GLOBAL CHINA
ASSESSING CHINA'S GROWING ROLE IN THE WORLD

CHINA AND NUCLEAR WEAPONS

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SEPTEMBER 2019

EXECUTIVE SUMMARY

For decades, nuclear weapons have been largely peripheral to U.S.-China relations, but the nuclear relationship is now growing more competitive as both countries pursue major programs to modernize their forces. China's efforts to strengthen its relatively small nuclear arsenal seem largely oriented toward improving survivability and do not appear to constitute a shift away from the country's long-standing No First Use (NFU) policy. Nevertheless, the improvements are provoking anxiety in Washington, which has long resisted acknowledging a state of mutual nuclear vulnerability with China.

The core U.S. concern is likely that improvements in China's nuclear arsenal, even if intended only to improve survivability, will reduce the U.S. ability to limit damage in the worst-case scenario of an all-out nuclear war with China. The U.S. preference for damage limitation, largely through missile defense and counterforce capabilities, should not be taken to mean that the United States intends to start a nuclear war or that it believes it could emerge from a nuclear war unscathed. Rather, the likely U.S. objective is to make China to worry that if *China* starts a crisis or conflict that raises risks of nuclear escalation, the United States will have a higher tolerance for bearing these risks than China will, because of the United States' relatively greater ability to limit the damage the United States would suffer in a nuclear exchange. Advocates of damage limitation believe that such a capability could deter China from initiating conflict in the first place—even conflict well below the nuclear threshold—and could endow the United States with bargaining advantages in any effort to coerce China if a crisis or war did break out.

Rightly or wrongly, this is likely why the United States perceives China's ongoing improvements to survivability as threatening, especially when set against the backdrop of growing bipartisan concern about China's broader strategic intentions, and a conventional balance that is also becoming less favorable to the United States and its allies. Understandably, however, China is also very unlikely to stop seeking a more survivable nuclear arsenal, even if its strategic aims are limited and its nuclear doctrine remains static. As a result, nuclear competition between the United States and China is almost certain to intensify. This paper explores the causes and implications of this emerging competition.

INTRODUCTION

The deteriorating U.S.-China bilateral relationship has heightened concern about the consequences of intensified military competition between the two states.[1] Although some analysts have emphasized that conflict is far from inevitable, others have warned of the growing possibility of clashes or even war in the East or South China Seas, or over Taiwan.[2] Much of this work has rightly emphasized the conventional dimensions of such conflict.[3] Yet the United States and China both possess nuclear weapons, and their potential role in a more rivalrous relationship merits close attention as well.[4]

Like the United States, China is undergoing a significant, decades-long modernization of its nuclear forces. Currently, this effort does not appear to constitute a shift away from China's long-standing No First Use (NFU) policy. Rather, the improvements in China's small and relatively vulnerable nuclear forces

appear largely oriented toward improving survivability. In other words, China is seeking a more secure second-strike capability—a force that can guarantee an unacceptable level of nuclear retaliation against any state that launches a first strike against China, and thereby deter such an attack from being launched. That a country with China's resources would seek a more robust nuclear force is unsurprising, especially given the much larger U.S. and Russian nuclear arsenals.

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Yet despite the fact that Chinese nuclear modernization does not appear to presage a new, more ambitious nuclear doctrine, the effort is provoking anxiety in Washington. This is because the United States is highly resistant to the idea of acknowledging a state of mutual nuclear vulnerability with China. Even during the Obama administration, the United States avoided describing the nuclear relationship as one of mutually assured destruction (MAD).[5] In MAD, there is no meaningful way for either side to avoid suffering unacceptable damage in a nuclear war, no matter who strikes first.

