

ARMS CONTROL AND DETERRENCE THEORY IN THE NUCLEAR POLICY OF  
GLOBAL POWERS

by

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## **ABSTRACT**

This research project explores the relationship between deterrence theory and arms control in the nuclear policies of the United States, Russia, and China. The centrality of nuclear deterrence in defense policy negates the possibility of nuclear disarmament. Within the current nuclear order, mutual deterrence dynamics are modulated by arms control agreements which promote cooperation between nuclear weapon states (NWS) on limiting their strategic weapons and preventing nuclear conflict. The three NWS relevant to this study hold diverse and sometimes conflicting strategic aims. While American nuclear policy is outwardly based on deterrence theory, it often seeks to undermine the effects of mutual deterrence in order to further its own national interests. The American nuclear umbrella presents a specific strategic challenge as North Atlantic treaty Organization (NATO) allies have faced increasing revisionist aggression from Russia. Russia has leveraged its coercive capacity in the illegal invasion of Ukraine and suspension of a key arms control treaty, the New Strategic Arms Reduction treaty (New START), which have disrupted the status quo nuclear order. I argue that this presents the greatest current threat to stability. Our European adversary's recent actions have also complicated the American relationship with China, the world's fastest growing NWS. Differences in strategic thinking between American and Chinese leaders must be understood by both sides in order to effectively cooperate on nuclear security concerns. I put forth that bilateral Sino-American arms control talks may be the best avenue for maintaining the balance of power and preventing nuclear use. I further argue that a condition of minimal nuclear deterrence is our best bet for maintaining that norm of non-use. This transition would allow for continued mutual deterrence while increasing the cost of first use and thus reducing the likelihood of both accidental and intentional nuclear use.

## **DEDICATION**

This work is dedicated to my parents, Bobby and Gina Acree, and my Grandparents, James and Violeta Berbiglia, for supporting my love of learning throughout my academic career and instilling in me the curiosity and courage it took to complete this project. This research is the result of months of hard work, and I could not have done it without my amazing family.

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Nuclear weapons are unique among defense technologies in that their utility comes, not from their actual use in combat, but from their capacity to deter acts of aggression in the first place. This is an entire class of weapons which are intended specifically not to be used unless in the worst possible case. Other nonconventional weapons like antipersonnel landmines, cluster munitions, and chemical and biological agents are prohibited under international law. The movements to ban these weapons were based significantly on humanitarian concerns for limiting unnecessary suffering in theatres of war. Several of these treaties were ratified in the 1990s, including the Chemical Weapons Convention ('93), the Comprehensive Test Ban Treaty ('96), and the Mine Ban Treaty ('97).<sup>1</sup> Atomic weapons certainly rank with, if not above, these banned technologies in their capacity to cause increased suffering and civilian death when used, so why haven't they been banned too? Why is nuclear disarmament not a more popular policy position among state leaders, especially those who command nuclear arsenals? This perplexing issue ultimately comes down to the value of nuclear weapons in deterrence and their perceived role in preventing great power conflict for nearly eight decades.

In that same time, the nuclear order has expanded and changed considerably. The early years of the Cold War saw the Soviet Union (USSR) achieve nuclear status and enter into a bipolar arms race dynamic with the United States. While the US and Russia maintain their status as top nuclear superpowers, the number of nuclear weapon states (NWS) has grown from three, adding the United Kingdom in 1952, to nine in 2023. In the same span of time, the sheer number of weapons possessed by the original two superpowers has rapidly grown and shrunk based on arms control agreements and shifting notions of what constituted a deterrent force. In 1965, the

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<sup>1</sup> Johnson, Rebecca. "The Humanitarian Impacts of Nuclear Weapons: An Imperative for Achieving Disarmament." *Irish Studies in International Affairs* 25 (2014): 62-64.

U.S. had stockpiled over 30,000, while today that number is closer to 5,000.<sup>2</sup> The danger of further proliferation hangs over the international community as Iran and possibly Saudi Arabia seek a strategic nuclear capability to hedge against perceived threats to their region.<sup>3</sup> The modern nuclear landscape has transitioned to a multipolar security competition, in which each of the nine NWS seeks security through nuclear deterrence against both specific adversaries (for example, in the case of India and Pakistan) and the greater international order. Nuclear disarmament is unpopular among the leaders of the major powers because it threatens the role of nuclear deterrence as the central pillar of their defense strategy. A transition to a policy of minimum deterrence may help maintain both the balance of power and the tradition of non-use while strengthening the nuclear taboo.

