The Revival of Nuclear Competition in an Altered Geopolitical Context: A Chinese Perspective

Li Bin

The U.S. government considers "power competition" to be the nature of the relations among big powers, and that it will have an impact on the evolving nuclear order in the near future. When big powers worry about power challenges from their rivals, they may use the influence of nuclear weapons to defend their own power and therefore intensify the danger of nuclear confrontation. We need to manage the nuclear relations among nuclear-weapon states and nuclear-armed states to avoid the risk of nuclear escalation. The fact is that big powers including the United States have neither the interest nor the capability to expand their power, and understanding this might cause big powers to lose their interest in power competition. If we promote dialogue among nuclear-weapon states and nuclear-armed states on their strategic objectives, it is possible to reduce the power competition that results from misperceptions and overreactions. Some other factors, for example, non-nuclear technologies and multinuclear players, could complicate the future nuclear order. We therefore need to manage these factors as well and develop international cooperation to mitigate nuclear competition.

A central element of the Cold War was the nuclear arms race between the United States and the Soviet Union, both superpowers seeking nuclear quantitative superiority and the ability to offer nuclear umbrellas to their allies, vying for leading influence in the world. Among states and observers today, there is a growing concern that nuclear competition will once again shape the global order.

In its 2017 National Security Strategy (NSS), the United States accused Russia and China of challenging American power, influence, and interests and of expanding their own influence. According to this report, "great power competition returned. China and Russia began to reassert their influence regionally and globally."[1] The position of the United States was that China and Russia were expanding their power (and influence) and the United States had to respond.

https://doi.org/10.1162/DAED_a_01789

To understand the future of nuclear competition, this essay considers the evolution of the pattern of power in the world since the end of the Cold War. If the United States, Russia, and China plan to expand their power as indicated in the NSS, nuclear weapons and other strategic capabilities would become tools for power expansion and a Cold War–type nuclear arms race would return.

Even if the United States, Russia, and China do not plan to expand their power, misperceptions could still cause a power competition: worrying or assuming the others are seeking to expand their power and reacting accordingly. In this case, nuclear-armed states may have new nuclear competition, but it would not be directly associated with power expansion. The patterns of nuclear competition would be qualitatively more complicated while quantitatively less intensive than the Cold War nuclear arms race.

The end of the Cold War three decades ago brought enormous and immediate changes to the world, including shifts in the global conventional military force structure and the geopolitical landscape. The changes came so unpredictably, the international community spent years absorbing the end of the war's long-term effects, some of which extend into today: for instance, a struggle between a unipolar U.S. dominance on general political and economic issues and bipolar nuclear arrangements between the United States and Russia.

In this period, the global power distribution experienced significant changes, including: 1) Russia's dramatic drop in military resources; 2) the United States' emergence as the only superpower; and 3) the growth of the number of nuclear-armed countries. Still more elements of the power distribution are changing now or may change in the coming decade. These changes necessitate different approaches than before or during the Cold War.

First and most important, Russia's dramatic loss of its military resources at the end of the Cold War caused significant declination of Russia's military capability, forcing them to withdraw most of their military deployments from Eastern Europe and other parts of the world. Many of Russia's former allies left or even became its rivals. Most of Russia's international influence was lost. Its nuclear force, however, fared differently than its conventional force. In the last three decades, Russia has labored to keep at least a symbolic nuclear parity with the United States. The Strategic Arms Reduction Treaty (START I) signed by the United States and Russia in 1991 set limits on the comparable numbers of operationally deployed nuclear warheads in the two countries.[2] But Russia does not have the resources to compete against the United States in other nuclear aspects, for example, keeping a backup strategic nuclear arsenal.

Second, the end of the Cold War left the United States as the only superpower in the world. The U.S. military machine had been built mostly to counter Soviet military capability; after the disintegration of the Soviet Union, the United

States suddenly gained a huge military surplus over all other countries. As a consequence, the United States began its three-decade expansion of power.