Instead of accepting MAD with China—a country that possesses intercontinental ballistic missiles (ICBMs) that can reach the continental United States—the United States has sought capabilities that could be used for damage limitation. The most recent U.S. Nuclear Posture Review in fact explicitly highlights the long-standing U.S. pursuit of damage limitation, which is a nuclear mission distinct from deterrence.[6] Deterrence tries to convince an adversary not to launch a nuclear attack by threatening him with nuclear retaliation if he does so. Damage limitation, by contrast, is not about imposing costs on the adversary; it is about meaningfully reducing the costs to oneself in an all-out nuclear war.[7] The United States pursues damage limitation through counterforce capabilities, which can enable the United States to find, destroy, or disable adversary nuclear forces; missile defenses, which can intercept adversary nuclear launches; and civil defense measures.

It is important to note that the pursuit of damage limitation does not mean that the United States intends to start a nuclear war or that it believes it could emerge from a nuclear war unscathed. Rather, the likely U.S. objective is to make China to worry that if *China* starts a crisis or conflict that raises risks of nuclear escalation, the United States will have a higher tolerance for bearing these risks than China will, because of the United States' relatively greater ability to limit the damage the United States would suffer in a nuclear exchange.[8] Were this effort successful, U.S. nuclear capabilities could theoretically deter China from initiating any conflict in the first place, or could endow the United States with bargaining advantages in any effort to coerce China if a crisis or war did break out. Again, the idea is not that the United States would relish fighting a nuclear war. It is that when nuclear weapons began to cast their inevitable shadow over any tense U.S.-China interaction—even well below the nuclear threshold—the United States probably would be less likely to back down over escalation fears than China. China's awareness of this fact could thus give the United States an important advantage in what strategist Thomas Schelling famously characterized as a "competition in risk-taking."[9]

Rightly or wrongly, this is likely why the United States perceives China's ongoing improvements to survivability as threatening, even though these improvements do not appear to constitute a shift away from NFU. The concern is that improvements in China's nuclear arsenal, even if intended only to improve survivability, will reduce the U.S. ability to limit damage—or at least reduce China's perception of the U.S. ability to limit damage, which is what counts. In the worst-case scenario, the shift could even embolden a revisionist, highly resolved China to behave aggressively, especially toward U.S. allies and partners. Amidst growing bipartisan concern about China's broader strategic intentions, and a conventional balance that is also becoming less favorable, the United States therefore tends to view any erosion of its perceived position of nuclear advantage as cause for alarm. Understandably, however, China is also very unlikely to stop seeking a more survivable arsenal, even if its strategic aims are limited and its nuclear doctrine remains static. As a result, nuclear competition between the United States and China is almost certain to intensify.

This paper explores the causes and implications of this emerging competition in five steps. First, it briefly reviews the history and background of the U.S.-China nuclear relationship as relevant to understanding the present state of affairs. Second, the paper discusses recent developments in China's nuclear forces. Third, it explains why the nuclear relationship is likely headed in a more competitive direction even though China's modernization effort does not appear to signal a fundamental change in China's nuclear strategy. Fourth, the paper analyzes what this potential competition could mean for deterrence and escalation in both the conventional and nuclear domains. Finally, the paper briefly considers ways that U.S. policymakers might manage a more competitive nuclear relationship with China.

CURRENT POSITION: THE U.S.-CHINA NUCLEAR RELATIONSHIP

For decades, nuclear weapons were largely peripheral to U.S.-China relations. China tested its first nuclear weapon in 1964, but it never developed a large and sophisticated arsenal as the United States and Soviet Union did.[10] This choice probably stemmed at least partly from the Chinese Communist Party's early focus on economic development and regime consolidation. But Mao also explicitly eschewed the nuclear arms race on strategic grounds, emphasizing that nuclear weapons had only two purposes: deterring nuclear aggression and countering nuclear coercion (that is, preventing a nuclear state from using nuclear threats to exert pressure on a non-nuclear state).[11]

Following this logic, China adopted a posture of assured retaliation, building barely enough weapons to credibly threaten nuclear retaliation in the event that it was the target of nuclear attack.[12] As China experts Taylor Fravel and Evan Medeiros note, "A decade after exploding its first nuclear device, China likely possessed only 75 nuclear warheads and tens of gravity bombs. Another decade later, in 1985, ...China may have possessed as many as 151 nuclear warheads."[13] Put another way, China's arsenal was roughly half the size of Britain's and France's at the time, and orders of magnitude smaller than the U.S. and Soviet arsenals.

