent a large shift in US strategic thinking.

Fear of this shift was expressed early on in China, and was seemingly confirmed by the 2002 US Nuclear Posture Review. One article characterized it as outlining “the most profound and fundamental readjustment [in US nuclear policy] since the end of the Cold War” (M. Zhou, 2002). This readjustment, Chinese scholars argue, is marked by the United States’ growing rejection of the concept of deterrence, its increased affinity for nuclear combat, and, most notably, its serious consideration of launching a preemptive
nuclear attack (J. Zhou, 2002; Bei, 2002; Twomey & Shelor, 2006, 3; Al Shu-Zhou, 2011).

This argument is supported, in part, by the broadening scope of nuclear action described in the 2002 Nuclear Posture Review (NPR). The 2002 NPR proposes three situations in which the US military can feasibly consider launching a nuclear strike, including enemy use of nuclear, biological, and/or chemical weapons; the "startling development of [an adversary's] military weapons"; and the construction of targets impervious to conventional forces. The first scenario, using nuclear weapons to counter weapons of mass destruction, has been a longstanding US position, but the other two admittedly diminish the nuclear threshold. This lowered threshold was widely reported in China, not least because the last scenario seems to directly threaten hardened and deeply buried Chinese nuclear forces (J. Zhou, 2002).

The most likely envisioned scenario of US nuclear action involves a conflict between China and Taiwan. This dynamic has not invited US nuclear participation in the past, but with a changed US strategy, it might be a real possibility. In this case, US tactical nuclear weapons could mean the difference between victory and loss. This point was emphasized by a Chinese scholar at the first US-China Strategic Dialogue, who warned that in the case of a conflict over Taiwan, “It is the United States, not China, who has the nuclear capabilities to control or even dominate conflict escalation” (Twomey, 1996).

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65 The closest China and the US ever came to armed conflict over Taiwan occurred during the 1995-1996 Taiwan Crisis, where the US sent more than twenty of its aircraft carriers in response to Chinese military exercises near the Taiwan strait. As tensions escalated, US forces stationed on Okinawa assumed level-one combat readiness, constituting the first time the US had used military deterrence against China since US-Sino rapprochement in the 1970s.
Lavoy, & Stone, 2005, 10). This idea was brought up again by Chinese scholars at the 2012 conference (Glosny, Twomey, & Jacobs, 2013, 17).

Another foreseeable scenario mentioned at the dialogues and in the broader Chinese discourse is a nuclear conflict over the Senkaku/Diaoyu islands—a cluster of uninhabited islands situated in the East China Sea which both China and Japan claim to own (Twomey & Shelor, 2007, 14). In fact, at the 2012 US-China Dialogue, the islands were mentioned by a Chinese scholar, alongside Taiwan, as one of the top three areas likely to trigger a US-Chinese nuclear exchange (Glosny, Twomey, & Jacobs, 2013, 8). At the most recent China-US Strategic Dialogue on Nuclear Dynamics, several Chinese experts expressed the opinion that the sole aim of China's nuclear capabilities was the United States (Glosny, Twomey, & Jacobs, 2013, 12).

To China, Taiwan and the Senkaku/Diaoyu islands are both a matter of territorial integrity and neither should concern the United States. A more aggressive US nuclear strategy, however, might provide the US with grounds to disagree. Thus, a shift in US nuclear strategy presents a palpable threat to China's security, and content analysis indicates it is the number one factor influencing China's nuclear buildup and diversification. The retooling of America's nuclear strategy is discussed by people across every sector in China, including state officials, military officers, and China's scholars and scientists. The recommended response differs slightly by actor, but the general consensus has become that the "'new' US nuclear strategy" requires other nuclear countries "for their own security...to adopt counter measures, raise the quality and striking capabilities of
their nuclear weapons, [and] to improve the systems of their own nuclear forces to maintain the effectiveness of nuclear reprisals” (Wang & Li, 2002).

A valid critique of this finding would be that it confirms established Realist logic. After all, many Western experts have offered this explanation without substantiating research. Yet the unique contribution of my conclusion is the potential it presents for mid-level theorizing. The world structure argument (structural realism) predicts that China will pursue counteraction against a rising power, but it does not specify the action China will take. Conversely, explanations of Chinese action as a specific response to US missile defense or CPGS do little to build theory and are less useful in cross-case analysis. The better explanation, and one informed by empirical research, is that China's gradual nuclear buildup and arsenal modernization is the result of a nuclear strategy in transition from minimum deterrence to limited deterrence–one prompted by the perception of a US transition from limited deterrence to maximum deterrence.

The next chapter presents other contributive factors in an attempt to push beyond a monocausal explanation.
CHAPTER SEVEN: THE REGIONAL SECURITY ENVIRONMENT

Nuclear weapons diminish the significance of distance. Where US conventional military forces once had to traverse 6,000 miles to wage war upon China and vice versa, long-range ballistic missiles enable states to initiate war within a matter of minutes. Unfortunately for China, it falls well within the missile radius of nearly every nuclear weapon state. In addition, China shares borders with four nuclear weapon states, three of which are actively increasing their nuclear forces. Since China considers the US to be the primary threat to its security, these “smaller” relationships must be managed in the context of a US-dominated world order. China's security decisions, including its nuclear strategy and nuclear structure decisions are directly influenced by US decisions. Chinese leaders must thus learn to navigate in a regional environment that exists in "a constant state of tension" (Cheng, 2013) and in an international environment where the global hegemon is perceived to be growing more aggressive. This section discusses how China manages multiple nuclear deterrence relationships in a unipolar world order, and it examines the threat China perceives from such regional actors as well as from other nuclear-capable states.
India – Intent with Minimal Means

While many Western texts present the Sino-Indian relationship as precarious and as a possible pretext for a regional arms race, from the Chinese perspective, India does not present an acute threat to Chinese security. In fact, relatively little attention is paid to India at all in this respect, with approximately five percent of China's academic literature on nuclear weapons dedicated to discussing Indian developments. A longitudinal analysis of Chinese news reports and academic literature illustrates a surge of attention toward India in 1998, when India first declared itself a nuclear weapon state. Even at this time, however, the sentiment most evoked by the tests was regret rather than alarm. A Sino-Indian nuclear conflict was never seriously considered in China. Instead, the majority of attention went toward assessing the implications of Indian action on the global movement toward nuclear nonproliferation and disarmament. This was demonstrated immediately after India announced its tests, with the remarks of Chinese Spokesperson Zhu Bangzao. Zhu read aloud the Chinese government's official response to Indian action, stating that the tests demonstrated "outrageous contempt for the international community" and represented "a blow to international efforts to prevent nuclear weapons proliferation" (Ho, 1998). Similar words were spoken by China's Foreign Minister Tang Jiaxuan, China's UN representatives Shen Guofang and Qin Huasun, and China's Disarmament Ambassador Li Changhe (“China Express Deep Regret,” 1998; Chen & Li, 1998; Zhou & Xi, 1998; Su, 1998).

China's domestic press reflected similar sentiments. The overriding theme was that India's nuclear tests were conducted in complete disregard for international law,
contravening the NPT and the Comprehensive Test Ban Treaty, and they served to isolate India from the international community. A secondary critique was that India's desire for nuclear weapons and the limited resources it diverted to achieve this aim harmed the state's potential for growth and economic viability (Li, 2001). An article appearing in Zhongguo Xinwen She, for example, claimed that India's nuclear tests had "fundamentally poisoned its environment for peaceful development" and significantly hampered India's potential for economic growth. In this way, it claimed, "India is acting like a person who lifts a rock only to drop it on his own feet" (Su, 1998). The fear that India would one day throw this 'rock' at China was not expressed here or in any other Chinese news outlet. It was also not a fear commonly addressed in the academic literature.

In China's academic journals, the primary question explored immediately after the tests was not the impact of India's actions on China, but the implications of India's actions on the international disarmament and nonproliferation movement more broadly. Moreover, some articles explored why India found nuclearization necessary in the first place, since it was not evident that such a move was necessary for Indian security (Huo, 1998; Wu, 1998). The official reason provided by India's Prime Minister Vajpayee, after the testing was that the arms expansion of China and Pakistan "poses a direct threat to India." Yet, Chinese officials thoroughly denounced this claim, explaining that the Sino-Indian border dispute, the primary point of contention between the two countries, was a thing of the past. "Let bygones be bygones and look to the future" advised a Chinese Radio International broadcaster (1998). In most cases, the conclusion reached in examining the situation was that India, or the Bharatiya Janata Party government more
specifically, justified its actions by conjuring up the perception that China presented a
direct threat to Indian security, but that this was a guise hiding its true intentions: the
increase of party viability and state prestige (Yuan, 1998; Ye, 1998; Shih, 1998; Zhang,
2008). Over time, China began to accept the reality of a nuclear India, and its initial
concern eventually dissipated into apathy. The buildup of Indian nuclear weapons over
the past fifteen years has been treated with similar insouciance.

Today, India is believed to possess approximately 80-100 nuclear weapons
deployed across short-, medium- and long-range ballistic missiles. Though it
predominantly relies on its land-based capabilities, India can legitimately claim to have a
nuclear triad. Of the most concern to China is India's indigenously developed Agni-
series. The Agni-III, for example, has a range up to 5,000 kilometers - allowing it to
target most of China's major cities. The Agni-V and Agni-VI, currently under
development, have an even broader range, allowing the missiles to strike anywhere
within China and beyond.

Despite China's apparent vulnerability to India's strategic nuclear forces, many in
China show little overall concern. Part of this stems from the fact that India's
Intercontinental Ballistic Missiles are still new and their abilities have not yet been
confirmed outside preliminary tests. Expert Shih Chun-Yu explained this by saying,
"Strictly speaking, India's 'Agni-V' is not really an intercontinental missile. Its launch was
successful, but its accuracy and stability remain to be observed, and it is not sure to what
extent it can threaten China" (Shih, 2013). This type of down-played assessment, while
notable in the particular incidence of the Agni-V, is displayed quite often in Chinese
commentaries on Indian nuclear capabilities. Only four years ago, for example, Associate Professor Zhang Yan was quoted in *Wen Wei Po* as equating modern day India with the US under the Manhattan project.

According to Zhang, it is not quite correct to say that India has a "nuclear strategy" or "nuclear posture," since, in his view, officials in India do not have a complete understanding of deterrence theory. The development of India's nuclear weapons program, he argues, was not guided by military security as much as it was the need for international recognition, and it was made possible by technological advancement. He calls it a "default situation" rather than a "careful consideration." This attitude also appears in conversations at the US-China strategic dialogues, where questions about India's influence on China's nuclear strategy are usually summarily dismissed by participating Chinese scholars (Twomey, Lavoy, and Stone, 2005, 12). China's experts admit that the Indian government likely factors China into its nuclear weapons decisions, but they emphasize that this consideration is not reciprocal (Twomey & Shelor, 2007, 15). One expert at the conference was quoted as saying, "China is not worried about India at all from a nuclear standpoint" (Cossa, Glosserman, & Pottinger, 2011, 9). This is further indicated by conversations where Chinese experts refer to both India and Pakistan as "small countries" that could be easily managed by the United States were their nuclear weapons to ever become an issue (Glosny, Twomey, & Jacobs, 2013, 16).

**Pakistan – Minimal Means without Intent**

Much to the chagrin of the international nonproliferation regime, India was not the only South Asian state to not accept the NPT. In fact, it only took a few weeks before
Pakistan responded to India's nuclear test by conducting five of its own underground nuclear weapon tests. This tit-for-tat exchange of nuclear tests in conjunction with India and Pakistan's long-standing strategic rivalry led many to believe that a South Asian nuclear arms race was inevitable. Another expressed concern was that India or Pakistan would use nuclear weapons in a future conflict, breaking the longstanding 'nuclear taboo.' Both of these situations would have serious international ramifications (such as the deligitimization of the NPT) as well as an immediate effect on South Asian regional stability. China has a vested interest on both counts. In general, however, evidence indicates that many in China do not find Pakistan’s weapons acquisition to be immediately threatening. Instead, the primary sentiment, expressed by the state, and adopted by most others, is a sense of disappointment over the South Asian situation more broadly. Immediately after the tests, for instance, Chinese Foreign Minister Zhu Bangzao publicly expressed "deep regret" over Pakistan's nuclear tests, and he implored both India and Pakistan "to exercise the utmost restraint" and to immediately cease nuclear weapons production ("PRC Puts Forward Proposals on Nuclear Disarmament," 1998). This request was repeated nearly verbatim by another Chinese official a few days later when Pakistan continued with its sixth nuclear test.