This paper will proceed in three main sections. First, I will lay out the relevant major theories governing the role of nuclear weapons in international defense policy and discuss criticisms of each and their validity. The second section will examine the United States', Russian, and Chinese nuclear postures and decipher what theories undergird these states' nuclear policy, both in the past and present day. The final section will establish a strategy of minimal deterrence to maintain nuclear non-use going forward in the absence of a plausible global disarmament plan. The conclusion will synthesize the paper's main points and identify future areas of study to prioritize preventing nuclear conflict.

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<sup>2</sup> *SIPRI yearbook 2023*. P. 13. Oxford University Press, 2023.

<sup>3</sup> Davenport, Kelsey. "Saudi Push for Enrichment Raises Concerns," in *Arms Control Today*. Arms Control Association, November 2023. Accessed December 11, 2023.

## Literature review

What theoretical positions underline the current nuclear order? Thought on the role of nuclear weapons in foreign policy lies on a spectrum and has varied vastly between states and time periods. As described by Francis J. Gavin, the theory of the nuclear revolution is considered the leading school of thought on nuclear weapons and was developed by leading scholars of the Cold War period, including Thomas Schelling, Robert Jervis, and Kenneth Waltz. The theory holds that nuclear weapons provide a state with security and protect its sovereignty through deterrence rather than direct defense because of the unthinkable damage nuclear weapons cause. The same weapons also limit the strategic options available to leaders as they also face a deterrent from every other NWS.<sup>4</sup> Deterrence theory evolves naturally from the nuclear revolution as a more nuanced area of study, concerning both conventional and nuclear strategy. Alex Wilner explains that, in its most basic form, deterrence is the practice of using threats of punishment, denial, or retaliation to manipulate an adversary away from an unwanted action.<sup>56</sup> Rational deterrence theory, one of the early branches of this school of thought, specifies that the deterrer's threats must provoke a cost-benefit analysis in the deteree's mind. The deterrent threat is successful when the challenger rationally assesses that the consequences of their action would pose more costs than benefits and decide against the action. In order to deter effectively, a state actor must have capability, the material power to carry out the threat, and credibility, the

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<sup>4</sup> Gavin, Francis J., *Nuclear Weapons and American Grand Strategy*, 193-193. Brookings Institution Press, 2020.

<sup>5</sup> Wilner, Alex S. "Deterrence Theory: Exploring Core Concepts." In *Deterring Rational Fanatics*, 16-36. University of Pennsylvania Press, 2015.

<sup>6</sup> Wirtz, James J. "How Does Nuclear Deterrence Differ from Conventional Deterrence?" *Strategic Studies Quarterly* 12, no. 4 (2018): 58-75.

perceived intent and resolve to carry out said threat. Credibility falters when a challenger perceives a threat to be unenforceable or empty, due to either a lack of resolve or capability.<sup>7</sup>

Nuclear deterrence follows the same logical pathways as conventional deterrence but differs in type, scope, and contestability. In the current status quo, each NWS has poised their nuclear arsenal as a deterrent against each of their nuclear armed rivals both within and outside of ongoing conflict; this practice is known as general deterrence. The point of general deterrence is to preserve the accepted status quo of the nuclear order and prevent any state from enacting a first strike against another. General deterrence is one of the main purposes of nuclear arsenals; each state projects their nuclear capability as an ongoing implicit, but credible, threat. In addition, states practice immediate deterrence in the face of specific risks; for example, Pakistan primarily developed its nuclear capability in 1998 to defend itself from India's nuclear power in their ongoing regional conflict.<sup>8</sup> Within the context of war, nuclear deterrence can also be narrow, seeking to prevent a specific military action (a nuclear strike) rather than to prevent all conventional conflict. The punishment or retaliation embedded in a state's nuclear deterrent will usually not be enforced for a conventional attack. This form of intra-war deterrence allows states to influence their adversaries' war-fighting behavior and prevent escalation.<sup>9</sup> Finally, nuclear deterrence varies from conventional in its practical contestability. James J. Wirtz asserts that nuclear and conventional deterrence are inherently different because of the credibility of their respective threats. A nuclear strike would be conducted unilaterally and is uncontestable in the indiscriminate destruction it causes. However, a conventional attack can be fought through and eventually won; the result of calling a defender's bluff on conventional deterrence is contestable.

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<sup>7</sup> Wilner, Alex S. "Deterrence Theory", 22-24.

<sup>8</sup> "India and Pakistan." *Center for Arms Control and Nonproliferation*. Accessed November 27, 2023.