China's lean deterrent went hand in hand with its declared policy of No First Use of nuclear weapons. Such a pledge by itself might not have meant much; the Soviets made a similar pledge in the late Cold War, for example. But the low state of readiness of China's nuclear forces has historically lent credibility to this policy. For example, China is believed to keep most of its warheads at storage facilities, rather than mated to missiles. This posture, combined with a small force size, makes it virtually impossible that China could disarm an opponent through a surprise nuclear attack in peacetime.[14]

In addition, China took decades to develop an intercontinental ballistic missile that could reach U.S. cities, and it never developed anything resembling a viable triad of delivery platforms the way the Soviet Union and especially the United States did. Instead, China relied almost entirely on a small, vulnerable arsenal of land-based ballistic missiles. China also did not develop weapons for nuclear warfighting; it did not pursue counterforce capabilities or battlefield nuclear weapons. And it did not even pursue conventional technologies, such as an early warning network, that would be required for a launch-on-warning nuclear posture.[15]

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In short, China historically has had a small, relatively unsophisticated arsenal with a highly circumscribed purpose. Although U.S. policymakers debated in the early 1960s whether to pre-emptively destroy China's nascent arsenal, China's nuclear weapons generally have not been a central concern for U.S. policymakers.[16] Recent developments in China's nuclear forces and the overall downturn in the U.S.-China relationship have begun to change this dynamic, however.

CHINESE ACTIVISM: RECENT DEVELOPMENTS IN CHINA'S NUCLEAR FORCES

Like the United States and Russia, China is currently engaged in a major long-term effort to modernize its nuclear forces. The overall result of these changes is a force that is gradually growing larger and becoming more capable of penetrating missile defenses, better able to hold at risk U.S. cities, quicker to fire, and more easily concealed from U.S. intelligence, surveillance, and reconnaissance assets. In short, it is a force that is raising the bar for any U.S. attempt to meaningfully limit damage, although where exactly that bar lies depends on the subjective perceptions of both Chinese and U.S. decisionmakers.

Propelled by both strategic imperatives and bureaucratic preferences, China has made the most significant strides with respect to the land-based missile force that has traditionally formed the backbone of its arsenal. The best open-source estimates suggest that China now possesses roughly 290 warheads that can be delivered by 180-190 land-based missiles, 48 sea-based ballistic missiles, and bombers.[17] This compares with a U.S. force of about 4,000 warheads. In recent years China is believed to have fielded a road-mobile, medium-range ballistic missile, the DF-21; an intermediate-range ballistic missile, the DF-26, which, like the DF-21, also has a conventional variant; and an ICBM, the DF-31AG, with an improved transporter-erector launcher (TEL). The latter is a variant of China's DF-31A, the primary ICBM it has deployed over the past decade and the one that can hold at risk targets in the continental United States.[18] For the past two decades China also has been developing the DF-41, a new road-mobile ICBM capable of carrying multiple independent re-entry vehicles (MIRVs). In addition, China appears to be in the process of MIRV-ing its legacy, silo-based ICBMs. Finally, China is modernizing its command and control (C2) systems in order to operate its nuclear forces more effectively in a crisis or war.[19]

China also possesses a sea-based nuclear force, albeit one whose size and capabilities are much more limited than those of the land-based force. The sea leg currently consists of four Type 094 Jin-class ballistic missile submarines (SSBNs), with two more believed to be under construction. Each of these submarines can carry up to 12 JL-2 submarine-launched ballistic missiles (SLBMs), although it is unclear whether the Type 094 has ever conducted an armed deterrent patrol.[20]