In both statements, Pakistan's actions were coupled with India's to represent an affront to the international nonproliferation regime, but not as a direct threat to Chinese security. It was also highlighted that this decision ran counter to both states’ economic interests. At the sixth meeting of the Preparatory Committee for the CTBT shortly following the test, for instance, China’s permanent representative Zhang Yishan remarked
that India and Pakistan should fall in line with the global trend of peace and “strive to develop their national economies and raise the living standards of their own peoples.” “They should not,” he said, “act willfully and arbitrarily, and use their national resources that are inadequate in the first place to facilitate an obsolete nuclear arms race” (Liu, 1998).

Even in the tensest of circumstances, such as when India and Pakistan were both threatening nuclear use over the Kashmir region in 2002, many in China publicly doubted that a nuclear event would occur. It is like “loud thunder, but little raindrops” said one article (Zhao, 2002). Another article actually admitted that “contrary to the malicious insinuations of many news media…nuclear weapons have had a stabilizing effect on both India and Pakistan” (Pang, 2002b). Another article echoed, "Amid the tense situation between India and Pakistan, public opinion holds that this is a matter for rejoicing that both India and Pakistan have possessed nuclear weapons and have formed a deterrence to each other" (Zheng, 2002). In other words, the seemingly synchronous weapons development of India and Pakistan following the 1998 tests and the subsequent nuclear parity that each state achieved meant that their bilateral relations were tenuous, but stable (Liu, 2011).

The contradiction in these messages and China's earlier messages are apparent. On one hand, China’s official statements following Pakistan's nuclearization mimicked the rhetoric of other nations, casting Pakistan's actions as a blow to the NPT and as a potential catalyst for a South Asian nuclear arms race. At the same time, however, one also gets the feeling that China accepts Pakistan's nuclear force as a counterweight to
India. This acceptance is related to the long-standing cooperation between China and Pakistan.

Chinese Ambassador to Pakistan Luo Zhaohui once described Sino-Pakistani relations as "higher than the mountains, deeper than the oceans, and sweeter than honey" (Luo, 2009). This characterization stems from the long-standing mutual understanding undergirding Pakistan and China's bilateral relations. After all, Pakistan was among the first states to end official diplomatic relations with Taiwan and recognize the legitimacy of the People's Republic of China in 1950. China later provided Pakistan with much-needed military assistance and the two nations became formal allies in 1972. This forty-year alliance has been characterized by frequent bilateral high-level visits, security consultations, and joint military exercises. In addition, China has been and remains Pakistan's primary arms provider, and it is believed that China has also helped Pakistan to develop its Shaheen missile series (Kan, 2010). In most recent years, the two states' cooperation has also extended to civilian nuclear energy.

Despite Pakistan's 100 nuclear missiles, many of which can reach China, the overall perception of those in China is that Pakistan does not present a threat to its security. This assessment is supported by the relatively few academic articles and news articles in China that are dedicated to specifically discussing Pakistan's nuclear weapons development or its nuclear weapons strategy. Instead, one finds that Pakistan is consistently discussed in the context of South Asia and juxtaposed against India, in particular. Speculations of a bilateral arms race exist, but, in contrast to the US case, such speculation is not followed by recommendations or even discussions of possible Chinese
responses. This general silence is abetted by the fact that Pakistan serves as a convenient counterweight to a state that considers China a threat. The same can be said for Russia.

**Russia - Means without Intent**

Continuing to examine China's nuclear periphery, one cannot fail to mention the neighbor with the largest inventory of nuclear weapons—the Russian Federation. Presently, Russia has eight strategic nuclear weapons for every one of China's nuclear weapons, and it has a solid diversification of nuclear platforms (land, air, and sea). It also leads the world in tactical nuclear weapons and maintains a limited ballistic missile defense system. Looking solely at capabilities and proximity, Russia appears to present the greatest threat to China's security. However, when other factors are considered, the calculation of China's risk shifts substantially. These mitigating factors include an extended period of Sino-Russian cooperation and the perception in China of a steady decline in Russia's overall national power.

Following the end of the Cold War, both China and Russia felt marginalized by the US, and it did not take long for the two countries to attempt to counter this situation by strengthening their bilateral relations. This resulted in a relationship that advanced from a “constructive partnership” in 1994, to a “strategic partnership” in 1996, to finally a “friendship” in 2001. The evolution and strengthening of the Sino-Russian relationship resulted in an increase in arms exchanges, joint military exercises, and diplomatic cooperation. One of the strongest areas of cooperation between China and Russia over the past twenty years has been the exchange of conventional heavy weapon systems. Since 1992, Russia has been the primary arms dealer to China, providing China with everything
from warships and combat aircraft, to missiles and missile launchers. In addition, it is speculated that Russia also provided China with design information and/or the technological expertise in order to advance China’s nuclear weapons production, particularly, the JL-2 SLBM and the DF-31 ICBM (Stokes, 1999, 204). These exchanges occurred alongside a series of large-scale joint military exercises, at least one of which was reported to mimic a potential joint response to a US nuclear strike (Gertz, 2001).

The idea of China actively preparing for and training to defend against a nuclear strike is supported in its military manuals and in PLA publications. While joint exercises to this end are not explicitly acknowledged in these sources, they nonetheless make apparent that China perceives Russia to also be at risk from US preemption. China and Russia are often listed alongside one another in Chinese news and journal articles as potential targets of US nuclear aggression, and, as one article states, this justifies "an appropriate expansion of the scope and degree of military and security cooperation between the two countries [China and Russia] in order to counterbalance the adverse effects and threat that the...United States...poses" (Zhang, 2008).

This feeling of shared risk and vulnerability has led not only to military cooperation, but also to a history of diplomatic cooperation. Through established venues of bilateral communication and conferral, Beijing and Moscow have been able to show their shared support for issues like state sovereignty (particularly in the cases of Syria, North Korea, and Iran), multipolarity, and strategic stability. Most notable among these are the strongly worded statements China and Russia have released regarding US missile defense. These range from official joint statements like the 1999 statement protesting US
missile defense, to the more frequent expressions of shared opinions in press releases provided by Chinese and Russian officials. Most recently, for instance, at the 8th round of Russian-Chinese consultations on strategic security, Russian Security Council Secretary Nikolai Patrushev stated that both China and Russia were mutually concerned about American missile defense and that both countries “have agreed to coordinate our actions in that respect” (*RiaNovosti*, 2013).

The recent history of Sino-Russian cooperation and mutual interest in counterbalancing US hegemony and missile defense strongly reduces the fear in China of Russian nuclear forces. Another substantial consideration influencing this conclusion is the perception in China of the overall decline in Russian power. After all, the volatility of the international environment dictates that state-to-state relationships are subject to change, and the present Sino-Russian rapport is no exception. This has been the trend of history more broadly and has been exemplified in the Sino-Russian context specifically, as it was not too long ago that the Soviet Union considered launching a nuclear strike against China (Osborn & Foster, 2010). As such, it is prudent to assess the situation absent the condition of joint cooperation.

In this case, the general determination reflected in the Chinese literature is that Russia is not in a position to credibly challenge the United States (Tang, 1998; Li, 2002; Lu, 2005), and that, one day, it might also not be able to challenge China. Assessments of Russian strength have frequently appeared in Chinese news articles. In *Tao Kung Pao*, for example, an article admits that “Russia's composite national strength has declined greatly and its international status has fallen” (Shih, 2000). Similarly, in 2001, when
Russia was heavily advocating for the cessation of GMD development, an article in *Renmin Ribao* argued that the Russian leadership would most likely fail to forestall US action due to the fact that "Russia's all-round national strength is not what it was, and [Russia] requires a great deal of US technical and fund support in order to develop its economy and achieve the goal of 'a rich country and a strong people’” (Yan & Ma, 2001).

This was followed in 2002 by a speech by Pang Zhongying to Qinghua University, where he stated matter-of-factly that "Russia is now a second rate country. It is a declined country."

The portended consequences of this perceived weakness is a reduction in Russia's military strength. More specifically, it is believed that Russia will soon be incapable of maintaining its oversized nuclear stockpile (Yan, 2000; Kung, 2002). This is a condition, claimed one article that has enabled the US to pursue its shift in nuclear strategy. Wang Guosheng and Li Wei, writing for *Jiefangjun*, explained:

> Past US nuclear strategy was mainly aimed at Russia and its nuclear buildup was to counter nuclear attacks from Russia and from other nuclear powers. The United States made a unilateral adjustment of its nuclear strategy, and the reduction of the number of its nuclear warheads were not based on the reduction of Russian nuclear forces... This shows that the United States...no longer recognizes Russia's parity with it in the nuclear area, and no longer cares about Russia's opposition (2002).

The Sino-Russian dynamic is unique in that it presents a situation where intent offsets hard capabilities. The extended cooperation between China and Russia and the joint positioning of the two countries against what they see as American hegemony have provided China with confidence that, despite its sizable nuclear arsenal, Russia does not present an immediate threat to Chinese security. This calculation of risk is expounded by
the ongoing perception in China that Russian power is declining, and that it will not be able to sustain its large inventory of nuclear weapons, much less invest in advanced technology (a perception heavily influenced by US). This means that even if Russian intent were one day to shift as a result of increased enmity between China and Russia, at that point, it might not have the military means to win in combat. The inverse situation is present in the Sino-Japanese dynamic.

**Japan - Intent, Potential Means**

Japan does not have nuclear weapons, and it has promised not to produce them or procure them in the future. The Japanese Parliament passed a law to this effect in 1967. From the Chinese perspective, however, this promise represents no real constraint on Japanese nuclearization. This is because Japan has the largest civilian stockpile of separated plutonium of all the non-nuclear weapon states, including a stockpile of approximately 300 kilograms of plutonium acquired from the US and Great Britain in the 1960s and an additional 45 tons of separated plutonium produced by its civilian nuclear program (International Panel on Fissile Material, 2013). With its technological expertise, this is enough for Japan to produce thousands of nuclear weapons. Japanese leaders have already, upon several occasions, admitted that the state has such expertise, yet such statements have been coupled with the reassurance that Japan will continue to exercise restraint. At the same time, however, there have been officials in Japan who have publicly questioned this restraint, especially in light of China's conventional and nuclear modernization (Sheng, 2001; Yang, 2002; Wang, 2006).
Japan's latent nuclear weapons capability and the demonstrated support shown for nuclearization by select Japanese officials is enough for China to perceive Japan as a potential nuclear threat. Yet these are not the only factors in the equation. China's perception of a Japanese threat increases exponentially when one considers the tumultuous history between China and Japan. The effects of the Sino-Japanese war have not been forgotten in China, and China's wounds are reopened each time a Japanese official attempts to "rewrite" history or visits the Yasukuni Shrine. Even today, historical references to Japanese colonialism and aggression are used to remind Chinese citizens and other nations of Japan's untrustworthy nature (Qian & Pan, 1999; Fu, 1999). One article stated: "for a sovereign and independent nation to develop an appropriate degree of military strength is both understandable and justified, but development on this scale has to surpass the goals of peace and defense." This consideration is especially pertinent in Japan's case, claims the article, since Japan has a "history of numerous brutal invasions of the nations on its periphery" and "which to date has shown no deep introspection as a nation" (Li & Chen, 2001). This characterization of present-day Japan through a historical lens heightens China's perception of the Japanese nuclear threat. This is not to say, however, that there are not legitimate present-day concerns. In addition to Japan's available fissile material, its technological capabilities, and its signals about considering nuclear weapons acquisition, Japanese leaders have also justified, over the past two decades, an expansion of the state's military power. This has led to an increased military budget and expanded scope of military service. In 1999, this took the form of a Japanese
official stating that preemptive attacks on enemy targets were within the realm of Japan's constitutional rights (Qian & Pa, 1999).

In the case of China, the most immediate threat is Japan's claim to the Senkaku/Diaoyu islands. This territory was mentioned as a distinct concern in the US-China Strategic Dialogue in 2007 and 2012 (Twomey & Shelor, 14; 2012, 8). Nuclear weapons are perceived to be one means by which Japan can gain leverage in this situation and achieve its aim of territorial expansion. "If Japan possesses nuclear weapons," stated one article, "it will be just like adding wings to a tiger and seriously threaten peace and stability in East Asia" (Wang, 2006).

The article continued by asking all East Asian states to retain "a high degree of vigilance" in the situation (Wang, 2006). A similar request is proffered by Zhao Xijun, the editor of the military internal issue publication She Zhan. "When there is a need, Japan can quickly manufacture true combat nuclear missiles," Zhao stated, "Therefore, people of the world should be highly watchful of the quiet rise of the Japanese nuclear deterrence capability" (Zhao, 2005, 55). Another article, published in Hong Kong's Tao Kung Pao, advised the international community to "express strong concern over Japan's keenness...to develop nuclear weapons" (Shih, 2003). Similar sentiments have been expressed by Chinese scholars at the US-China Strategic Dialogues (Twomey, Lavoy, & Stone, 9; Twomey & Shelor, 14).