Some of the expansion was conducted through peaceful military means, for example, absorbing former Soviet allies into the North Atlantic Treaty Organization (NATO). The U.S. power expansion in this way has been quite successful and sustainable. The United States also attempted to use war as a way to expand its power, for example, in the former Yugoslavia and the Middle East, but most of these efforts failed. The major resistance to U.S. power expansion by war, as noted in the 2017 NSS, came from the social instabilities of targeted countries, rather than a counterbalance by other big powers, with the exception of Syria. There is no evidence that China ever supported any proxy war against the United States during this time.[3] The United States has spent trillions of dollars prosecuting those wars, with civilian casualty estimates in the hundreds of thousands, but has little to show for it in terms of expansion of power.

Third, three more countries, namely, India, Pakistan, and North Korea, have publicly announced their nuclear weapon capabilities by detonating nuclear devices in tests, adding new nuclear relationships and concerns to the world.

More recently, and continuing into today, three other major developments have cast influence over behaviors in and perceptions of global power structures. The first is the significant growth of political and economic costs of power expansion. With more clearly defined national identities and political structures, many societies would not want to become long-term allies of any big power or join its spheres of economic or military influence. And as the United States has shown, it is not so simple to prop up and sustain friendly governments, even after you have invaded and militarily defeated its predecessor.

The growing costs are changing the attitudes of big players toward the expansion of their power. Even if some national decision-makers have ambitions of power expansion, the huge costs should eventually discourage and constrain them from doing so. The consequence is that big powers are losing interest in expanding their influence.

The second changing element is that the United States now has adopted a policy on power competition with two faces. One is that the U.S. government defines its relations with China and Russia as a power competition, meaning that these countries try to undermine the United States' influence, which prompts the United States to respond. The United States has issued various documents planning for power competition; nuclear weapons and other strategic military capabilities are considered tools of power competition; and power competition has once again become a major paradigm in security studies in the United States. The second face of the U.S. policy is that the United States has become much more reluctant to pay the costs of expanding its sphere of influence: it is withdrawing from

some important nuclear arms control, disarmament, and nonproliferation institutions; it has been considering withdrawing from some military deployments abroad; and it threatens its allies with the removal of military protections if they do not pay higher prices for them. This double-faced policy shows that the United States is losing interest in expanding its power, but is also allergic to any sign that other countries may actively challenge the U.S. hegemonic position.

The two faces of U.S. policy on power competition may lead to two different paths. If the United States, Russia, and China each believe the others are challenging their power and thus engage in a power competition, the world situation in the coming decade would become more confrontational and dangerous and the role of nuclear weapons may grow. If they come to understand that power expansion is not a major problem among them, the shadow and the paradigm of power competition would recede from the center of big-power relations. Before taking one of these divergent paths, we need to manage carefully these nuclear weapon relations to avoid nuclear confrontation and conflict.

The third changing element is that various non-nuclear technologies – including space and cyber technologies and artificial intelligence – are becoming more important at the strategic level and complicate the nuclear calculation.

China began to experience quick changes in 1978, one decade before the end of the Cold War. China's policy of reform and openness unleashed its economic vigor, and its economy has expanded quickly ever since. Its GDP grew from $149.5 billion (USD) in 1978 to $12.23 trillion (USD) in 2017.[4] In the last forty years, China's GDP has surpassed many industrial countries and is now second in the world, after the United States.

Besides the size of its economy, the contents of its economy have also changed dramatically. China has made big progress in machinery, electronics, telecommunications, and other sophisticated high-tech industries. Technology-intensive exports have gradually replaced a significant number of labor-intensive ones. China's economic performance has made it one of the most active economic drivers in the world.