China likely faces technical, operational, and political constraints on its ability to conduct such patrols. Developing quiet SSBNs and sustaining their operations on the open ocean has proven extremely challenging for every military that has tried it, even the United States and the Soviet Union. China faces a civil-military dimension to the problem as well: devolving nuclear launch capability to a submarine commander in the manner necessary for robust sea-based nuclear deterrence probably requires loosening the highly centralized party control of the military that Chinese leaders have long preferred.[21] Whether and how China will resolve this tension remains to be seen.[22]

For now, despite Pentagon statements that China has a "credible, sea-based nuclear deterrent," most experts consider China's SSBN force noisy and highly vulnerable to U.S. anti-submarine warfare (ASW) capabilities.[23] In a crisis or war, the United States likely would be able to keep China's SSBN force confined to the waters inside the first island chain. The JL-2 cannot range the continental United States from this location, which significantly reduces the contribution of China's naval nuclear forces to its strategic deterrent vis-à-vis the United States.[24]

Experts believe China is likely already working on a next-generation, Type 096 SSBN that will carry a longer-range JL-3 missile. China has conducted early tests of this missile, which is intended to be able to range the northwestern edge of the United States from within the first island chain. Nevertheless, it is unclear whether even this next-generation capability will endow China with an effective sea-based nuclear deterrent. These submarines would still need to exit the first island chain in order to threaten most of the continental United States, and the United States is likely to retain the ability to make this journey harrowing.[25]

Lastly, China has at least a nominal ability to deliver nuclear weapons by air. China conducted many of its early nuclear tests with gravity bombs and possibly retains a stockpile of 20 such weapons.[26] Since at

least 2016, Chinese media sources have referred to China's upgraded H-6K bomber as nuclear-capable, and in 2017, the People's Liberation Army Air Force was reassigned a nuclear mission.[27] China is also developing a nuclear-capable air-launched ballistic missile and may have nuclear or nuclear-capable cruise missiles, or the designs for such missiles, though reports vary.[28] In addition, China has stated that it is developing a new, stealthy, nuclear-capable strategic bomber.[29]

FUTURE TRENDS: WHY U.S.-CHINA NUCLEAR COMPETITION MAY INTENSIFY

China's ongoing nuclear upgrades do not appear to presage a shift away from NFU. In fact, many of the changes can be understood as reasonable and defensive—actions that might be expected of any nuclear state with China's resources and security environment. Nevertheless, the United States has treated recent improvements to China's nuclear arsenal with suspicion and pointed to them as part of the justification for its own nuclear modernization. Clearly, the United States is concerned about the erosion of what it sees as a long-standing position of nuclear advantage relative to China.

The 2018 U.S. Nuclear Posture Review (NPR) emphasizes, for example, that "China continues to increase the number, capabilities, and protection of its nuclear forces." The report acknowledges that "China's declaratory policy and doctrine have not changed" but warns that "its lack of transparency regarding the scope and scale of its nuclear modernization program raises questions regarding its future intent."[30] The review further notes that China, like Russia and North Korea, has deployed multiple new nuclear delivery systems since 2010. It contrasts China's pursuit of these systems with "U.S. efforts to reduce the salience of nuclear weapons" and notes that the United States has deployed only one new nuclear-capable platform since 2010 time, the F-35A.[31]

It is true that China (like Russia) is at a different point in its modernization cycle than the United States. But China's modernization activities appear largely oriented toward maintaining survivability—particularly in the face of major advances in U.S. counterforce capabilities. The United States tends not to acknowledge the role that these non-nuclear capabilities may play in adversary perceptions of the nuclear balance, as the above-quoted passage of the NPR indicates. For example, improvements in U.S. guidance systems, sensors (especially remote sensing), data processing, communication, and artificial intelligence have significantly improved the United States' ability to accurately target Chinese nuclear forces.[32] As a result, China could reasonably believe that it needs more robust nuclear capabilities not to pursue new missions, but simply to sustain its existing deterrent.