But is China truly expected to sit and wait alongside other states for Japanese nuclearization? Is it enough to simply express disapproval? In most cases, the answer seems to be yes, but there are also subtle hints that China may be taking protective
measures. One measure is to clearly communicate to Japan the credibility of China’s nuclear deterrent. In an article in 2006 article in Ta Kung Pao, for instance, Wang Chi-Wen reminds readers that "Japan is surrounded by seas on all sides and its territory is small. Its people are concentrated in cities with a dense population. It cannot resist nuclear retaliation" (Wang, 2006). Another measure that can be taken is the buildup of nuclear weapons “just in case.” In a recent Renmin Ribao article, for instance, it is explained that while China “promotes anti-nuclear proliferation and arms control…the complete unification of China is yet to wrap up.” The article goes on to specify that certain “disputes between China and some neighboring countries over territorial sovereignty [and] sovereign right over territorial waters” require “proper handling” (2009). China anticipates that Japan may soon shift its nuclear strategy in order to lay claim over disputed territory. As with the US, this anticipated strategy shift is causing China to reconsider its own nuclear strategy and shift its force structure to accommodate it. North Korea is seen as a potential stimulus for such a scenario.

**North Korea - No Intent, Limited Means**

North Korea is an interesting case, because, as it relates to China, it has minimal demonstrated nuclear capabilities and no intent of actually using this capability. Like Japan, North Korea has long had the ability to produce highly enriched uranium and plutonium from its civilian nuclear facilities. The realization of this potential occurred in 2006, when North Korea tested its first nuclear weapon after withdrawing from the NPT in 2003. It conducted subsequent tests in 2009 and 2013. At present, North Korea is presumed to possess between 4 and 8 nuclear warheads that can theoretically be affixed
to any of its short, medium, or intermediate range ballistic missiles. This means that it can foreseeably deliver a nuclear warhead up to 3,000 kilometers—well within reach of China. It is also developing a newer missile with a range of 6,700 kilometers, enabling it to target all of China.

These facts have not caused alarm in China for multiple reasons. First, there are several technological steps that still need to occur in order for North Korea’s nuclear weapons to present a viable threat to its neighboring states. The first of these is miniaturization. Right now, North Korea has nuclear bombs and it has missiles, but it is not believed to have the ability to put these two components together and deliver them to a selected target (Song, 2013; Teng, 2010). A South Korean estimate quoted in a Chinese publication indicates that North Korea’s latest test—the one deemed ‘perfect’ by the North Korean government—was only 2/3 of “effective saturation” (the equivalent of 6-7 kilotons of TNT rather than the ideal 10), indicating that the technology is not yet “mature.” Lastly, outside of actual weapon design, North Korea does not have a sophisticated command and control system. This would be critical if it wished to go up against a more mature nuclear power, such as the United States or even China (Song, 2013).

Another factor mitigating Chinese concern in addition to the perceived immaturity of North Korean nuclear capabilities is the belief that North Korea does not intend to use its nuclear weapons for military purposes. This presumption is widespread in China and has manifested into a subtle empathy for the North Korean plight vis-à-vis the United States. One article, for instance, published immediately after North Korea’s first nuclear
test in 2006 explained that while the North Korean government may exhibit irrationality and “not follow the rules of the game,” its nuclear tests and provocations are only pomp concealing the state's desire to engage in meaningful dialogue with the US. "For this reason," it concluded, "although the peninsula's situation looks tense, the possibility of a military conflict is almost next to nothing, and the situation is still under control by big powers” (Yu, 2006).

In subsequent years, the United States asked China to be one of the “big powers” helping to manage the situation. This pressure led to the gradual dissolution of empathetic undertones in the Chinese press, but not to a fundamental change in China’s position. If North Korean nuclearization is meant to serve as diplomatic leverage in US-North Korean relations, then China has limited influence in the situation. A 2009 article appearing in Ta Kung Pao reiterates the crux of the issue:

North Korea's ultimate goal is not to have nuclear weapons. What North Korea is doing as it strives to obtain nuclear weapons is to use the nuclear issue to create tension on the Korean Peninsula and to use these conditions to force the United States, which is the dominant hegemon in the contemporary international system, to accept its legitimate status and provide it with sufficient existential and developmental space so that it can preserve the stability of its political power (Li, 2009).

The article continues to explain that China's hands are tied in providing an adequate solution, since North Korea's ultimate objective can only be achieved through dialogue with the United States. Ultimately, China operates on the assumption that North Korea does not pose a security threat to China (“Zhu Rongji Interview,” 1999c). At the same time, however, China must consider the implications of North Korea's nuclearization on
the regional security dynamics, specifically as it relates to Japan and South Korea (Li, 2009).

If North Korea were to continue down the road of nuclearization and build deliverable nuclear weapons, then other states in East Asia might feel compelled to do the same, producing a so-called "domino effect" in the region. This kind of cascade would be directly opposed to China’s security interests, since it might provide Japan and South Korea with the excuse each needs to acquire its own nuclear defense (Zhu, 2004; Twomey, Lavoy, & Stone, 2005, 9; Yu, 2006; Qin, 2009).

**Iran - No Intent, Potential Means**

Similar concerns have been expressed regarding the Iranian nuclear situation, but in this case, the “domino effect” is presumed to affect other nations, such as Egypt, Saudi Arabia and Turkey ("Potential Risks for ‘Nuclear Dominoes,’” 2006). While Iran is not a neighbor of China, its latent nuclear weapons capability and its adversarial relationship with the United States ensures its frequent appearance in the Chinese literature. In fact, in many ways the story of Iran is perceived in China as analogous to the story of North Korea. This is because both states have strong diplomatic ties with China, and the perceived intent behind their actions is to safeguard their state against US force and coercion, a motivation China can undoubtedly understand. In terms of capability, however, the Iranian situation is different.

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66 Other concerns that have been mentioned include the effects of a failed nuclear test or accident, including radiation contaminating China’s atmosphere, underground water, and soil as well as the potential for such an incident to set off the Changbai mountain volcano (Shih, 2013).
The origins of Iran’s nuclear program began in the 1960s when the United States provided Iran with basic nuclear facilities. After signing the NPT in 1969, Iran further expanded its civilian nuclear program to meet increased demand and offset a spike in oil prices. In the 1990s, Iran turned to Russia and China for assistance and it increased research and development in the areas of conversion, enrichment, and plutonium separation.\(^67\) This fueled US suspicions of a clandestine Iranian nuclear weapons operation— a suspicion not generally shared by the Chinese government. Instead, Chinese leaders repeatedly made clear that Iran had the right, under the NPT, to pursue peaceful uses of nuclear energy and that this pursuit should not be automatically equated with the pursuit of nuclear weapons. This was a point of mutual understanding expressed in the 2000 Sino-Iranian Communiqué.

The seeming solidarity between China and Iran was strengthened in 2002 when President George W. Bush named Iran, alongside North Korea and Iraq, as a part of the "axis of evil" intent on creating weapons of mass destruction. Chinese Foreign Ministry Spokesman Kong Quan immediately spoke out against the "arbitrary" label (Xinhua, 2002), and Liu Jianfei, a party school expert, called the statement "irrational" (Liu, 2002).\(^68\) A Xinhua article published the following month pointed out that there was "no conclusive evidence" confirming that any of the three states were developing weapons of mass destruction. "Even if they did have these kinds of weapons," it said: "who would dare to use them against the United States, the world's number one nuclear nation...while

\(^67\) This 'pivot' in partners was due, in part, to the US cutting off ties with Iran following the hostile takeover of the U.S. embassy in Tehran by Islamic fundamentalist students in 1979.

\(^68\) China's disapproval of classifying Iran, Iraq, and North Korea a part of an "axis of evil" stemmed from the absence of empirical evidence to support that these nations were actually producing or harboring nuclear weapons or that they were directly involved in the terrorist attacks of September 11th.
risking the danger of being completely annihilated?" The author argued that the US claimed that these states posed a security threat was not altogether credible, but signaled ulterior motives. "These three countries do have one common denominator," explained the author "... their values and polices do not agree with those of the United States and none of them are on good terms with the United States" (Bao, 2002).

As time passed, it became more difficult for China to deny that Iran might be pursuing nuclear weapons. At the same time, however, China did not agree with the United States, Germany, France, and Great Britain that economic sanctions or force were appropriate responses. Instead, it continued to advocate for constructive multilateral dialogue (Song, 2003; Li, 2003; Yang, 2004; Feng & Song, 2005; Zheng, 2006; Rong, 2008).

China's divergence from the West on the Iranian nuclear issue stems from a couple of factors: First, Iran and China have a history of "friendly cooperation" in a variety of areas including energy, trade, and military technology, and thus it is against China's economic interest to speak out or act on unsubstantiated evidence of nuclear weapons production. In addition, even if Iran were to be developing nuclear weapons and this aspiration came to fruition, the rapport shared by Iran and China would lead Chinese leaders to believe that China would not be a target of these forces.

The same cannot be said for the United States. Interestingly, in many Chinese accounts of the Iranian nuclear narrative, the story that is told is not one of the peril of

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69 In 2002, the US CIA revealed satellite photos of what was believed to be a secret nuclear weapons facility in Iran's Natanz region. Iran denied this activity. In 2003, Chinese Foreign Ministry spokesman Liu Jianchao asked for clarification regarding such "rumors" ("PRC's First Nuclear Weapons Production," 2003). Again, Iran denied nuclear weapons development.
Iranian nuclearization, but the cautionary tale of US hegemony. This began as early as the late 1990s, when US suspicions of Iranian nuclear weapons first emerged. While the government rhetoric remained diplomatic, several scholars expressed doubt regarding US intent. Zhang Yang, for instance, argued that the US policy toward Iran was a strong example of "power politics" at play, where the US uses a "nuclear stick" to strike states back in line and "to ensure that they do not disrupt the current unipolar world order" (1999). This framing of the story continued even after Iran pursued uranium enrichment. In an article entitled "Iran nuclear crisis tests China's diplomacy," for example, the article announced Iran's debut of a new nuclear facility and the collective request of Britain, France, Germany, and the United States to put the issue to the UN Security Council for discussion. The author argued that China did not agree with this decision. "The most important thing," he explained, "is that China, as the largest developing country, always upholds multilateralism and non-intervention in the internal affairs of other countries." He continued, "Whether or not China can, together with the peace-loving countries, prevent a repeat of the tragedy of the US attack on Iraq is not only in line with China's interests but is also in line with the general direction of the harmonious development of the world" (Wanng, 2006). Here and elsewhere the blame shifts away from the potential proliferator back to the United States.

**The United States - Supplying Means and Intent**

As the world hegemon, the US can influence the actions of other countries via its pocketbook and/or its promise of military protection. This means that the threat against China has the ability to be significantly expounded. If the US intent is truly to contain
China, then the US can recruit assistance across the globe to help it achieve this objective. This is the luxury of a superpower, and it is precisely why China is threatened by US unipolarity. In addition to the ability of the US to develop a Ground-based Midcourse Defense and Conventional Prompt Global Strike system to further its security, discussed in chapter six, the US also has the material means and the influence to supply specific states with nuclear capabilities and/or to implant the idea or exasperate the idea of a “China threat.”

From the Chinese perspective, US "hegemonism and power politics" are responsible for creating most of the "nuclear storms" in the world today—including those situated on China's periphery (Zhu, 2004). While each state has its own story, these stories are embedded within the larger narrative of US supremacy. China's relationships with its nuclear and nuclear-capable neighbors are situated in this larger context and, as a consequence, China must consider and anticipate US action when it is managing its bilateral regional deterrence relationships. Evidence of this consideration appears across all cases.

In the case of Indian nuclearization, for instance, US officials were very vocal about their opposition to India's nuclear tests. At least one Chinese scholar, however, doubted the sincerity of US responses considering that the US was instrumental in abetting India's nuclear weapons program by providing nuclear technology in the 1950s (Li, 1998). Other Chinese reports and articles question US complicity after Indian testing and the short turnover the Bush Administration displayed in later agreeing to openly trade civilian nuclear technology with India (Lu, 2005; Chen, 2010). The idea frequently put
forward in China is that the US actually supports India's nuclear weapons development because it provides a counterweight in South Asia to balance China's rise and offset Chinese influence in the region (“India Needs to Eliminate Anxiety,” 2001; “Washington Draws India against China,” 2005; Li, 2006; Huang, 2005; Tang, 2012). Any semblance of an arms race in the region can thus, from the Chinese perspective, be traced back to the US (Qian, 2002). An article appearing in Ta Kung Pao, for instance, claimed that "ever since the US and India signed the nuclear technology cooperation agreement and the 10-year National Defense Agreement, the military arms race in South Asia has not stopped for a single day." As a result, the article concludes that "the US will have a hard time 'escaping its connection' from a South Asian nuclear arms race" (Yao, 2006). Another article warned that "In playing...nuclear cards with countries on China's periphery, the United States leaves the most goodwilled of people with no choice but to question its motives and ambitions" (Chen, 2010).