China also began in 1978 to engage substantially with the international society at various multilateral forums. In the 1980s, China entered a peak period of participation with international institutions on nuclear and other security subjects. It sent representatives and technical experts to international organizations and they brought international standards back to China. For example, China joined the International Atomic Energy Agency (IAEA) in 1984 and signed important documents in the following years on nuclear security and safety. In 1992, China participated in the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and worked with other countries to extend this treaty indefinitely without any conditions. From 1993 to 1996, China was involved fully in the negotiation of the

Comprehensive Nuclear-Test-Ban Treaty (CTBT) and signed it after the treaty was concluded. During the Obama administration, China was an active participant and supporter of the four nuclear security summits led by the United States.

The NATO bombing of the Chinese embassy in the former Yugoslavia in 1999 significantly changed the debates in China, which for the first twenty years of reform had undoubtedly prioritized economic development over security.[5] China began to invest more in its military after the incident. In the twenty years since the bombing, the People's Liberation Army (PLA) has made great efforts to deploy new technologies in its conventional force so it can shift away from its reliance on manpower alone. The ongoing reform and reorganization of the PLA is part of the same efforts. China's growing conventional military strength is a changing element although it still lags behind that of the United States.

Another changing element in China is its growing overseas interests. Originally, China's openness policy was largely about hosting investments from abroad, but eventually covered import and export of goods, international services and investments, and technology cooperation. China has since become an integrated part of the international economic system and relies on international resources, markets, investments, and technologies.

Yet China's growing overseas interests do not necessarily lead to a revisionist policy. China has made great contributions to and has received tremendous benefits from the international system, and has no reason to change it. China fully understands that its economic interests are very relevant to the performances of other economies. China's Belt and Road Initiative, for example, seeks more opportunities for openness in a larger area of the world. There is no evidence that China is using its military capability to control any other country or has a plan to do so. At a conference organized by Tsinghua University in Beijing in 2019, Chinese Vice President Wang Qishan reaffirmed that "China has constantly adhered to the path of peaceful development and will never seek hegemony, expansion or a sphere of influence."[6]

China has also invested in its nuclear arsenal, but its nuclear weapon policy and capability are unchanged. According to Stockholm International Peace Research Institute (SIPRI) statistics, China has zero deployed nuclear weapons, while the United States has 1,750 ; China has 280 nuclear weapons in total, the United States has 6,450.[7] While the total number of Chinese nuclear weapons has increased in the last few decades, compared with the United States, the number is still very small. There is no chance that China will increase the size of its nuclear force to the level of either the United States or Russia.

The small number of Chinese nuclear weapons in total is derived from a criterion developed by the first-generation leaders of the People's Republic of China. They believed that if China had a small number of nuclear weapons for retaliation, it would be enough to deter a nuclear attack from nuclear superpowers.[8] The

calculation behind this number is that most Chinese nuclear weapons would likely be destroyed by a preemptive nuclear strike or stopped by rival missile defense, but the few surviving nuclear weapons would be sufficient for deterrence. The criterion is much smaller than the criterion for deterrence set by then–U.S. Secretary of Defense Robert McNamara, which requires a few hundred surviving retaliatory nuclear weapons to threaten unacceptable damages. The Chinese criterion of a few retaliatory nuclear warheads is accepted by most Chinese strategists and has been a guiding principle in China's nuclear weapons policy.

A problem with this criterion, however, is that it does not have any redundancy or hedge. Damages caused by a few detonated nuclear warheads may be unacceptable, but it is possible that an adversary could believe it had the power to contain the threat. The situation could encourage China's rivals to think about undermining the few Chinese retaliatory nuclear weapons: that if China only had a few surviving nuclear weapons following an attack, then with a bit more effort, that number could effectively be reduced to zero. In the United States, some nuclear experts believe that damage limitation vis-à-vis China is a feasible and desirable strategy.[9] Some Chinese strategists therefore worry about the possibility that China's very thin nuclear retaliatory capability would be denied by some U.S. damage limitation approaches, such as missile defense or conventional strikes.