China's repeated protestations of U.S. missile defenses in the region also speak to this rationale.[33] The United States often dismisses China's missile defense concerns; American officials argue that unless China is aggressive, China has nothing to fear from defenses that are not sized to intercept a large-scale Chinese first strike.[34] China's concern is different, however: that missile defenses could endow the United States with a damage limitation capability that might tempt the United States to launch a nuclear first strike against China. In other words, China worries that the United States might use its counterforce capabilities to try to wipe out China's nuclear forces in a first strike, and then use missile defenses to mop up any "ragged retaliation" from China's surviving warheads. In this scenario, U.S. missile defenses would not have to intercept all of China's nuclear weapons—just the handful that had not been destroyed in a first strike.[35]

Viewed from this perspective, many of China's nuclear upgrades can be understood as efforts to sustain the credibility of its assured retaliation posture. China likely does not want the United States to ever feel confident that it can meaningfully limit damage to itself in an all-out nuclear war with China. Even if the United States had no desire for nuclear war, China might fear that such confidence might increase the United States' relative willingness to bear the risk of nuclear escalation in a crisis or war, and thereby allow the United States to acquire a deterrent advantage or coercive leverage over China. Indeed, this is one of the reasons why advocates of damage limitation view the capability as valuable.[36]

Seen in this light, China's improvements in redundancy, through the development of more varied nuclear platforms, are an obvious way to try to disabuse the United States of any belief that it could mount a splendid first strike or even limit damage. For example, the increased mobility of China's land-based and sea-based nuclear forces, as well as the pursuit of an air-launched ballistic missile, would be consistent with this logic.[37] Meanwhile, the adoption of MIRVs is a way of ensuring that surviving warheads are able to penetrate U.S. defenses.[38] It is especially telling, moreover, that China is expending resources to MIRV its vulnerable, silo-based legacy ICBMs, which are too inaccurate to serve as counterforce weapons. This investment does nothing to endow China with a first-strike capability but does increase the costs it could impose in a retaliatory strike—suggesting that this second-strike capability is the key concern. China's otherwise somewhat puzzling SSBN program also makes some sense from this perspective. Submarines have less predictable launch locations, making them harder to wipe out in a first strike, and they also have depressed launch trajectories, making them harder to intercept with missile defenses.[39]

> **"The United States avoids describing its nuclear relationship with China as one of mutually assured destruction.**

That China would seek to strengthen its deterrent is unsurprising given that the United States does not acknowledge a state of mutual nuclear vulnerability with China. In other words, the United States avoids describing its nuclear relationship with China as one of mutually assured destruction, in which there is no meaningful way for either side to avoid suffering unacceptable damage in a nuclear war, no matter who goes first.[40] Whether the United States actually believes this is somewhat beside the point. The United States does not want China to believe that China's nuclear weapons have much deterrent power over the United States, which it fears could embolden China and alarm U.S. allies. Japan, in particular, has expressed concerns that a more robust Chinese nuclear arsenal could erode the credibility of U.S. extended deterrence, inhibiting the United States from defending Japan if attacked by China.[41] Whatever its rationale, however, the U.S. omission gives the impression that the United States might, in fact, someday believe that it could execute a splendid first strike against China—exactly the sort of aggression China fears.

Furthermore, even as the United States avoids acknowledging mutual vulnerability with China, it criticizes growth in Chinese nuclear capabilities. Beyond the NPR, for example, General Robert Ashley, Director of the Defense Intelligence Agency, recently warned that "Russia is not the United States' only strategic competitor expanding its nuclear capability."[42] Ashley predicted that "over the next decade, China is likely to at least double the size of its nuclear stockpile."[43] Ashley further emphasized that "like Russia, China is also working to field nuclear, theater-range precision-strike systems." Presumably referring to the DF-21 and DF-26, his comments implied that these intermediate-range missile systems might in the future be oriented toward battlefield nuclear missions or perhaps a strategy of coercive escalation, which would signal a dramatic change in China's nuclear posture. This echoes the 2018 NPR claim that "like Russia, China is pursuing entirely new nuclear capabilities tailored to achieve particular national security objectives while also modernizing its conventional military."[44] More broadly, Ashley's core theme was "China's commitment to expanding the role and centrality of nuclear forces in Beijing's military aspirations." He underlined that "nuclear weapons remain central to … China's military plans and intentions."[45] Officials from U.S. Strategic Command have expressed a similar view.[46]