<sup>9</sup> Wilner, Alex S. "Deterrence Theory", 32.



This makes the threat of punishment less credible and gives the challenger hope of achieving their objective. The impossibility of mitigating a nuclear attack makes it a unique and powerful deterrent strategy.<sup>10</sup>

While widely accepted and ingrained in defense policy, nuclear deterrence theory does have its critics. A 1985 analysis by Michael MccGwire suggests that the original premise of ‘rational’ nuclear deterrence as described in the 1950s was “at best arational” in assuming that the Soviet opponent also thought in a game-theoretic manner and lacked any study or understanding of the psychology of said opponent.<sup>11</sup> Wilner echoes this point in describing rational choice as subjective, depending upon the cultural values, experience, and priorities (whether to maximize benefit or minimize cost, for example) of diverse but equally rational actors.<sup>12</sup> This aspect of objective rationality is one piece of theory that does not play out in practice, owing to the fact that the leaders making these choices are human beings with emotions, biases, morals, and expectations. Other criticisms of reliance on nuclear deterrence come from non-nuclear weapon states (especially within the nuclear-weapon-free-zones of South America and the African continent) who supported the Treaty on the Prohibition of Nuclear Weapons (TPNW) which entered into force in 2021. This group contends that continuing to center nuclear deterrence indefinitely all but guarantees their eventual use, intentionally or in an accident. “In addition,” Edward Ifft states, “their continued retention undercuts nonproliferation policies and makes acquisition by terrorists more likely.”<sup>13</sup> These concerns are valid and should

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<sup>10</sup> Wirtz, James J. “How Does Nuclear Deterrence Differ”, 61-62.

<sup>11</sup> MccGwire, Michael. “Deterrence: The Problem-Not the Solution.” *International Affairs (Royal Institute of International Affairs 1944-)* 62, no. 1 (1985): 58.

<sup>12</sup> Wilner, Alex S. “Deterrence Theory”, 21.

<sup>13</sup> Ifft, Edward. “A Challenge to Nuclear Deterrence.” *Arms Control Today* 47, no. 2 (2017): 8-9.

provoke leaders to question how much of their states' defense policy rests reliably on a policy of nuclear threats.

When it comes to regulating or modifying our reliance on nuclear deterrence, arms control is an essential factor to consider. The US and Russia/the former USSR have had some form of arms control in place at all times since the 1980s, with an eye toward maintaining the nuclear balance of power and preventing unnecessary re-escalation of the arms race. Nuclear arms control agreements are not just about limiting weapons; they also build cooperation and trust between adversarial nations, reducing the risk of aggression. According to Robert Jervis, a primary function of arms control is for a pair of adversarial nations to recognize the security interests they both share and use those common interests to shape military policy, especially regarding nuclear weapons, in a way that makes conflict less likely. Arms control “rests on the theory that wars can occur because states have failed to realize the cooperation which their interests actually entail.”<sup>14</sup> The logic of arms control contrasts with the logic of deterrence in that it prioritizes transparency and mutual vulnerability between hostile states rather than posturing against one another. In addition, Linton F. Brooks describes arms control as an invaluable tool in the toolkit of NWS leaders to preserve stability, enhance communication between enemies, and maintain national security.<sup>15</sup> His work echoes Heather Williams' assertion that arms control also serves as a status symbol for countries like Russia which desire to be treated as a global power and a strategic equal to the US.<sup>16</sup> It “demonstrate[es] a commitment to an international order based on the rule of law, rather than the use of force.”<sup>17</sup> The interaction between arms control and nuclear deterrence lies in the stability produced by mutual deterrence within a limited scope and

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<sup>14</sup> Jervis, Robert. “Arms Control, Stability, and Causes of War.” *Daedalus* 120, no. 1 (1991): 169.

<sup>15</sup> Brooks, Linton F. “The End of Arms Control?” *Daedalus* 149, no. 2 (2020): 84–100.

<sup>16</sup> Williams, Heather. “Russia Still Needs Arms Control.” *Arms Control Today* 46, no. 1 (2016): 16.

<sup>17</sup> Brooks, Linton F. “The End of Arms Control?” 90.

the respect two rival NWS hold for each other in both negotiations and fulfilling treaty obligations.