The implication of this particular statement was that the United States was "playing" India in order to check China and Pakistan, but the concept it conveys could easily apply to other states in the region. This is particularly true of North Korea. North Korea may be acting irresponsibly and in complete disregard of international law, but many in China feel as though it is doing so because it feels its hand is forced. The dealer has provided it with few options. As a result, to stay in the game, it chooses to cheat. When North Korea withdrew from the NPT in 2003, for instance, the reports in China depicted North Korea not as an iniquitous nation, but more as a victim of US coercion. “With its most important national interests seriously threatened,” said one article, “North
Korea had no choice but to withdraw from the Nuclear Non-Proliferation Treaty to protect its national sovereignty, survival, and dignity” (Ji, 2003). A similar tone was taken by Wang Xinjun, a research fellow from the Academy of Military Science a few years later. Wang explained that North Korea's pursuit of nuclear weapons was a likely consequence of "power politics." "The main reasons for the nuclear crises," he explained, "are the hegemonic aspirations of some nations and the interventionism and double standards they practice” (2006).

Ultimately, Ji and Wang find that the North Korean decision to construct a nuclear deterrent is a consequence of US coercion. This claim is repeated throughout the Chinese literature (“China Has Done its Best,” 2013; “Chinese Experts see US-DPRK Relations,” 2013; Wang, 2013). Some argue that it is not necessarily an unintended consequence. After all, some believe the US has little to fear if North Korea develops nuclear weapons, since such development is likely to remain limited and any launch likely to be intercepted by US missile defense. As a result, Shih Chun-yu concludes that North Korean nuclear weapons development is "exactly what the United States wants, since it provides a pretext for legitimizing the US military presence on the Korean peninsula and seizing the opportunity to check China's rise" (2013). While Shih’s point is extreme, he is not alone in reaching this conclusion (“Iran is the bomb,” 2006; H. Li, 2010). The majority opinion presents a more subtle interpretation of the situation, characterizing the US not necessarily as an orchestrator but as a strategic opportunist who sees North Korean nuclearization as an excuse to exert greater military power in the Asia Pacific and ultimately check the power of an ascending state (Fu, 1999; Guo, 2000; Pang,

This began with the US provision of radar bases and Patriot missiles to South Korea in 1994 and continued with Japanese-US TMD cooperation in 1998. In this regard, the story of South Korea is that it serves as a conduit of US power, and a means for the US to encircle both North Korea and China. This is particularly the case when the US conducts joint military exercises with South Korea on China's periphery (Bi, 2004; “Potential Risk for ‘Nuclear Dominoes,’“ 2006). In the same vein, the majority of scholars and state officials in China see it is "entirely unnecessary" for Japan to be protected by Theater Missile Defense (“Japan Strikes a Military Pose,” 1999). Yet with America as its exemplar and abettor, Japan has manipulated the North Korean situation so that it appears to be a legitimate excuse for Japanese-American cooperation as well as for Japan's overall military buildup (Yang, 1999). The blame here is more equally distributed, as both the US and Japan are cast as offensive actors, but the threat China perceives from Japan would be undoubtedly less were the US not involved (Chu, 2014). In fact, in many ways, South Korea and Japan are seen together in China as a collective front "by which the US can control the Asia-Pacific region" (Bi, 2004).

Interestingly, a similar argument is made in the case of Iran. While Iran is not situated next to China, its story is viewed as similar to North Korea's, with many in China claiming that the US is exaggerating the Iranian nuclear threat in order to exert its authority. In this case though, military force is eschewed for economic sanctions. Yu
Chia-Hou claims that the true intent of US action in Iran is to wage an "economic war" with China since China relies upon Iran for fuel. This he says, is a strategic underhanded move made by the US “to eliminate the China threat,” without the direct use of military force against China (Yu, 2008).

Less extreme interpretations see the US-Iran conflict less as a direct threat to Chinese security than as a stark example of the overall insecurity brought by US hegemony. "There is still some country trampling on the norms of international relations with its military superiority," says one article, and "This practice has forced a couple of countries to regard possession of nuclear weapons as a strategic pillar of safeguarding the national security and supporting the international status" (“The World Military Situation,” 2010). It may also force other countries to regard buildup as necessary.

As the perceived threat of the US increases and this threat manifests into China’s periphery, the pressure accumulates for China to take specific countermeasures, including the buildup and diversification of its nuclear force. This is true whether states are perceived to be bandwagoning with the United States or attempting to balance it. Either way, in the nuclear realm, China’s security is lessened. From this perspective, the problem is not simply one-dimensional, but two dimensional, with China having to contend with security threats at both the international and regional level. The next chapter examines yet another level of the puzzle and examines the extent to which internal or domestic drivers play a part in China’s nuclear decisions.
CHAPTER EIGHT: THE INFLUENCE OF PRESTIGE

There is a relative consensus among Chinese government officials, military personnel, and scholars that China's external security environment is the paramount consideration in decisions relating to the scale and composition of the state’s nuclear force. Evidence indicates, however, that this is not the only explanatory variable. In addition to gains in material power, nuclear weapons are also sometimes associated with gains in a state’s prestige, or its “recognition of importance” (Wood, 2013). Membership in the “nuclear club,” for instance, signifies that a state is among less than one percent of the world’s most advanced military states. It also signifies, in absolute terms, that a state has reached a superior level of technological and scientific advancement. This can translate into significant diplomatic leverage, and it can be a motive that is distinct from the desire to attain military advantage (Feng, 2003). This chapter examines this motivation in terms of China’s nuclear possession and enhancement.

Possession

Research has shown that the desire for international prestige played a role in China’s earlier decision to acquire nuclear weapons (Lewis & Xue, 1988; Johnston, 1995-1996; Fravel & Medieros, 2010). A strong statement aligning with this

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70 There is a necessary distinction between states that are superior in the qualitative realm (which I am calling militarily advanced) and those that are superior both qualitatively and quantitatively (those I would consider militarily strong or powerful).
interpretation can be found in Mao Zedong's military papers. One year prior to China's nuclear test, Mao told members of the Central Military Commission, "I hear that with such a big thing [as an atomic bomb], if you don't have it, others will say you don't count. Fine, we should build a few" (Mao, 1993, 374). China's Foreign Minister at the time, Chen Yi, presented an even more ambitious agenda. Rather than aspiring to build just a few bombs, Chen told journalists that China needed to also develop missiles and a supersonic aircraft. Without these, he said, China risked "degenerat[ing] into a second-class or third-class nation" (Burr, 2000).

Within years of these statements, China detonated its first atomic device, followed shortly thereafter by tests of its first nuclear missile and hydrogen bomb, and a successful launch of a space satellite. According to China's later president, Deng Xiaoping, these achievements were a testament to the Chinese people's capability and the country's prosperity, and they were important indicators that China had become "a big country with great influence" (Jiang, 1999). At the same time, however, Deng recognized that in order for China "to earn more say and a higher international status in the coming world order," additional force enhancements were necessary ("Trump Card Strategic Missiles Spotlighted," 2009). Deng's economic reforms allowed China to ascend as an economic powerhouse and it set the stage for such enhancements. When Jiang Zemin took office in the early 1990s, the country was experiencing unprecedented national growth. China was no longer considered only a big country in geographic terms or in terms of its population,
but it was considered a "big power."³¹ Jiang wanted China's nuclear force to be commensurate with this new status (Guo, 2002).

In the narrative of China's nuclear development, Jiang and his predecessors highlighted the perceived value of nuclear weapons from the perspective of China’s top leaders. In addition to enhancing security, nuclear weapons were also believed by these men to shape China’s identity as a global power. In their view, China’s advancement in world status is attributed, in part, to its possession of nuclear weapons. But is this view held only by China's elites or does it resonate with other Chinese actors? Is there a difference among actors regarding this association?

In the state and academic literature, the correlation between China’s acquisition of nuclear weapons and its advancement in prestige is openly acknowledged, and the words of Mao, Xiaoping, and Jiang are often quoted. In fact, in many reports, the inherent prestige of nuclear weapons is portrayed not as an argued point, but as an institutionalized assumption. _China acquired the nuclear bomb, therefore it gained international prestige._ In a recent interview, for instance, the President of China Foreign Affairs University, lauded the technological accomplishments achieved under Chairman Mao and Premier Zhou and emphasized that China, at the time, was not believed to possess the kind of advanced scientific capability necessary for a nuclear bomb. The fact that it did meant that it was elevated in the eyes of other states. "Was it beneficial to

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³¹ China's "rise" is attributed to the economic reforms put in place under Deng Xiaoping in the late 1970s. It is often characterized by China's extraordinary growth in GDP (from approximately 200 billion to more than 400 billion in ten years) and its military modernization. In addition, in the years following Deng’s reforms, China became more visible and participatory in international institutions such as the International Monetary Fund, World Bank, and the International Atomic Energy Agency.
China’s international standing?” he asked, “It definitely was” (‘Grand Wisdom of Diplomacy,” 2005).

This answer is the same answer that appears throughout China’s domestic news reports, academic articles, and public speeches (“Two Nuclear Research Bases,” 1999; “Turn Dream Into Reality,” 1999; Liu, 2004; Jia, 2011). China's nuclear bomb is more than just a deterrent; it signifies the resilience and resurgence of a nation that believed it had been discounted for the last century. This was evident in the initial reports of China's nuclear test, with journalists mentioning that the bomb "symbolizes the strong spirit of the Chinese nation” (“First Generation of Central Leadership Lauded,” 1999) and that it demonstrated China’s “will power and ability to catch up with all the countries and surpass them” (Lewis & Xue, 1988, 206).

This idea is further exemplified by the Central Committee, State Council, and Central Military Commission's conferral of the “Two bombs, one Satellite” award to China's nuclear scientists. The award, named after China’s atomic bomb, hydrogen bomb, and man-made space satellite, is meant to honor the individuals that were seen as fundamental to the start of China's nuclear program. Their contributions, claimed one article, allowed China to break free from the nuclear monopoly and gain considerable national and military prestige (“Two Nuclear Research Bases Open,” 1999). Today, the term “two bombs, one satellite” indicates more than a past military program. It has become synonymous with the Chinese spirit of independent innovation in military weaponry and the triumph of this spirit over other perceived industrial and economic disadvantages. It is used as a call to action—most often by Chinese military leaders.
The association between China’s nuclear weapons production and its prestige among its global peers appears even stronger in China's military discourse. China’s military professionals see nuclear weapons not only as symbols of military strength, but also as symbols of the state’s technological innovation. Writing in *Jiefangjun Bao*, Liu Cheng explained: China’s nuclear weapons program earned China “a seat at the table in the realm of advanced military science and technology around the world” and gave “a powerful boost to China's international position and influence” (2002). Similarly, in another *Jiefangjun Bao* article, the authors stated that "the development of advanced weapons represented by nuclear weapons... greatly raised the defense power and the international status [of China]" (Zhao & Liu, 2012). Some even claimed that these advances enabled China to catapult to a “great power” or “major power” in the world (Ding, Zhang, & Qu, 2010; Zhao, 2005; Yu, 2011) The most clear-cut example of this association in the military realm, though, is its inclusion in a commonly sung song by the PLA Second Artillery Force. The song, entitled "We are the Members of the Heroic Rocket Corps," includes a line that identifies China's missile force as "the symbol of a country that is a great power" (Xia & Wang, 2006). This line, sung amidst Corps members, is also included in their military manual (Yu, 2004, 74).

The conclusion across sectors and sources is that in addition to security considerations, the desire for prestige and status also drove China’s decision to acquire nuclear weapons. But is acquisition the only consideration? Is greater prestige associated with having more nuclear weapons or with different types of nuclear weapon delivery systems? Can prestige be measured in dichotomous terms or is it better measured in
degrees? Different researchers are likely to have different answers to these questions, but the Chinese case indicates that at least some states are likely to frame prestige in nominal terms and make nuclear arsenal decisions based, in part, upon the perception that more or better nuclear weapons lead to appreciable gains in state status.