From this perspective, China's nuclear improvements are worrisome to the United States not because of a fear that China will suddenly launch a nuclear attack. Rather, China's improvements to survivability are perceived as threatening even if China maintains its NFU policy because they erode the U.S. ability to limit damage. If the United States enters an undisputed state of mutual nuclear vulnerability with China—meaning that China can inflict unacceptable damage on U.S. cities, even in the aftermath of a U.S. first strike—then U.S. policymakers may worry that U.S. nuclear weapons will be much less likely to deter China from engaging in conventional or sub-conventional aggression, especially

against U.S. allies or partners. The United States would also be less able to leverage nuclear threats against China in the event of a crisis or war.[47]

Classic deterrence theory of course would suggest that the mutual presence of second-strike forces would stabilize the U.S.-China relationship and reduce the likelihood of conflict due to the fear of escalation.[48] But U.S. policymakers may reasonably worry that if China turns out to be a highly revisionist actor with growing local conventional military advantages, improvements in its nuclear arsenal could embolden rather than inhibit Chinese aggression, in line with the so-called Stability-Instability Paradox.[49] It was precisely this sort of fear that led to U.S. pursuit of a damage limitation capability versus the Soviets during the Cold War, even though MAD seemed much more entrenched.[50]

IMPLICATIONS: THE DANGERS OF A MORE COMPETITIVE U.S.-CHINA NUCLEAR RELATIONSHIP

A more competitive U.S.-China nuclear relationship is not a foregone conclusion, but for all the reasons listed above, there are signs that such competition may be emerging. Nuclear rivalry has the potential to pose an array of distinct dangers, two of which are worth highlighting here.

First, those who favor U.S. nuclear superiority could be right about its advantages. A future, more competitive U.S.-China nuclear relationship could make it harder for the United States to deter China at the conventional or sub-conventional level, or to coerce China with nuclear threats. Whether these possibilities are likely depends entirely on one's assessment of how China might behave under the condition of mutually acknowledged, mutual vulnerability versus how it behaves now.[51] Would China's behavior be different in a world where its leaders believed it had a robust, secure second-strike force that U.S. policymakers knew was capable of inflicting unacceptable damage on U.S. cities, even in the aftermath of a U.S. first strike?

Again, the traditional view is that precisely because nuclear war would be so devastating under this condition of mutual vulnerability, conventional conflict would become very unlikely.[52] The two sides might still follow the U.S. and Soviet course and engage in a costly arms race, especially if bureaucratic or military organizational interests dominated the defense policy process on either or both sides.[53] But they would probably be much less likely to end up in a hot war deliberately initiated by either side.

The alternative, more pessimistic view is that the loss of any U.S. relative nuclear advantage, combined with an eroding U.S. conventional position, could actually invite aggression from a highly revisionist China. Again, this view assumes both that U.S. nuclear weapons play some role in constraining China conventionally now, and also that Chinese aims would be expansive if this constraint were loosened, in combination with a conventional balance more favorable to China. From this perspective, China might be especially tempted to engage in "gray-zone" challenges below the threshold of full-on conventional war, if it knew that the United States might fear that a robust conventional response to such challenges could risk nuclear escalation. Or, China might follow the logic of the Stability-Instability Paradox just mentioned and simply assume that it was "safe" to fight a conventional war, or even a limited nuclear war, under the shadow of mutually assured destruction, because it would be irrational for either side to escalate to all-out nuclear use. The key point is that depending on the perceptions of key decisionmakers on both sides, intensified nuclear competition could generate crises and challenges, not stalemate and stability.