Brooks further asserts in his 2020 article that the arms control regime shared by the US and Russia was in danger of collapsing. The New Strategic Arms Reduction Treaty (New START) was at this time the last remaining limit to nuclear weapons deployments between the two adversarial nations. Brooks predicts that the relevant parties would not be able to reach an agreement on a replacement for New START when it was set to expire in 2021, due to a breakdown of trust and disconnect in interests between the US and Russia. American decisionmakers are likely to regard their counterparts as unreliable negotiating partners due to past treaty breaches, while the Russians have every reason to suspect a deal with the US might not last through a change of administration. In addition, the two countries hold irreconcilable differences on specific issues of arms control, including levels of ballistic missile defenses and previous ambiguous symbols, such as American forward deployments in Europe to protect NATO allies from North Korean and Iranian aggression, which Russia interpreted as hostile. There is also contention over the limitation of nonstrategic (medium range) nuclear weapons, of which Russia has a decided advantage.<sup>18</sup> In the end, Brooks' prediction was correct. Although New START was extended by both governments in 2021, the extension to 2026 would be cut short. As I will further discuss in the next section, Russia's increased leveraging of nuclear forces in their coercive capacity in recent years was merely solidified by their suspension of participation in New START in early 2023.<sup>19</sup> It seems that Russian leaders would prefer not to be

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<sup>18</sup> Brooks, Linton F. "The End of Arms Control?" 85-89.

<sup>19</sup> AFP - Agence France Presse, "Putin Says Moscow Suspending Participation In New START Nuclear Treaty." *Barron's*, February 21, 2023. Accessed November 28, 2023.

constrained by either formal arms control regimes or the mechanisms of deterrence theory. Our Eastern European adversary is not alone in this motivation.

## Case studies

### United States

The United States holds a special status as the first NWS and a major driver of global nuclear policy and practice. The first atom bombs were designed and produced in Los Alamos, New Mexico in 1945 as a strategic weapon to end World War II, first against the Germans and later to prevent a ground invasion of the Japanese Islands. President Truman ordered two weapons to be dropped on the cities of Hiroshima and Nagasaki on August 6<sup>th</sup> and 9<sup>th</sup>, respectively. Japan surrendered unconditionally on August 14<sup>th</sup> of that year.<sup>20</sup> The combined death tolls of the only two uses of nuclear weapons against human beings is estimated at between 110k and 210k, depending on which authority's calculations one uses.<sup>21</sup> During the Cold War, the arms race dynamic between the US and USSR produced ever-growing stockpiles of nuclear weapons which at its largest point in the late 1980s reached 60,000 total warheads. The US arsenal reached its height in 1965 at 31,000 and had gradually reduced to 23,000 by the end of the Cold War.<sup>22</sup> The two superpowers pursued bilateral arms reductions throughout the 1990s and 2000s with the START I, SORT, and New START treaties, through which the American and Russian arsenals have now reached a little over 5,200 and 5,800 warheads, respectively.<sup>23</sup> This

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<sup>20</sup> Wellerstein, Alex, "Manhattan Project," *Encyclopedia of the History of Science*, October 2019. Accessed November 11, 2023.

<sup>21</sup> Wellerstein, Alex. "Counting the Dead at Hiroshima and Nagasaki." *Bulletin of the Atomic Scientists*, August 4, 2020. Accessed November 11, 2023.

<sup>22</sup> "End Nuclear Tests Day- History." United Nations. Accessed November 18, 2023.

<sup>23</sup> *SIPRI yearbook 2023*. P. 13.

period of nearly three decades of mutual deterrence limited by rational arms control measures ended with Russia's suspension of its participation in New START in early 2023.

Perhaps the easiest choice for where to look for details on the US' nuclear policy is in the aptly named Nuclear Posture Review (NPR), the most recent iteration of which was handed down by the Biden administration in late 2022. The document identifies the nuclear option as unique in its ability to credibly deter all forms of aggression and expansionism, thus occupying a central role in US defense strategy as a general deterrent. This centrality negates any role for disarmament in the current regime. The NPR further distinguishes three primary roles for nuclear weapons in the larger framework of defense strategy: "Deter strategic attacks; assure Allies and partners; and achieve U.S. objectives if deterrence fails."<sup>24</sup> It is notable that deterrence is the first priority named by the administration; this reaffirms the primary purpose of the American nuclear arsenal and the country's respect for the norm of non-use. Assuring allies refers to our forward deployment of nuclear weapons, conventional forces, and personnel to allied countries who face a regional adversary (especially a nuclear-capable one). The US maintains security guarantees to a long list of non-nuclear states, including Japan, South Korea, and several European countries. The North Atlantic Treaty Organization (NATO) represents a significant portion of those obligations as well as a unique example of an alliance structure which not only outlasted the conflict that created it but has taken on an enduring importance in international relations. American forward nuclear deployments in Belgium, Germany, Italy, the Netherlands, and Turkey serve to reassure our allies by presenting a deterrent threat to Russian revisionism. The connected security guarantee is that American nuclear weapons are on the table to defend our European allies from any outside threat to their territory or sovereignty. While the deterrent presented by