Enhancement

China’s first qualitative nuclear weapon decision post-acquisition was the decision to develop the hydrogen bomb. The H-bomb, as it is commonly referred to, is thousands of times more destructive than an atomic bomb, and thus has little military utility for a state with a completely defensive nuclear doctrine. It is especially odd for a state that officially denounces the concept of "overkill." However, at the time, the ability to weaponize nuclear fusion represented a premier technological accomplishment, and as one article explained, China’s demonstration of this ability "made the world look at it through new eyes" (Cao, 1995). This was because, in comparison to the atom bomb, China's production of the hydrogen bomb took only 32 months - a period significantly less than the United States, Soviet Union, Britain, and France. It was also preceded by China conducting only 41 nuclear tests, as opposed to the hundreds of nuclear tests conducted by the US and Soviet Union. In this way, the hydrogen bomb was categorically different than the atom bomb not just in its military capacity, but also in what it symbolized. It represented another technological “leap” and another degree of separation from China’s previous image as a technologically “backward” country (Sun, 2002). According to President Jiang Zemin, China’s atomic bomb and its hydrogen bomb were a *sine qua non* to "upgrade the country's international status" (2002). "In the face of
fierce international competition," he explained, "only when we innovate with perseverance will we be able to advance, and only when we keep on advancing will we be able to take the initiative in our own hands" (2002).

Innovation with perseverance implies an insatiable aim for technological advancement; it requires that a state never being satisfied with just one technological and scientific breakthrough, but working to establish a pattern of such breakthroughs. This pattern can allow one to earn a reputation. Jiang wanted China to have a reputation as a technologically and scientifically forward nation, and he wanted this to be displayed through China's nuclear force. This belief did not stop with Jiang, but continued with other state officials in China (Ge, 2012), and it became dubbed the "the national dream of the Chinese people and the dream of the century" (Xu, Xia, & Bi, 2006). Its realization can be seen in China's multiple indigenously developed nuclear delivery systems, including its two land-based intercontinental ballistic missile systems and upgraded sea-launched ballistic missile system that it developed after the Cold War.72

**Land-based Intercontinental Ballistic Missiles**

China's current ballistic missile force is comprised of eighteen different types of weapon systems, the majority of which are land-based. This series goes by the name *Dong Feng*, meaning East Wind. The name pays homage to the remarks of Chairman Mao Zedong in 1957 concerning how the East Wind was prevailing over the West. Taken literally, Mao’s statement was premature. When Mao made his statement, China was three years from launching its first Dong Feng missile. Now, however, China is

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72 This includes China’s DF-31 and DF-31 ICBMs and its JL-2 SLBM. While China’s MRBM, the DF-21, was technically deployed in 1991, after the close of the Cold War, its development began in the late 1960s.
hailed by the DOD as having “the most active land-based ballistic and cruise missile program in the world” (2010). The total number of Chinese ballistic missile is believed to exceed 400, and approximately 150 of these are equipped to carry a nuclear warhead. This is a three-fold increase since the end of the Cold War. More specifically, China has produced two entirely new systems in the past twenty five years, the DF-31 and DF-31A. In addition to adding to the numbers, these missiles enhance China’s overall nuclear deterrent capabilities by being smaller, lighter, more mobile, and quicker to launch. They do not, however, extend China’s nuclear reach. With its land-based force, China continues to have only 20 weapons capable of reaching the continental United States. Its newest land-based missiles have a range between 8,000 and 11,200 kilometers. So why were these weapons developed if they cannot threaten the US homeland?

One argument is that China’s newest ICBMs enhance China’s nuclear deterrent vis-à-vis the United States, because they can still threaten to harm US forces deployed abroad. Another reason supported by the literature is that these weapons demonstrate China’s continued scientific innovation in nuclear weaponry. Both the DF-31 and DF-31A, for instance, exemplify significant technological achievements. The DF-31 is a three-stage, solid-fuel missile with a computer-assisted guidance system allowing it to hit targets up to 8,000 kilometers away and within a 300 meter radius. The DF-31A is an upgraded version of the DF-31 with improved accuracy and a range extending over 11,000 kilometers. These advancements are said to represent "an important sign of [China's] modernization" (Zhang, Zhang & Guo, 1999). They are also credited with solidifying China’s position in "the ranks of advanced countries in the world" (Rong &
Yuan, 2009, 125) and instilling fear and awe in China's competitors (Wang, Wang, & Feng, 2006).

China's National Day military parades help to achieve this effect, by providing a national platform on which China can display its newest weapons. China’s DF-31 debuted at the 1999 parade and its DF-31A premiered at the 2009 parade. On both occasions, pictures and video footage of the missiles were distributed to domestic and international news outlets, and the missiles were described in China's domestic press as "symbols" of the nation’s strength (“First Generation of Central Leadership,” 1999e; “Trump Card Strategic Missiles Spotlighted,” 2009). It was also mentioned that the display of such forces helped enhance the prestige of China's military and the country writ large (Guo, 2002).

**Sea-Launched Ballistic Missiles**

In addition to China's land-based missiles, the Chinese government has also recently released information on its newest Submarine-Launched Ballistic Missile (SLBM), the *Julang*-2 and its carrier vessel, the Jin-class 094 Type submarine.73 Like the DF-31 and DF-31A, China's JL-2 and Jin-Class submarine were displayed at one of China's military parades. Yet, in this instance, the Chinese media provided an unprecedented amount of detail, including photos of the submarine cabins, videos of crew activities, and written summaries of the force training, combat performance, and sea patrols (Luo, 2013). These details were distributed to foreign and domestic presses. It is unquestionable that these details were released in order to enhance the credibility of

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73 Though China recently released detailed information on its JL-2 SLBMs, earlier reports indicate that it might have been operational ten years prior (Jin, 2001).
China's sea based deterrent and demonstrate the state's overall nuclear prowess to its adversaries. At the same time, though, several articles announced that these weapons symbolized China's status as a "major power" (Ma & Qiao, 2012; Qiao & Liu, 2013; Xu & Qian, 2013). This idea was also presented in the official statement released by the PRC Ministry of Defense. "Some people say that possessing an aircraft carrier is a standard symbol of great powers," it said, "Similarly, the possession of nuclear submarines is also a standard symbol of great powers" (Meng & Zhou, 2013).

Unlike the DF-31 and DF-31A, China's newest nuclear achievement was framed in comparative terms. It not only symbolized China's strength as a state, but it elevated China's position among the nuclear weapon states. While China was once considered to have a two-dimensional nuclear arsenal, with its force comprised of land-based ballistic missiles and cruise missiles, its development of the 094 Type Jin-class submarine and JL-2 SLBM, allows it to have a three-dimensional nuclear force.\(^74\) This fulfills China’s stated vision of being “a fierce tiger on land, a Flood Dragon in the seas, [and] an eagle in the blue sky,” and it complements the three-pronged approach China has in the conventional sphere (Sun, 2002; Liu, 2010).

According to a research fellow at China's Academy of Military Sciences, this is a notable distinction, because it separates the "nuclear superpowers," like the US and Russia, from the "strategic nuclear powers," like France and Great Britain (“Strategic Nuclear Escalation,” 2007). The former can deliver nuclear weapons by air, land, and sea,

\(^{74}\) Theoretically, China could be said to have a nuclear triad ever since 1986, when it developed its first Xia-class submarine loaded with JL-1 SLBMs. However, it is widely recognized in China and the West that this submarine was largely nonfunctional, and it did not effectively add another dimension to China's deterrent.
while the latter group is more restricted, either delivering its weapons solely by sea (like the UK) or delivering them by either air or sea (like France). China's successful development and deployment of JL-2 missiles on submarines allows it to narrow the qualitative gap between its own nuclear force and the forces of the world's nuclear superpowers like the United States and Russia.

**From “Backward” to Forward**

Most often, the "gap" between nuclear weapon states is seen in quantitative terms. Yet, it appears that many in China might perceive things differently. The US-Soviet arms race provides China with an example of what not to do. Rather than a "sprint to parity" or an arms race, China seeks to be known as an advanced nuclear power through its own technological advancements. This idea was eloquently explained by Zhao Yongfu, Dean of the Navy Equipment Research Institute:

> In order to shorten the gap between China and the more advanced states, the key is to regard independent innovation as the strategic base, insist on development with our own characteristics, and break the building mode of 'we will develop whatever our opponent has.' In accordance with the combat idea of 'you carry out your battle and I carry out my battle,' and the equipment development principle of 'you build your own and I build my own,' focus on the development of world military science, technology, weapons and equipment (Chai & Bie, 2009).

China's primary concern remains its national security, and its primary perceived threat is the United States. It thus measures its capabilities in relation to the capabilities of the United States. Chinese scientist Yu Min predicted that in twenty years’ time, China could "catch up" to the United States and Soviet Union in this regard ("Father of China’s H-Bombs,” 2000). Senior Commentator Liu Szu-lu agrees that China is headed in that direction, but is hesitant to provide a definitive timeline. “There is still a wide
gap between the US scientific and technological strength, including professionals and possible national input, and that of China's," he stated, "China needs time, and time is on our side" (2010).

China's focus on independent innovation and unique scientific and technological breakthroughs are likely to shape how China tries to "catch up" with its primary competitor. China is increasing the number of its nuclear weapons, yes, but it is doing so slowly, with greater emphasis on qualitative force improvements. This is the area where it wants to match the US and Russia, and where it can gain the most prestige. Liu and others recognize the numeric inferiority of China's nuclear force as compared to the United States. At the same time, however, the US force is aging, and it is no secret that the US defense complex is often hamstrung when it comes to defense funding and widespread nuclear modernization. China faces fewer bureaucratic obstacles. This allows for the quiet gradual expansion and modernization of the Chinese nuclear arsenal.

The next chapter explores a competing research question: Why, in light of China's perceived threat from the United States, has China chosen to grow its arsenal slowly rather than match the meteoric pace of other nations if it, in fact, has the economic resources to do so? This is a separate question, but one that is intimately related to the other(s) discussed here. As such, I offer in chapter nine what I perceive to be several commanding constraints on China's nuclear behavior found in the literature.
CHAPTER NINE: CONSTRAINTS

The observation of empirical similarities and differences across cases is a common catalyst for academic inquiry in political science. Thus far, this dissertation has investigated the discrepant direction of China’s nuclear arsenal compared to the other NPT nuclear weapon states. In particular, the question I have examined is why, since the end of the Cold War, China has built new nuclear weapon delivery systems and increased its overall nuclear arsenal while the other NPT nuclear weapon states have retired their systems and decreased their total nuclear forces. This is a pertinent question with significant implications for future bilateral and multilateral disarmament negotiations. It is not, however, the only question that one can ask. In addition to asking about the direction of China’s nuclear force over the past two and a half decades, one could also inquire about the pace of China’s nuclear arsenal buildup compared to the other nuclear weapon states throughout nuclear history. From this perspective, the central question is why China’s nuclear arsenal growth is slower than might be expected considering the original pace of US and Soviet nuclear arms buildup. In other words, if China is driven by security concerns, why has it not attempted a sprint to parity with the nuclear superpowers? I frame my answer to this question in terms of constraints to China’s nuclear force growth. While there are large motivators for China to increase and diversify its nuclear force, such as US Missile Defense, US advanced conventional weaponry, and
the desire for nuclear prestige, these motivators face strong competing forces which serve to temper the overall pace of China’s nuclear buildup. This chapter provides an overview of these mitigating variables, including China’s buy-in to the nuclear taboo, its domestic economic commitments, and its allegiance to the international nonproliferation community.

In explaining China’s nuclear restraint over the past half century as compared to the other nuclear powers, Jeffrey Lewis’ book, *The Minimum Means of Reprisal* (2007), remains the seminal text. Lewis suggests that China’s restraint in nuclear weapon development is the result of a strategic calculation by China's leadership of the costs and benefits associated with nuclear weapons and the conclusion that large nuclear weapon arsenals have limited military utility. This calculation, he claims, was made early on by China's leaders and has become an institutionalized principle guiding China's nuclear development. Analyzing more current documents, I find several additional explanations for China's nuclear restraint, including its understanding of nuclear norms and its fulfillment of what it perceives to be its domestic and international responsibilities.

**Normative Considerations**

China's long-held No First Use (NFU) policy distinguishes it from all other NPT nuclear states. With this policy, China voluntarily narrows the range of actions available to its Second Artillery Force in times of conflict and crisis. Nuclear use, under this policy, is only justified if used in defense in response to an initial nuclear attack. In Realist terms,

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75 The Soviet Union is the only other NPT nuclear weapon state to have made a No First Use commitment, but this commitment was rescinded in 1993. Currently, India, a non-NPT member, is the only other nuclear weapon state committed to a No First Use policy.
an NFU policy is considered irrational, because it is the equivalent of a self-inflicted military handicap. In normative terms, however, it appears as the political manifestation of a deep moral conviction. This is the lens through which many in China perceive the state’s actions. Those who dare to start a nuclear war are at risk of being “the common enemy of humanity,” said She Zhan (Zhao, 2005, 33). Those who use nuclear weapons first in a conflict "will be nailed in the human history of shame," said Xia Liping (2010, 120). Similarly, Wu Riqiang classified nuclear use as "immoral behavior, not consistent with the positioning of civilized nations" (2009, 53-54).