Second, a more competitive U.S.-China nuclear relationship could raise the risk that either side might actually use nuclear weapons, especially if Chinese fears of a U.S. damage limitation capability create rational pressures for it to use nuclear weapons early in a crisis or war. Furthermore, as critics of damage limitation point out, the pursuit of damage limitation capabilities can itself generate suspicions that make crises or wars more likely to arise.[54]

The pursuit of damage limitation could also heighten the risk of nuclear miscalculation, a serious danger during the Cold War. During that era, both sides at various points took steps that increased the likelihood of accidental or unauthorized launch.[55] Indeed, many believe the superpowers were more lucky than good in

keeping the Cold War cold.[56] Beyond the well-known early crises over Berlin and Cuba, the prospect of nuclear war was alive and well into the 1980s.[57]

A particular danger in the late Cold War stemmed from fears by each superpower that the other had the ability to threaten its nuclear C2. In a crisis or war, this mutual fear could have created strong pressures for each side to try to launch first. Overall, the line between conventional and nuclear conflict became increasingly blurred as the ever-growing capabilities of conventional weapons meant that even a non-nuclear conflict could rapidly have counterforce implications for either side. For example, U.S. conventional attacks on Soviet ground-based radars for the purpose of attriting Soviet air defenses would have also eroded Soviet early warning of an attack on their ICBM force. Soviet leaders could have faced strong pressures to escalate to the nuclear level in response, while they still could.[58]

There are good reasons to believe that similar dangers could arise today in the U.S.-China context.[59] Both the United States and China intermingle aspects of their nuclear and non-nuclear forces.[60] As a recent Pentagon report warned,

> China's commingling of some of its conventional and nuclear missile forces, and ambiguities in China's NFU conditions, could complicate deterrence and escalation management during a conflict. Potential adversary attacks against Chinese conventional missile force-associated C2 centers could inadvertently degrade Chinese nuclear C2 and generate nuclear use-or-lose pressures among China's leadership. Once a conflict has begun, China's dispersal of mobile missile systems to hide sites could further complicate the task of distinguishing between nuclear and conventional forces and, thus, increase the potential for inadvertent attacks on the latter. China's leadership calculus for responding to conventional attacks on nuclear forces remains a key unknown.[61]

POLICIES: WHAT SHOULD THE UNITED STATES DO?

Although nuclear competition with China is far from inevitable, the United States also is unlikely to do much to forestall such competition, for two reasons. First, some in the United States may reluctantly accept the prospect of nuclear competition with China, given that this is a contest in which the United States is currently far ahead. If U.S. policymakers believe that U.S. nuclear advantages generate deterrent power or coercive leverage, especially in the face of a less and less favorable conventional balance, they are very unlikely to cede this position. In fact, they may choose to ramp up competition further, assuming domestic politics permit them to do so.[62]

Second, China is not the only nuclear-armed state of concern to the United States. Even if the United States wanted to eschew nuclear competition with China, U.S. nuclear policy choices with respect to other nuclear states would make it difficult to signal this choice credibly to China. For example, the United States might reasonably decide that damage limitation capabilities are an important part of preparation for worst-case scenarios vis-à-vis Russia and North Korea—states that clearly do reserve the right to use nuclear weapons first. But these capabilities are likely to appear highly threatening to China even if they are aimed elsewhere, and they may propel a more competitive dynamic even if this is not the intent.[63]

> **"U.S. policymakers should acknowledge, at least to themselves, the trade-offs inherent in a more competitive nuclear relationship with China.**

That being said, policymakers do have better and worse ways of managing nuclear competition, if it emerges. First, U.S. policymakers should acknowledge, at least to themselves, the trade-offs inherent in a more competitive nuclear relationship with China.[64] U.S. refusal to acknowledge mutual vulnerability, when combined with continued development of capabilities relevant to damage limitation and a worsening bilateral relationship, makes China relatively more likely to adopt an ambitious nuclear strategy than would otherwise be the case. It could create rational incentives for China to potentially move away from NFU, for example. If and when China does so, the United States should then recognize the role that its own policy choices may

have played in that decision, rather than interpret such change as entirely a function of aggressive Chinese intentions.[65] Of course, this is not an all-or-nothing equation, and is not meant to downplay China's own motives, but the key point is simply to recognize that China will react to U.S. choices.