In the United States, China's nuclear parity is not an important topic of debate. The real lasting point is whether the United States should recognize that China has nuclear deterrence capability against it. The Obama administration tried to use the language of "strategic stability" to end the debate, but the effort failed: American strategists continue to suggest that China has some nuclear deterrence vis-à-vis the United States, but the deterrence is not obvious or reliable.

China has struggled to build creditable nuclear deterrence, in which a few Chinese retaliatory nuclear weapons could survive a U.S. first strike and penetrate U.S. missile defense. China also needs to add some redundancy so its few retaliatory nuclear warheads would not be denied by new U.S. countermeasure efforts. With its nuclear force at its current level, it would be impossible for China to seek nuclear parity with the United States or use its nuclear weapons for power expansion.

China's no-first-use policy not only stops some of its choices in nuclear weapon development and deployment, it also constrains itself from using the coercive influences of its nuclear weapons. In a no-first-use framework, China cannot exercise the influence of its nuclear weapons unless it first receives a threat of nuclear attack.

The existing nuclear order was developed largely in the latter part of the Cold War and early years after its end. Now the order may be changed due to four factors: 1) a country using its nuclear weapons for power

expansion; 2) big powers seeking to expand their power; 3) the importance and use of non-nuclear factors, such as space and cyber technologies; and 4) the presence of multiple players in the new nuclear order.

If big powers want to use their nuclear weapons to expand their power, there will be an intensive nuclear arms race as we saw in the Cold War. If nuclear weapons are treated only for security purposes, the world nuclear order would be very different. However, there is no explicit demarcation between nuclear weapon policies for power and those for security because the two policies have some overlap. But it is still possible to find useful characteristics for one of the two policies. The Cold War gives us a lot of experience and lessons on this issue.

The number of nuclear weapons in a country is an important indicator of the weapons' purpose. Nuclear weapons have nonlinear effects of destruction, so the security meaning of the total number of nuclear weapons is not important when the number of retaliatory warheads is larger than the McNamara criterion. If a country regards its nuclear weapons as tools for a hegemonic purpose, it would not tolerate other countries (whether allies or rivals) having more nuclear weapons than it does. This was the situation between the United States and the Soviet Union during the Cold War: neither wanted the other to have quantitative nuclear superiority, resulting in an intensive nuclear arms race. After the United States and the Soviet Union began their strategic limitation and reduction process in 1972, a parity has always been a number-one requirement in their negotiations. If nuclear-weapon states – the five states officially recognized as possessing nuclear weapons by the NPT, including the United States, Russia, the United Kingdom, France, and China – or other nuclear-armed states do not have the ambition to expand their power and to seek a hegemonic status in the world, they would not have the ambition to increase the size of their nuclear arsenal to such a level.

Another way to expand power over a country's sphere of influence is by offering nuclear umbrellas to allies. During the Cold War, both the United States and the Soviet Union provided extended nuclear deterrence to their allies and therefore strengthened their own influence. After the Cold War, under its expansionist policy, the United States continued to develop more military alliances and to offer more extended nuclear deterrence to new allies. This trend seemed to end recently, however. If any nuclear-weapon state or nuclear-armed state offers nuclear umbrellas to more allies, it is an indicator that the state may want to expand power.

Today, the United States maintains a hegemonic position; it does not have to increase the number of its nuclear weapons. But a concern that other countries might challenge its hegemonic position keeps the United States sensitive to the numbers of nuclear weapons in other countries. Russia is a declining former superpower. It is difficult for Russia to wield the influence of its nuclear weapons to expand its power because it does not have the necessary conventional military or economic resources to support such an expansion. Russia may consider a large

number of nuclear weapons as a way to protect its shrinking sphere of influence, but that has not stopped NATO growth eastward.