These statements stem from the fundamental assumption that the military advantage of nuclear use does not outweigh the human cost (Xia, 2010, 115). It is a humanitarian position with growing international acceptance. Nina Tannenwald (2008) has labeled it the “nuclear taboo,” and it has become the premier example of the influence of international norms on state behavior. In China, its influence is evidenced by cross-sector adherence. For example, in Dierpaobing Zhanyixu, the SAF’s classified military manual, the authors reminded Corps officers that "the application of deterrence will endure a certain degree of constraint, especially the constraint of international society’s public opinion. This will be even truer for nuclear deterrence applications" (Yu, 2004, 224).

Scholars in both the West and China have generally conceptualized the nuclear taboo as a prohibitive norm of nuclear use (Li & Nie, 2008; Wu, 2009; Dai, Li, & Wu, 2010). Yet some Chinese scholars have also suggested an extension of the term. Wu Riqiang, in particular, has argued that the nuclear taboo could be stretched to encompass
nuclear use, nuclear threat, and nuclear possession. China is a premier example of a state where such normative broadening might apply since it has codified a No First Use policy, vowed never to threaten nuclear use, and demonstrated consistent restraint in nuclear weapons development. This trifecta is unique among nations, and it has caused many in China to claim that their state stands on "the high ground of international morality" (Xie, 2006; Xia, 2010, 115; “China’s Special Role,” 2010). This is purposely contrasted with the US position, which is characterized by first strike ambiguity, nuclear coercion, and an advanced oversized nuclear arsenal.

This last point was made in China’s first Defense White Paper, which claimed that, the US and Russian nuclear arsenals present “a problem crying out for a solution” (State Council of the People's Republic of China, 1998, Sec. V). This characterization highlights the extension of morality to nuclear size. If large nuclear arsenals are viewed in China as problematic and morally reprehensible, then this could present a potential constraint on China’s leadership when it makes decisions relating to the state’s nuclear force structure.

**Domestic Responsibilities**

In addition to being potentially taboo, there is no debate that large nuclear arsenals, like those held by the US and Russia, are costly. In fact, the US nuclear arsenal is estimated to cost approximately $20 billion dollars annually (Center for Nonproliferation Studies, 2013). In a country like China, which still has some “catching up” to do in regards to per capita income, such a price tag presents a formidable challenge (“Firmly Embrace the Main Theme of Scientific Development,” 2010). This is
the reason that some say China's nuclear program developed very slowly in the 1960s and 1970s. After all, "clothing and feeding 600 million people" is no small burden (Yi, 1999). This point is particularly clear when one reads China's National Defense White Papers. In every White Paper in the section on China's national defense policy, the authors of China's White Papers have specified that the country's economy is a strategic priority.\(^76\)

In the first two White Papers, published in 1998 and 2000, it was stated that China's economic development actually superseded its military development in terms of the country's strategic objectives. While this ordering changed in later White Papers to where economic growth and military aggrandizement were considered equally important objectives, China's initial assessment of the situation highlights the fact that at least for the first ten years after the Cold War, China's military decisions were significantly constrained by economic considerations. China's 1998 White Paper explained:

> The situation in which China has a large population, a poor foundation, uneven regional development and underdeveloped productive forces will continue for a comparatively long period of time to come. China is now confronted with the extremely heavy task of economic construction, so the work in defense must be subordinate to and in the service of the nation's overall economic construction.

> The fact is that the CCP is responsible for sustaining the world's most populous state, and achieving the fundamental goal of "common prosperity" requires surmounting several challenges, including a diminished comparative advantage, a rapidly aging population, vast economic inequality, a diminishing demographic dividend, and resource and environmental bottlenecks (Wang, 2011). This cannot be done without considerable

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\(^{76}\) In the White Papers published from 1998-2010, this verbiage was included in Section Two entitled "National Defense Policy." In 2012, the format of the paper changed and economic and social development had its own section as a tactical objectives of China's armed forces.
economic resources, and the reality is that any resources dedicated to these areas cannot also be allocated to China's defense industry.77

This point is readily acknowledged by the Chinese military. According to PLA Major General Peng Guangqian, for instance, it is only reasonable that the CCP does not fund the military's every request. "Numerous sectors and undertakings clamor for money," he wrote, "the country's huge population, [and] the still relatively weak economy" should and do take precedence (2006). Perhaps surprisingly, the same sentiment appears in China's classified military publications, including the classified military manual *Dierpaobing Zhanyixue* (Yu, 2004, 224) and the internal-issue publication *She Zhan* (Zhao, 2005, 63). In *Dierpaobing* specifically, Yu Jixun pointed out that the SAF's defensive posture is a primary consequence of the military being the CCP's second priority after economic growth. This, he stated, is an accepted constraint on SAF actions and its structure (125, 209, 224). This dynamic also enables China to maintain its image as a peacefully developing nation, as Pang Zhaongying noted, China may, in fact, be a strong military power, but its international image needs to be of an economic power. "China is building itself on the basis of economy, not on the basis of nuclear weapons" he told his audience at Qinghua University (2002a).

**International Responsibilities**

The idea of responsibility is taken very seriously in China. The state has a responsibility to its people as well as to the international system in which it resides.

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77 While China's GDP has grown significantly in the past twenty years (experiencing an approximate 10 percent growth per year), its defense spending as a percentage of its GDP has remained between 2-3 percent.
Professor Pang Zhongying of Renmin University emphasized that a state's position within this system often dictates how it formulates its military and diplomatic strategies. "China has a saying," he observed that "one who holds no official position does not discuss official affairs." Similarly, "once a country holds a certain international status, it must play a corresponding role" (2002a). China is now a well-integrated member of the international nonproliferation regime. In fact, it has signed more nonproliferation treaties and agreements and is a member of more nonproliferation institutions than even the United States. By doing so, it has accepted considerable constraints on its nuclear behavior. Among its many commitments, China has agreed to protect its nuclear facilities and nuclear material from terrorists, safely expend its nuclear waste, cease its nuclear testing, and eventually move toward discussing its own nuclear disarmament. The collective objective of these commitments is to increase global security by limiting the dispersion and availability of nuclear weapons and nuclear material.

Among the constellation of treaties that comprise the nuclear nonproliferation regime, the majority of them focus on preventing nuclear proliferation and enhancing nuclear security and safety. This is where China appears, in many regards, as a leader. It actively participates in the NPT review process, plays a significant part in the Preparatory Commission of the Comprehensive Nuclear Test Ban Treaty, and supports moving forward with negotiations on the Fissile Material Cut-off Treaty. It has instituted a moratorium on nuclear testing and established a dozen international monitoring stations.

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78 Data from the nuclear regime complex databases developed by Carcelli, Gartzke, Gibbons, and Kaplow (2014) shows that China's "regime embeddedness" has increased over the past half century, with China participating in 25 percent of all eligible agreements in 1975 to 57 percent in 2005. The US, by contrast, has steadily decreased its membership over time, now participates in only 39 percent of eligible agreements, treaties, and institutions.
on its soil (more than double the US). In addition, China is the first state to establish a Center for Excellence on Nuclear Security. Its disarmament efforts are less impressive.

From Mao ZeDong onward, Chinese leaders have expressed support for the universal abolition of nuclear weapons. In the absence of this condition, however, they have supported the limited development of China's nuclear force. From the Chinese perspective, there is an order by which disarmament needs to occur, starting with the two nations that possess over 95 percent of the world's nuclear inventory, the United States and Russia. Due to the quality and quantity of their nuclear forces, these states have a "special responsibility" to lessen their nuclear forces before other nuclear weapon states pursue unilateral, bilateral, or multilateral disarmament (State Council of the People's Republic of China, 1995, Sec. I; State Council of the People's Republic of China, 1998, Sec. V; State Council of the People's Republic of China, 2002, Sec. VII; State Council of the People's Republic of China, 2005, Sec. I; State Council of the People's Republic of China, 2008, Sec. X; State Council of the People's Republic of China, 2010, Sec. X).

This perspective does not extricate China from its disarmament responsibility. While it is waiting for the US and Russia to pursue the 'proper course of action,' it must weigh its own nuclear arsenal decisions carefully. This is actually described as a "special law" in Zhao Xinxun's military internal issue of She Zhan. Zhao explains that in contrast to conventional missile forces, which are "less restricted by international opinion," China's "nuclear missile forces have a strong strategic nature. Therefore, deterrence strategies will influence the national political and diplomatic situation, so we must be

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79 China and the US coordinated on the establishment of the center, with the US supplying equipment and trainers, and China agreeing to fund the majority of its operating costs.
very careful in our decision" (Zhao, 2005, 59). While China might not be expected to decrease its arsenal, a nuclear surge would cast doubt on China's overall commitment to nonproliferation. By showing restraint in its nuclear development (especially in light of sufficient technological, scientific, and economic capacity), China can disassociate itself from the "irresponsible" arms race of the US and Soviet Union during the Cold War, and it can distinguish itself as a "responsible nuclear state" in the post-Cold War period.

The notion of responsibility in the nuclear nonproliferation regime is relatively new, as is the label of a "responsible nuclear state." The effect of the label, however, is no less real. It evokes respect, and it appears as though many in China perceive it to be a badge of honor ("Zhu Rongji interview", 1999; Sha, 2000; Xia, 2010; Xu, 2010). The consensus across Chinese sources is that China's responsibility to the nonproliferation regime is manifest in its defensive nuclear strategy, its no first use policy, and its commitment not to provide negative security guarantees to nuclear and non-nuclear states. It is also reflected in China's temperance in nuclear force building and its commitment not to engage in a nuclear arms race (Xu, 2010).

There is no shortage of speculation concerning the potential for a future Sino-US nuclear arms race (White, 2007; Stephens, 2011; Kroenig, 2013; Page, 2013). In reality, however, such predictions suffer from a crucial fallacy; they rely less upon the evaluation of current facts and more upon the erroneous heuristic assumption that the present nuclear dynamic between the US and China is analogous to the nuclear interplay between the US and Soviet Union during the Cold War. While China, like the Soviet Union, may be primarily concerned with using its nuclear force to protect its security interests, one
cannot disregard the presence of additional variables that may attenuate its pursuit of this objective. China is concerned that the development and deployment of US missile defense and prompt, long-range conventional weapons will undermine its nuclear deterrent. At the same time, however, China’s actions to counter this possibility are constrained by other considerations such as its normative understanding of nuclear use and possession, its domestic economic responsibilities, and its desire to be viewed by the international community as a responsible nuclear stakeholder. These factors were altogether absent from the Soviet Union’s calculations decades ago. It is thus inadequate to use the US-Soviet dynamic as a frame of reference for the future of China and US nuclear relations. Previous lessons should be applied with caution. The same is true for overarching theories of international relations. While Realism is the dominant theory used to explain the US-Soviet arms race, in the Chinese case, its logic fails to capture the complexities of China’s nuclear strategy and nuclear force decisions. The next chapter discusses this argument in more detail by revisiting the IR theories outlined in chapter one. Now knowing the determinants of China’s nuclear force decisions, we can critically evaluate each theory on its ability to describe and predict China’s actions.
CHAPTER TEN: CONCLUSION

The majority of nonproliferation scholars have asked why some states build and sustain nuclear weapon programs and other states refrain from doing so or reverse their decisions. The answer to these questions, in most cases, aligns with Realist logic; scholars argue that a state’s acquisition decision is strongly associated with the number and intensity of its external security conflicts (Sagan, 1996-97; Singh & Way, 2004; Sasikumar & Way, 2009). The greater the perceived threat, the more likely a state is to acquire nuclear weapons. Extending this logic, one might assume that the same motivation drives a state’s nuclear structure decisions. After all, Realism suggests that if a nuclear weapon state continues to face acute external security threats after acquiring nuclear weapons, then the state is likely to build additional nuclear weapons to enhance its security. This is a common assumption among policymakers and scholars, and it has been directly applied to explain China’s nuclear modernization. In particular, many argue that China’s nuclear arsenal increase and modernization is a direct response to the threat it perceives from US Missile Defense (Ferguson, 2000; Chase, 2013). My research does not contradict this argument, but it does indicate that it is incomplete.
To many, this critique is indicative of the larger gap between theories of international relations and foreign policy. Scholars like Gideon Rose (1998), and Stephen Walt (2005), for example, have written extensively on the fallibility of applying existing international relations theory to explain specific state policies, noting that such theories often sacrifice predictive accuracy for greater parsimony and generality. These criticisms, while valid, do not mean that such theories are not valuable, especially in illuminating previously unknown causal relationships. Even if their explanatory leverage is limited and the insight they provide is bounded, they still advance our understanding of the problem. Thus, the question that should be asked is not which theory provides a complete explanation, but which theory provides the most complete explanation given the available options. In this chapter, in particular, I ask which theory provides the most complete explanation for China’s nuclear force decisions. Given what we know now, which theory best explains the Chinese buildup?