Second, even in a more competitive nuclear relationship, the United States can work to reduce the danger of nuclear escalation. Even if the United States believes that there are some deterrent or coercive advantages to be gained in a competitive nuclear relationship with China—advantages that depend on credible threats of escalation—the United States can still work with China to build off-ramps in the event of a crisis or war. The United States might seek to develop what RAND analysts in the Cold War once called "an optimal amount of instability": "enough to deter the [adversary] from precipitating a crisis, but not enough to cause a crisis to spiral out of control should it occur."[66] Fostering robust, direct crisis communication channels between high-level policymakers, and especially high-ranking military officers, is important in this regard, despite the challenges that such efforts face.[67]

Finally, the United States should consider engaging in arms control with China, bearing in mind that arms control in the future will probably look different from how it evolved in the Cold War. Because of that experience, Americans tend to define arms control narrowly—as legally binding, bilateral treaties that produce symmetrical reductions in nuclear forces. But as Thomas Schelling and Morton Halperin noted decades ago, arms control can be conceptualized much more broadly, "to include all the forms of military cooperation between potential enemies in the interest of reducing the likelihood of a war, its scope and violence if it occurs, and the political and economic costs of being prepared for it." It requires only "the recognition that our military relation with potential enemies is not one of pure conflict and opposition, but involves strong elements of mutual interest."[68]

With respect to China, an arms control process could seek to address not only nuclear weapons but also emerging technologies in the cyber and space domains that are likely to affect nuclear stability.[69] Currently, the Trump administration is pushing for China to join trilateral arms control negotiations with the United States and Russia, which China has repeatedly indicated it is not willing to do.[70] China's position is unsurprising given its dramatically smaller nuclear arsenal. China may also suspect that the Trump administration's stance is more about manufacturing a rationale for letting the New START Treaty expire than about finding common ground with China.[71] Nevertheless, as former Assistant Secretary of State Frank Rose has argued, there are a variety of credible and creative means by which the United States might begin to integrate China into an arms control framework: convening bilateral strategic stability talks with China, expanding talks with Russia to include China, developing a bilateral pre-launch missile notification regime with China, inviting China to observe a New START inspection, establishing a link between the U.S. Nuclear Risk Reduction Center and a Chinese counterpart, and even building on Obama administration progress with China to develop norms for outer space.[72]

Arms control is not an end in itself, of course. It has to serve U.S. strategic objectives.[73] In the Cold War, the United States used arms control both to cap the arms race and, at times, to channel it into areas of competition more favorable to the United States. Although current prospects for arms control with China are dim, the U.S. relationship with the Soviets was adversarial, too. The two sides still found common ground in making some of their forces more transparent to the other in ways that would reduce the likelihood of dangerous misperceptions in a crisis. Despite China's long-standing resistance to greater transparency, the United States should continue trying to engage China in both government-to-government and non-governmental dialogue on nuclear issues, with an eye toward developing an arms control framework over the longer term.[74]

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ACKNOWLEDGEMENTS

For feedback on earlier drafts, I thank Fiona Cunningham, Brendan Green, Alex Lennon, Austin Long, Frank Rose, and an anonymous reviewer. For related conversations that sharpened my thinking, I thank Elbridge Colby, Owen Cote, Taylor Fravel, Charles Glaser, Avery Goldstein, Hans Kristensen, Keir Lieber, Vipin Narang, Michael O'Hanlon, Philip Saunders, and my students. Any errors or shortcomings are my responsibility alone.