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<sup>24</sup> "2022 Nuclear Posture Review" in *National Defense Strategy*, 7. Department of Defense, 2022.

these forward deployments has been successful thus far in keeping Russian troops out of NATO countries, NATO's expansion eastward in recent decades has contributed to rising tensions with Russia and played a complex role in Russia's invasion of Ukraine in early 2022.<sup>25</sup> I will explore this conflict in more detail in the next subsection.

An alternative viewpoint on American nuclear policy comes from Francis J. Gavin, who promotes examining American nuclear policy through the lens of grand strategy rather than deterrence or arms control theory. The grand strategy lens focuses on national security and foreign policy as all part of a coherent strategic plan for a particular state. This view suggests that US leaders center nuclear deterrence and indeed nuclear supremacy "to resist the elements of the nuclear revolution that limit America's freedom of action in the world and expose it to vulnerability."<sup>26</sup> In essence, the US strategy is to engage in the mutual deterrence dynamics which prevent war without actually being bound by consequences of them; we want to deter others, but do not want to be deterred. American nuclear policy thus claims to be informed by deterrence theory while obfuscating its effects. US leaders have in recent decades alternated between periods of increased coercive behavior and increased focus on nonproliferation based on what would suit the interest of American hegemony. Gavin adds that our relationships with the other nuclear powers and their strategic moves will affect how American strategists make these decisions. The recent "assertiveness" of both Russian and Chinese nuclear modernization policy has already begun to influence our strategic choices, especially in light of ongoing security challenges in Ukraine and Taiwan, respectively.<sup>27</sup> So, while the US nuclear posture is underlined

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<sup>25</sup> "Enlargement and Article 10." North Atlantic Treaty Organization, August 3, 2023. Accessed November 27, 2023.

<sup>26</sup> Gavin, Francis J., *Nuclear Weapons and American Grand Strategy*, 193. Brookings Institution Press, 2020.

<sup>27</sup> Gavin, Francis J., *Nuclear Weapons*, 218-19.

by deterrence theory logic, it maintains many caveats for subverting the deterrence-based international system when it suits our interests, and the ways that we do this may change with the shifting geopolitical environment.

## Russia

At a total of over 5,800, Russia currently holds the largest number of warheads in its arsenal out of all nine NWS. The former Soviet Union also held the largest arsenal of its time at over 39,000 near the end of the Cold War.<sup>28</sup> The fact that a revisionist state like Russia with a megalomaniacal, anti-West dictator like Vladimir Putin at its helm possesses such an arsenal constitutes an ever-present threat to American interests and allies. The US and Russia entered into their last existing nuclear arms control agreement, the New Strategic Arms Reduction Treaty (New START), in early 2011. The agreement limits each country to 1,550 strategic nuclear weapons deployed in the field. The treaty was meant to last until 2021, with the option to extend its enforcement until 2026. State leaders agreed to extend soon after President Biden took office, and the treaty is currently still in effect... for one partner, at least. In February of this year, President Putin announced that Russia would “suspend its participation” in New START, although he promised to maintain treaty numbers of deployed strategic weapons.<sup>29</sup> This disruption to the arms control regime came one year after Russia’s illegal invasion and occupation of Ukraine, which the US and other Western countries have denounced.

Russian leaders have recently used the superpower’s nuclear capabilities to coerce its European neighbors in numerous ways. After the 2014 annexation of Crimea and again after the 2022 invasion of Ukraine, the threat of Russian nuclear use has effectively coerced Western

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<sup>28</sup> “End Nuclear Tests Day- History.” United Nations. Accessed November 18, 2023.

<sup>29</sup> Agence France Presse, “Putin Says Moscow Suspending Participation”.

countries out of direct intervention. General Kevin P. Chilton states that Russia executed a missile system test and published a propaganda video of the test just after the first invasion and annexation. This signaled an explicit threat to European neighbors that they should accept the illegal invasion and not interfere in Russia's claimed sphere of influence, or else. In addition, Russia has exerted its coercive capability to influence the relationships between other European states toward its own interests. Another targeted nuclear exercise was executed after Sweden announced an interest in joining NATO, causing the Scandinavian country to temporarily back out of joining the alliance.<sup>30</sup> NATO is Russia's main security competition in eastern Europe, especially where it concerns the former Soviet states which include Belarus, Georgia, Ukraine, and others.