**Realism**

The preference of most scholars in international relations is to explain state behavior using the theoretical framework of Realism. As an abstraction of reality, Realist theory relies upon only a few fundamental assumptions, casting states as unitary, rational actors seeking to maximize their self-interest in an anarchic world system. The primary interest of states in this environment depends upon one’s perspective. Offensive Realists, for example, argue that states seek to maximize their power, while Defensive Realists argue that states’ primary motivation is to maintain power. In either case, power is paramount.
While Offensive and Defensive Realism usually diverge in their explanations and predictions of state action, in the case of China and its nuclear decisions, both theories would predict that Chinese nuclear buildup is likely. This is because the US not only has a quantitative and qualitative conventional and nuclear advantage vis-à-vis China (the determinant of buildup under Offensive Realism), but it also has several advanced military technologies which prepossess the offensive (the determinant of buildup under Defensive Realism). In addition to the US having more than six times as many strategic nuclear weapons as China, it now also has an anti-ballistic missile system and is developing a system of prompt, long-range conventional missiles. Under both theories, these military advancements are seen as intensifying the security dilemma between China and the US.

The logic is fairly straightforward: the US creates missiles that can destroy China’s nuclear missiles, be it in the air or on/in the ground, and this prompts China to build additional nuclear missiles to increase its security. In this sense, China’s decision becomes a numbers game. The US currently has 30 anti-ballistic missiles, and this total is expected to increase to 44 by 2017. Major General Zhu Chenghu of China's National Defense University points out that this increase "make[s] it theoretically possible for the U.S. to launch a first strike on China, knock out most of its 40 or so long-range missiles, and intercept any left that were launched in response" (Dahl, 2012). If it wants a solid nuclear deterrent, the easiest way for China to do this would be to ensure that it always has more long-range missiles than the US has anti-ballistic missiles. China’s
increase in nuclear weapons is thus a direct reflection of its attempt to advance its security in the face of advanced US military defense technologies.

Unfortunately, this reasoning suffers from several flaws. First, Realism would predict that China would produce more nuclear weapons than it has. China is increasing its arsenal, but it is doing so gradually. Since its first nuclear test in 1964, China is believed to have produced a total of 240 nuclear warheads, approximately 200 of which are believed to be deliverable. Its production of delivery systems accelerated after the end of the Cold War, but its production rate is still relatively low compared to the other nuclear weapon states. If security were the only factor, this rate would likely be much higher. If Realism is the guiding theory of Chinese leaders, then different decisions would likely have been made and more weapons would have been built. Instead, it seems an additional explanation is necessary.

**Liberalism**

Liberalism, as the primary theoretical counterweight to Realism, presents a likely candidate to offer a better explanation. Liberalism shares the two primary assumptions of Realism, casting states as unitary actors operating in an anarchic environment, but it does not assume that anarchy automatically precludes instances of prolonged state cooperation. Instead, Liberalism assumes that a state’s behavior is not the sole consequent of its pursuit of power, but that its behavior may be influenced by an array of internal preferences, preferences that might, or might not include the accumulation of power. In reading China’s National Defense White Papers and public speeches, one is struck by the expressed preference of its leaders for peace and multipolarity. Chinese
leaders might perceive power in terms of hard military capabilities, but evidence indicates that they also appreciate the diplomatic power that comes with being perceived as a responsible state in the international community. This preference is exemplified by the increased number of international treaties and agreements China has entered into that constrain its behavior. In the nuclear realm, in particular, China has increased its participation in eligible agreements from 25 percent in 1975 to now over 56 percent (Carcelli, Gartzke, Gibbons, & Kaplow, 2014). But are the incentives provided by collective action enough to dissuade China from pursuing what it perceives to be in its individual best interest?

In some ways, the answer to this question is a definitive no. After all, while China committed alongside the other nuclear weapon states in the NPT to not engage in a nuclear arms race and to work toward a treaty on complete disarmament, it still continues to build up its nuclear arsenal. In this way, one could argue that the NPT was ineffective in changing China’s buildup behavior. A more nuanced assessment, however, would contend that were it not for the NPT and other nonproliferation and arms control agreements, this buildup would be more drastic. International institutions may not be able to alter the overall trajectory of China’s nuclear force, but they can, perhaps, mollify it.

This conclusion is supported by forthcoming research by Carcelli, Gartzke, Gibbons, and Kaplow (2014) which indicates that the more “embedded” a state is in the “nuclear regime complex,” (the bulk of treaties dedicated to arms control and disarmament, nuclear non-proliferation, nuclear testing, and nuclear security), the more likely it is to demonstrate nuclear restraint in the face of conflict and in its overall nuclear
force decisions. On the surface, this argument appears convincing; the greater a state’s participation in international disarmament efforts, the less likely it is to increase its own nuclear arms. However, it is difficult to directly attribute China’s slower nuclear arms production to its international commitments for several reasons. First, one can look singularly at China’s commitment to the Nuclear Nonproliferation Treaty, the only active treaty responsible for thwarting the nuclear arms production of existing nuclear weapon states. As an independent variable explaining China’s state decisions, it has been in effect since 1970, yet the rate of China’s nuclear arms production has varied greatly during this time. In fact, a longitudinal look at China’s weapons production indicates that while the past twenty five years have been a time of relative peace and increased international cooperation for China (in the nuclear realm and otherwise), the pace of its nuclear weapons production has actually increased compared to the previous twenty five years. This is the opposite direction that Liberalism would predict. China’s leaders may be sincere in their expressed desire to appear as state that prioritizes global harmony, but this desire does not directly translate to consistent temperance in the state’s nuclear arms production.

**Constructivism**

Neither Realism nor Liberalism provides a complete explanation for why China’s leaders have decided to gradually build up the state’s nuclear arsenal. China has pursued its self interest in advancing its security and power through building additional nuclear weapons, but it has not done so at the rate Realism would predict. Furthermore, while
China has increased its participation in the international nonproliferation and disarmament regime, this membership has not led to complete and consistent cooperation. Instead, while China might perceive value in the collective good of a world with fewer nuclear weapons, its individual contributions to this goal appear to be constrained by its immediate security concerns. China’s primary motivation remains to extinguish or lessen its external security threats via hard power capabilities, and the soft power promises of international institutions are not enough to reverse China’s buildup. They may, however, be enough to temper it. If this is the case, then Realism and Liberalism are not competing explanations but complementary explanations, each providing a unique explanatory dimension to a complex problem.

Constructivism presents yet another explanatory dimension. Rather than explaining the effects of the distribution of power or the distribution of preferences, Constructivism emphasizes how the distribution of ideas shapes the international system and explains the ways these ideas can constitute the interests of states. According to Constructivism, nuclear weapons can be perceived as symbols of international status and prestige in addition to instruments of war. This perception stems from the fact that, as a nuclear weapons holder, a state becomes a part of an elite group of states that have demonstrated superior scientific and technological development. Membership in this group and the status associated with it can motivate a state to acquire nuclear weapons. Statements of Chinese leaders over time indicate that the symbolic value of nuclear weapons was likely included in China’s reasons for nuclear weapons acquisition. It is less clear, however, whether this motivation continued to influence China’s nuclear weapons
buildup. The question of whether Chinese leaders associate greater prestige with a larger nuclear force remains unanswered. Instead, the Chinese literature indicates that particular weapon systems might carry greater prestige. This means that Constructivism might provide additional insight in explaining why Chinese leaders decided to build certain nuclear weapon systems over others.

According to Realism, for example, it would make more sense for China, once it knew about US missile defense plans, to allocate its economic resources into the construction of a larger, more survivable nuclear arsenal. In particular, if US Missile Defense were China’s primary threat, then Realist logic would expect China to prioritize the construction of additional long-range nuclear missiles, such as the DF-31A, since it has the ability to strike the territorial United States and since solid fuel and transporter erector launcher makes it less vulnerable to a first strike. Given additional concerns about US military overreach, the development of mid-range missiles like the DF-21 can be similarly justified. These missiles can strike US military bases near China as well as US carrier groups out at sea. Both systems, which represent upgrades to older systems, require significant research and development and requisite resources. Yet, since China has a long-standing history of producing land based missiles, the investment required is less than other technologies. SLBMs, by contrast, while considered the *sine qua non* of survivability, are not a weapon system with which China has had much success—quite the opposite. In fact, experts believe that China’s first missile, the JL-1, was never fully operational. This means that advancement in this realm requires more research and development and thus more economic resources and time. One may not be able to put a
“price tag” on the survivability provided by an SLBM force, but Realism would suggest that if a state can produce long-range land-based missiles with increased certainty and at less cost than sea-based missiles, then the production of land-based missiles is preferable. Realism, after all, only considers security. One of the variables missing in this calculation, though, that is not as easily quantified is the added prestige China perceives from securing a sea-based nuclear capability and transitioning to the status of a “nuclear triad” state. This prestige might have served as a unique motivator, especially since it would also redeem China’s from its previous SLBM embarrassment. With an SLBM force, China is now among a very elite subgroup of nuclear weapon states, and it has proven to others that it is has the indigenous scientific and technological capacity to challenge the more advanced nations. Overall, though, this Constructive assessment is much more speculative than assessments provided by Realism and Liberalism, and it only addresses a small part of the puzzle.

**Neoclassical Realism**

Stephen Walt once said that the large theories of international relations, including Realism, Liberalism, and Constructivism, should be credited for providing scholars with “a common vocabulary ” and for painting a “broad picture of the context in which statecraft occurs” (Walt, 2005, 35). The difficulty, however, is that what these theories gain in generality, they usually sacrifice in predictive accuracy, especially in regards to state decisions. The discussion thus far supports this conclusion. Each theory examined in this chapter has explained a certain aspect of China’s nuclear buildup, but no one theory has accurately predicted China’s present course of action. If the discussion were to end
here, it would be difficult to provide a definitive ruling on which theory provides the best overall fit in the case of China’s nuclear decisions. Fortunately, though, there is an approach that fares much better than the rest that has not yet been examined.

The theory of Neoclassical Realism is a fairly recent derivative of Realism that incorporates international and domestic variables into one coherent theory. Neoclassical Realism retains Realism in its name, because it concedes that hard power capabilities are often the state’s primary concern. It does not, however, believe that this concern will automatically be reflected in a state’s foreign policy, as if there was an “immediate or perfect transmission belt linking material capabilities to foreign policy behavior” (Rose, 1998, 147). Instead, Neoclassical Realism acknowledges that state policy is not carried out by the state anthropomorphized as a coherent and unitary actor, but by a myriad of individual actors with competing interests and preferences. It is thus not the international distribution of power, but the internal distribution of power that most impacts the details of a state’s foreign policy.

The assumptions of Neoclassical Realism require that a researcher systematically explore the perspectives and objectives of all actors involved in a state’s policy decisions. In China, the widest circle of actors would include state officials, military personnel, and academic and technical experts. This dissertation has explored these sectors for evidence of diverging opinions, and has found a convergence of opinion on most issues. The differences are not found in their substantive arguments regarding what the problem is or what to do about it, but rather in how the problem or solution is discussed (ie from a diplomatic perspective, operational perspective, or analytical perspective). Actors in each
sector perceive the American-dominated, unipolar world structure to be a direct threat to China's national security. More specifically, Chinese leaders find US missile defense and its advancements in conventional high-precision weaponry to be indicative of a larger shift in US nuclear strategy from limited to maximum nuclear deterrence. This threat is far greater than the threat Chinese leaders perceive from other nuclear weapon states or nuclear weapon capable states. If anything, the US threat is seen as exacerbating these other smaller threats. The recommended response to US action varies slightly, but the growth and modernization of China’s nuclear force is often mentioned among the top options, and there does not appear to be a strong contingent in favor of disarmament at this time.

According to Randall Schweller (2004), this kind of consensus among a state’s decision makers and cohesion among its elites make it more likely that a state will act as Realism prescribes. This is because these forces approximate the solitary actor model that Realism relies upon. Yet there is another variable that Schweller emphasizes: government/regime vulnerability.