Russia's illegal invasion of Ukraine in early 2022 clearly demonstrated to the world that the former was intent on reclaiming influence and authority over the former Soviet space. As mentioned in the previous subsection, the accession of Chechnya, Hungary, Poland, and the Balkan states to NATO has threatened Russian interests and played a role (the extent to which is debated) in the choice to invade Ukraine.<sup>31</sup> President Putin has repeatedly threatened nuclear retaliation if faced with a strategic challenge to its "sovereignty or territorial integrity" in the former Soviet state, going so far as to deploy tactical nuclear weapons to its ally, Belarus, in the summer of 2023.<sup>32</sup> To say the quiet part out loud, the Russian leader asserts that Ukraine belongs to Russia and considers the two countries to be a single people. It is also important to note that this move came only months after Russia suspended its participation in the New START treaty.

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<sup>30</sup> Chilton, Gen Kevin P. "Defending the Record on US Nuclear Deterrence." *Strategic Studies Quarterly* 12, no. 1 (2018): 12.

<sup>31</sup> "Enlargement and Article 10." North Atlantic Treaty Organization.

<sup>32</sup> Talmazan, Yuliya. "Biden warns the threat of Putin's using tactical nuclear weapons is 'real'." NBC News, June 20, 2023. Accessed November 27, 2023.



If any country was to put boots on the ground in defense of Ukrainian sovereignty, they would be accepting the threat of nuclear war in Europe. This deterrent strategy has so far been successful in preventing NATO and other countries from moving beyond sending humanitarian and military aid while the Ukrainian counteroffensive struggles.

## China

China became the world's fifth NWS after conducting its first nuclear test in 1964. Its entrance into the nuclear club was met with mixed reactions among the international community, but notably sounded alarm bells for Western scholars and policymakers. Morton H. Halperin's 1965 article explains that initial thinking on the Chinese nuclear program ascribed highly hostile intentions to the decision, concluding that the emphasis on building hydrogen fusion bombs showed a clear intent for use against civilian population centers rather than military targets. This concern was based on intelligence of China's fissile material production facilities. In addition, Western thinkers saw this move as power-seeking, increasing the number of nuclear-capable communist countries and thus the movement's status on the world stage. For China's part, the decision to nuclearize came largely from a desire for defense against perceived American aggression and a balance of power unfavorable to Western hegemony. In accordance with these interests, China officially adopted a No First Use policy which it still maintains today, while criticizing the US for refusing to do so.<sup>33</sup> These signals point in agreement to a deterrence-based nuclear strategy and a commitment to preventing nuclear conflict.

Chinese nuclear strategy seems to contrast with its American counterparts in both intent and level of aggression. This is due in part to cultural and historical differences in strategic

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<sup>33</sup> Halperin, Morton H. "Chinese Nuclear Strategy." *The China Quarterly*, no. 21 (1965): 74–86.

thinking. Li Bin's 2015 work describes modern Chinese thinking on nuclear weapons as avoidant of participation in arms races for hegemony. The Chinese do not prioritize large quantitative increases in nuclear power because a "a small and survivable nuclear force is enough for the purpose of security," although there is growing concern among the country's decisionmakers about American advances in missile defense technology.<sup>34</sup> Another difference in thinking lies in the Chinese practice of holistic policy choices. Bin explains that concepts like security and safety, deterrence and compellence, challenge and threat, which are distinct in American political thought are much more integrated in China. This results in Chinese decisionmakers keeping the country's nuclear arsenal at a lower level of alert than its Western counterparts due to safety concerns over accidental use. It also presents a clear dichotomy between American and Chinese thought on deterrence theory; we see our use of coercive capacity as purely defensive in nature, whereas the Chinese see our deterrence as actually compelling adversaries to conform to American interests.<sup>35</sup> These differences are important to understand when considering China's current deterrence dynamics and ongoing conflicts, especially in situations where American and Chinese viewpoints clash. Our differences in thinking will impact relations with north Korea, Japan, and other NWS.

While it is certainly a rising global power economically, China is not considered a nuclear superpower... yet. The country's arsenal holds only 500 warheads according to recent pentagon reports, but that number represents rapid growth and modernization which is not to be underestimated.<sup>36</sup> It is entirely rational for American policymakers to consider an adversarial country with strong political and military ties to another adversary (Russia) as presenting a

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<sup>34</sup> Bin, Li. "Chinese Thinking On Nuclear Weapons." *Arms Control Today* 45, no. 10 (2015): 10.

<sup>35</sup> Bin, Li. "Chinese Thinking On Nuclear Weapons," 11-13.

<sup>36</sup> Feng, Emily. "New Pentagon report claims China now has over 500 operational nuclear warheads." *NPR*, October 19, 2023. Accessed December 1, 2023.

security threat. It would also make sense to have open communication between American and Chinese leaders regarding nuclear capabilities, strategy, and ongoing challenges. Susan Haynes explains that, while official dialogues have been lacking between the two countries, China and the US have engaged in unofficial nuclear security discussions through the Center for Strategic and International Studies (CSIS) annually since the late 2000s. This informal capacity allows academics and leaders to discuss issues and possible solutions “without fear of attribution.”<sup>37</sup> However, to affect any real change in nuclear relationships, these talks need to get official.

## Moving Toward Minimal Nuclear Deterrence

There are three options concerning nuclear arms control to choose from in this situation. The obvious choice is to facilitate trilateral talks between the US, Russia, and China on creating an expanded replacement for New START. Haynes asserts that a second option, a bilateral discussion excluding Russia, may be more appropriate given the unique relationships involved.<sup>38</sup> A third option, multilateral agreement between all (or a majority) of the nine NWS, would be ideal but is unlikely to succeed based on the sheer number of conflicting national interests. I agree with Haynes’ assessment that a direct deal between the US and China would be the most effective option in this case. Considering Russia’s suspension of New START and increased revisionist tendencies, any arms control agreement involving Russia would require several preconditions to be met before trust can be rebuilt. It would likely be less complicated to deal with these two nations separately first, and in the future return to the possibility of further

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<sup>37</sup> Haynes, Susan Turner. “Dragon in the Room: Nuclear Disarmament’s Missing Player.” *Strategic Studies Quarterly* 12, no. 1 (2018): 30.

<sup>38</sup> Haynes, Susan Turner. “Dragon in the Room,” 29-32.

multilateral agreements. This section will expand on how this dynamic can be used to maintain nuclear non-use.

Terrence Roehrig correctly asserts that the use of nuclear weapons in war is too messy for most states to rationally consider; in addition to concerns about reputational damage and unstoppable escalation once the line is crossed, “the dangers of nuclear fallout for civilians and military personnel, the long-term effects of nuclear explosions, and the impact on neighboring states, including allies, make it difficult to use... even low-yield tactical nuclear weapons.”<sup>39</sup> These weapons present a uniquely destructive and undesirable option in warfare as each warhead is designed to vaporize targets and kill indiscriminately within their area of effect. Nuclear use is unthinkable; nuclear weapons are also not going anywhere anytime soon. The trick is to find a solution that maintains non-use *through* deterrence rather than walking in circles trying to disarm. I assert that that solution is a transition to minimum nuclear deterrence.

The unique ability of nuclear weapons to deter military action comes from their unimaginable destructive power. Francis J. Gavin extrapolates from nuclear revolution scholars to explain that nuclear weapons provide diminishing returns. Since each weapon packs such an incredible punch, an arsenal tens of thousands of weapons strong is not needed to deter.<sup>40</sup> Thomas M. Nichols defines the condition of minimum deterrence as a reduction of nuclear arsenals to as few weapons as possible while still preserving both the mutual deterrent between parties and the norm of non-use. He specifically emphasizes the role of the intrinsic fear of nuclear devastation in maintaining this norm<sup>41</sup> The Cold War model of deterrence rested on the

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<sup>39</sup> Roehrig, Terrence. “Extended Deterrence and the Nuclear Umbrella.” In *Japan, South Korea, and the United States Nuclear Umbrella: Deterrence After the Cold War*, 29-30. Columbia University Press, 2017.

<sup>40</sup> Gavin, Francis J., *Nuclear Weapons and American Grand Strategy*, 196.

<sup>41</sup> Nichols, Thomas M. “The Return of Minimum Deterrence.” In *No Use: Nuclear Weapons and U.S. National Security*, 83–126. University of Pennsylvania Press, 2014.

assumption of mutual assured destruction, in which both countries raced to expand their nuclear arsenals and would be utterly destroyed if either side chose to cross the threshold of nuclear war. The number and strength of modern weapons has far surpassed that capability. According to Barry Nalebuff's 1988 work, this level of technological advancement and the relative equality between Russian and American nuclear forces should prompt a discussion of how many weapons of this magnitude are really needed to maintain a stable balance of power. That is, after all, the main goal of nuclear deterrence. A transition toward minimum deterrence would also provide these three hostile countries with an opportunity to cooperate on mutual security interests (i.e. preventing nuclear war) through arms control talks. At the time of writing in 1988, Nalebuff asserts that that number of weapons lies "somewhere between 0 and 12,000."<sup>42</sup> Today, I argue that the number constituting a minimal deterrent is somewhere between 0 and 5,000.