While elite consensus and cohesion is important, it is critical to acknowledge which players actually make the decisions. This, in a nutshell, is the question asked by Organization Theory. Yet, as discussed in chapter one, the answer Organization Theory provides is that a state under civilian control is less likely to pursue military aggrandizement (an evaluation that is incorrect in this case). Neoclassical Realism, by contrast, asks not about the nature of a state’s leadership (ie civilian versus military), but about the degree of consensus among decision makers and about the relationship between
a state’s rulers and its citizens. Even if a state’s leaders all agree to pursue a given course of action in response to a specified threat, this action may be limited by other variables such as the state’s relation to its people and the necessity to create condition for domestic stability. Neoclassical Realists ask: is a state’s government seen as legitimate in the eyes of its people? Is it meeting the needs and expectations of its people? And can it safeguard its peoples’ interests against other countries? Naturally, authoritarian regimes like the Chinese Communist Party (CCP) are more vulnerable than democracies on these accounts, and thus leaders in these systems must maintain a higher degree of vigilance in thwarting internal threats to state stability.

The CCP founded the People’s Republic of China, and, in the eyes of many, the two are seen as synonymous. A threat to one is a threat to both. With few exceptions, throughout its history, the CCP has been perceived by its people as China’s legitimate ruling body. As China entered the world market, this legitimacy became more connected with economic provision and a certain standard of living. The CCP thus had the unenviable task of sustaining and appeasing a population exceeding one billion. This challenge was explicitly acknowledged in China’s first Defense White Paper, published in 1998. In the section on National Defense Policy, the paper emphasized that China considered itself at the “primary stage of socialism,” and that the fundamental task of its leaders were to strengthen this socialist foundation via “extremely heavy economic construction” (State Council of the People's Republic of China, Sec. II). The economic resources required for this task are extraordinary and the state’s commitment in this regard inevitably restricts the proportion of resources that can be allocated to China’s
military defense and to its Second Artillery Force in particular. In other words, while China’s state officials and elites may all agree that China needs to balance against the United States by growing its nuclear force, their ability to do so is constrained by their domestic commitments.

China’s leaders do not have the freedom to extract whatever resources they please and to grow China’s nuclear force without regard for their domestic economic priorities. This is because domestic support and stability is the necessary condition that enables the state to carry out its foreign policy, as James Morrow notes: "Leaders choose policies for their ability to counter a threat and to provide domestic support. Without the latter, security policies will fail to do the former” (1993, 216). This sentiment is directly reflected in China’s Defense White Papers, which all clearly emphasize the importance of domestic support. China’s 1998 White Paper makes this the most clear, saying “The modernization of the national defense of a country requires the support of its economic and technological forces; and the modernization level of national defense can only be improved gradually along with the increase of the country's economic strength” (State Council of the People's Republic of China, Sec. II).

The tension between balancing an external threat and thwarting internal threats can lead to an outcome Randall Schweller calls “underbalancing,” which is when a state balances against a clear and present threat in a “paltry or imprudent” way or, more simply, when a state pursues a course of action that counters the Realist prediction of state behavior (2004, 159). Given this definition, China appears to be a premier case. In the face of US technological advances that have the ability to undermine the Chinese
nuclear deterrent, China is only gradually accumulating nuclear weapons. It has yet to surge in arms production or form an alliance with another nuclear power to balance the US. This is precisely what Neoclassical Realism would predict.

The explanation provided by Neoclassical Realism does not include the influence of international institutions or normative factors like prestige. Yet even without these variables, it still provides a tool with which scholars can use to predict China’s foreign policies and its nuclear policy more specifically. China faces an acute external threat from the United States, but its leaders are limited in the resources they can extract to balance this threat. In as much as Chinese leaders openly acknowledge the importance of striking a balance between internal stability and external security, then they are accepting a Neoclassical Realist approach to foreign policy.

So what does this mean for outside parties, like the United States, who would like to see China reverse its course? Is it conceivable that China may one day embrace another theoretical perspective and alter its policy? What conditions are necessary for this to occur? The remainder of this chapter is dedicated to answering these important questions.

**The Way Forward**

The US is not the only country that is interested in Chinese nuclear disarmament. In fact, a group of non-nuclear-armed nations has already released a draft statement urging China to join Russia and the United States in negotiating the next nuclear arms control agreement ("Draft Statement to Urge China," 2014). While the existing nuclear weapon states have not replicated this request, it is likely that they furtively support it.
China is currently the fourth largest nuclear weapon state, and, if it continues on its present trajectory, it might soon surpass France to be the third largest nuclear weapon state in the world. This growth is against the expressed interest of all NPT nuclear weapon states, and it is against the interest of other states like India and Japan which consider a nuclear China to be a serious security threat. China must consider the ramifications of its nuclear force decisions on its relationships with these states. At the same time, however, as discussed in chapter six, the majority of nuclear weapon states lack either the means or the intent to present a clear threat to China, and those that have means and intent are perceived by China to have been abetted in some way by the United States. Consequently, a change in China’s nuclear strategy and force structure will likely come as a result of US action, either unilateral, bilateral or multilateral, and not from the independent action of another state.

The most direct solution to stopping Chinese buildup is a bilateral agreement between the US and China placing mutual restrictions on both state’s hard capabilities. For example, China could agree to a ceiling on its offensive nuclear forces in exchange for the US agreeing to restrict the number of anti-ballistic missiles in its Ground-based Midcourse Defense (GMD) system and Theater Missile Defense systems. Another way of lessening the US-Sino security dilemma would be for both states to focus on limiting their offensive nuclear capabilities. In this case, China could agree to cap the number of its nuclear forces in exchange for the US agreeing to further reduce its strategic and nonstrategic nuclear weapons. These types of agreements could help validate China’s
claim that it seeks to maintain a minimum means of reprisal and the US’s claim that it is lessening its reliance upon nuclear weapons and prioritizing defense.

By lending credence to expressed Chinese and US intent, these agreements would represent a significant step forward in Sino-US relations as well as in the broader nuclear disarmament agenda. Unfortunately, however, such advancement is not likely to occur without established trust between the two countries. Each of the above proposals, and indeed any proposal having to do with hard capabilities, will require a certain degree of *a priori* knowledge. To implement a freeze in Chinese nuclear capabilities, for example, the US must know and be able to verify the current extent of Chinese capabilities. Similarly, in order to confirm that the US is, in fact, cutting its strategic and nonstrategic forces, China must know and verify the starting number of such forces prior to the start of the agreement. Information on both of these accounts is currently lacking.\(^{80}\)

US officials are usually the first to argue that greater transparency in hard capabilities can decrease threat perception and increase the likelihood of mutual cooperation. Chinese officials, however, often emphasize that the transparency of intent is equally important. The logic in this case is that even if China were to reveal the structure and scope of its nuclear arsenal, and the US were to reveal the extent of its remaining nonstrategic nuclear force, before any agreement is signed, China would need reassurance that the US would not use its knowledge of China’s nuclear force to employ

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\(^{80}\) The Chinese government has never released quantitative data relating to its nuclear force. The US and Russia, by contrast, report and verify one another’s strategic weapon totals regularly as a part of the framework established by START I, START II, and New START. The point of ambiguity here is how many nonstrategic weapons the US and Russia have. While it is believed that Russia has between 2,000 and 6,000 and the US has approximately 760 nonstrategic weapons, no official figures have ever been released on this type of weapon (Woolf, 2014).
its strategic nuclear weapons or its advanced conventional weapons in a preemptive strike. Chinese leaders would want to have knowledge of and confidence in US nuclear intent. Ideally, for China this would mean that the United States would sign a formal No First Use Agreement. In fact, China wants this commitment from all nuclear weapon states, but its adjurations in this regard have been unsuccessful. As a result, a logical antecedent might be a statement clarifying US conditions of nuclear use.

To date, the US has preferred to pursue a policy of “first strike ambiguity,” with even the most recent Nuclear Posture Review, which is thought to be the most restrictive, leaving open the option of preemptive nuclear use in “the most extreme circumstances” (2010). This ambiguity, in conjunction with the superiority of US hard capabilities amounts to a clear threat to Chinese security. Yet the US could mitigate this threat by issuing a statement specifying the circumstances under which it would consider a preemptive nuclear attack. In fact, according to Scott Sagan, this is precisely what a state’s declaratory nuclear policy is supposed to do—provide transparency and promote confidence (2009). A similar statement clarifying the intent of the US Conventional Prompt Global Strike (CPGS) system could also serve to lessen China’s perceived threat.

Presently, there is not an equivalent document to the US Nuclear Posture Review outlining the US mission for CPGS. Instead, other states have had to rely upon statements released by US administrations—statements, which, thus far, have not been reassuring. Both the George W. Bush and Obama administrations have stated that the US reserves the right to use its CPGS missiles to attack another state’s nuclear force. In most cases, these statements have been accompanied by a clarifier that the intended target would be a
“rogue state” or a US “regional adversary.” China is not thought to be in these categories, but Chinese leaders are not comfortable relying upon ambiguity when it comes to the state’s security—they’d prefer an explicit statement excluding Chinese nuclear forces from the US CPGS mission. 81 A statement of this kind could go a long way in demonstrating to China the defensive intent of US CPGS, and it could contribute to a lessened threat perception.

The key in this case and others is the perceived credibility of the promise. This is particularly important in statements of intent, but even in cases where verification mechanisms are in place (such as in agreements limiting hard capabilities), cheating remains an option. For an agreement to work, the parties involved must have confidence that defection is not likely. This kind of confidence is only truly brought about through trust, and trust generally requires mutual understanding formed through iterative interaction. Even while the US and Soviet Union were rivals during the Cold War, they shared the experience of emerging into and managing through the nuclear age together and thus they had a mutual understanding of their responsibilities as superpowers. This understanding was sharpened by high-level talks between US and Soviet leaders beginning in 1969 that allowed for the establishment of the Anti-Ballistic Missile Treaty and served as a precursor to subsequent arms control treaties (Kulacki, 2011).

China and the US do not have this kind of rapport, but efforts are being made to move in this direction. Official nuclear dialogues between China and the US have long

81 To be clear, the US usually uses the term “regional adversary” to refer to states like Iran and North Korea, and not China (which it considers a “great power”). This label, however, is not definitive, and can change depending upon circumstance.
been stymied, but unofficial conversations have seen progress, especially the Track 2 and Track 1.5 Dialogues organized by the Pacific Forum, CSIS, the Center for Contemporary Conflict, the Naval Post Graduate School and the Defense Threat Reduction Agency. These dialogues have occurred once a year every year for the past seven years and, in that time, the participant list has doubled in size. Moreover, while the first dialogue only included individuals from China’s academic community, later dialogues have included active Chinese military personnel and state officials. As these conversations grow to include more individuals of greater influence, the opportunity for mutual understanding and trust increases. This increase in understanding and trust makes transparency possible which, in turn, allows bilateral and multilateral treaties to become a reality.

A similar process can occur through established multilateral forums such as the P5 nuclear dialogues, which include all five of the NPT nuclear weapon states. These dialogues have taken place annually for the past five years and have advanced the conversation regarding how the NPT nuclear weapon states foresee fulfilling their NPT obligations of disarmament, nonproliferation, and the peaceful use of nuclear energy. While still in its nascent stages, this group shows promise for pushing the disarmament agenda forward and for unveiling and actualizing the conditions for Chinese cooperation.

In his keynote speech before the 2009 UN Security Council Summit on Nuclear Non-Proliferation and Disarmament, Chinese President Hu Jintao told the Council that China would consider pursuing nuclear arms reductions along with the other powers, when the time and conditions were right. He did not elaborate upon this point, but given the evidence presented in this dissertation, one can make the case for when such action
might be more likely. China’s present nuclear buildup and modernization is spurred by the perception that the US is shifting to a more aggressive nuclear strategy complete with advanced military technology. To the extent that the US can convince China that its intentions with US Missile Defense and CPGS are benign and not directed at constraining China’s rising power, then the likelihood of Chinese cooperation in disarmament increases. This means that Chinese leaders may be able to one day eschew the Neoclassical Realist perspective and adopt a more Liberal approach in their nuclear policy decisions. This transition is not likely to be immediate, but instead will be the product of prolonged cooperation and patience, and all involved will benefit from heeding the advice of Chinese Foreign Minister Li Zhaoxing, who explained: “If we eat rice one mouthful at a time, we will finally be full; if we walk the road one step at a time, we will finally reach the destination; if we climb the slope one step at a time, we will finally reach the top of the mountain” (Xiao, 2005).


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BIOGRAPHY

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