So, how do we get there? Nichols asserts that both the UK and France are already operating in a condition of minimum deterrence, holding just 225 and 290 weapons, respectively.<sup>43</sup> Both states have outright referred to their nuclear arsenals as such, asserting that the destruction imposed by even a "modest" arsenal would be enough to prevent any nuclear event that would lead to war. The adoption of minimal deterrence should also include establishing an explicit No First Use policy, which would accompany the transition of a vastly reduced US nuclear arsenal to a purely retaliatory force.<sup>44</sup> So how large would that force need to be? Nalebuff's mathematical models suggest that the answer has more to do with proportionality than flat numbers.<sup>45</sup> Taking this perspective into account, I agree with Nichols that it is

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412. <sup>42</sup> Nalebuff, Barry. "Minimal Nuclear Deterrence." *The Journal of Conflict Resolution* 32, no. 3 (1988):

<sup>43</sup> Nichols, Thomas M. and SIPRI Yearbook 2023.

<sup>44</sup> Nichols, Thomas M. "The Return of Minimum Deterrence."

<sup>45</sup> Nalebuff, Barry. "Minimal Nuclear Deterrence." 424.

appropriate to look to the mid-level NWS for clues. As discussed at the beginning of this section, a two-pronged approach to bilateral agreements with Russia and China separately is the most reasonable option. The two superpowers would of course still prioritize maintaining their quantitative supremacy in any arms control negotiation, so any figure under 300 is unlikely. It is plausible, however, that the US and Russia might agree on bilateral reductions to the mid-hundreds, approximately 400-700 weapons each. This would match the current size range of China's arsenal and lessen their motivation for quantitative growth, easing the way for a Sino-American arms control agreement. This range is both greatly scaled down from current levels and presents the adequate nuclear firepower to deter attacks on home territory, maintain extended deterrence obligations, and respond in the case that deterrence fails.

## Concluding Thoughts

The modern nuclear order centers deterrence as its strategic goal. The nine nuclear weapons states are engaged in mutual deterrence dynamics that reflect their geopolitical relationships: the US and NATO states versus Russia, China versus the US, the US and NATO versus North Korea, etc.. These dynamics maintain the global balance of power and prevent preemptive strikes and conflict escalation to nuclear use. The relationship between the US and Russia (former USSR) has for several decades included arms control agreements like START, SORT, and New START which reduced the countries' bloated Cold War arsenals and promoted cooperation between adversaries. As of this year, no arms control measure binds Russian nuclear forces and tensions continue to rise in eastern Europe.

The three NWS relevant to this study hold diverse and sometimes conflicting strategic nuclear aims. While American nuclear policy is outwardly based on deterrence theory, it often

seeks to undermine the effects of mutual deterrence in order to further its own national interests. The American nuclear umbrella presents a specific strategic challenge as NATO allies have faced increasing revisionist aggression from Russia. Russia has leveraged its coercive capacity in the illegal invasion of Ukraine and suspension of New START, which have disrupted the status quo nuclear order. I argue that this represents the greatest current threat to stability. Our European adversary's recent actions have also complicated the American relationship with China, the world's fastest growing NWS. Differences in strategic thinking between American and Chinese leaders must be understood by both sides to facilitate effective cooperation on nuclear security concerns. Due to the complicated situation with Russia, bilateral Sino-American arms control talks may be the best avenue for maintaining the balance of power and preventing nuclear use.

A transition to minimal nuclear deterrence is our best bet for maintaining that norm of non-use. This would allow for continued mutual deterrence while increasing the cost of first use and thus reducing the likelihood of both accidental and intentional nuclear use. Separate bilateral agreements with China and Russia on limiting arsenal size are an essential step in this transition. Important areas for future study will include what diplomatic pathways might be most effective in a transition toward minimum deterrence and how leaders might tailor their signals to specific negotiating partners. In addition, it will be essential to ascertain how the US can maintain security alliances in both Europe and Asia while restructuring the extended deterrence promises involved toward a scaled down nuclear presence.

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