China has repeatedly stated that it would not engage in a nuclear arms race with any country. The number of Chinese nuclear weapons is far below the numbers in the United States and Russia, and there is no possibility for China to reach a nuclear parity in the coming decades, even if it had the ambition to do so. The interpretation is that China will not seek a large number of nuclear weapons for hegemonic purposes.[10]

After the end of the Cold War, the United States offered a nuclear umbrella to its new allies and expanded its power. In recent years, the United States has not developed any new military alliances or offered any new nuclear umbrellas. Its extended nuclear deterrence is now more about maintaining its power than expanding it. Conversely, Russia lost most of its allies after the end of the Cold War. Its nuclear umbrellas cover very few countries and are only useful in maintaining Russia's influence over a very small region. China does not offer a nuclear umbrella to any foreign country. It does not have any intention to do so in the future. This suggests that China has no interest in power expansion via the influence of its nuclear weapons.

Nuclear weapons may naturally have some deterrent influences useful to maintaining the status quo, but they do not necessarily generate influence to change the status quo. If a country wants to use the influence of its nuclear weapons for compelling purposes, it must develop a strategy to link its nuclear weapon use to conventional conflicts. The idea is to use its conventional military force to compel the enemy and use its nuclear weapons to deter possible conventional responses from the enemy. The United States formally issued its 2018 Nuclear Posture Review to threaten the use of low-yield nuclear warheads in conventional conflicts.[11] The same document accuses Russia of taking an escalation and de-escalation strategy that would have similar compelling effects for other countries. The U.S. and Russian nuclear strategies suggest that they may use their nuclear weapons for compelling purposes in regional situations. China's no-first-use strategy constrains itself from linking its nuclear weapon use to conventional conflicts. Therefore, it cannot make use of the compelling effects of nuclear weapons.

The United States is becoming reluctant to further its power expansion; Russia and China do not have such ambitions either. If these countries understand one another, they would not seek competition for power. Yet they may worry about power challenges from their rivals and perceive some behaviors of their rivals as power expansion, whether accurate or not. They may take defensive measures to resist perceived power challenges. As a consequence, their competition may escalate, following the pattern of power competition. This is similar to a security dilemma: a country takes a measure to defend its power while other countries see it as power expansion and respond to it with countermeasures.

The evolution of power competition in the future may proceed in the following two stages: In the first stage, big powers worry their rivals will challenge their power and react to misperceptions. In the second stage, big powers understand that no one has either the ambition or capability to expand its power. They either maintain or withdraw the scope of their influence. There would be different nuclear dangers in the two stages. In the first, big powers may create roles for their nuclear weapons to counter the perceived challenges to their power, as expressed in the U.S. 2018 Nuclear Posture Review. Some nuclear confrontations and crises may develop when countries rely heavily on nuclear weapons for power competition. In the second stage, big powers withdraw their power, leaving a power vacuum for regional actors. This would increase the risk of regional nuclear proliferation.

Non-nuclear factors can also shape future nuclear calculations. China began to worry about missile defense and space weapons in the 1980s. The primary concern was that the U.S. Strategic Defense Initiative would promote the revolution of new military sciences and technologies. This concern was not so much relevant to the nuclear weapons issue. China worried that it would either fall much more behind the developed countries on military technology or would have to exhaust its resources to deal with a new arms race. For this reason, China has repeatedly criticized missile defense and proposed to prevent space weaponization, while working to better understand these technologies.[12]

Another Chinese concern that developed in the later 1990s was that a nationwide missile defense would undermine China's nuclear retaliatory capability. This concern also applied to precision conventional strikes. These two technologies do not directly involve nuclear weapons, but they change calculations on nuclear stability. Chinese and American scholars have had many dialogues at different levels on this issue, and have not yet found a solution. The 2019 Missile Defense Review explains that the U.S. homeland missile defense system is not designed to counter missile threats from China or Russia but would be used in an event of nuclear conflict, yet this is little reassurance to China.[13]

Space technologies are also relevant to nuclear weapon issues in three ways. First, some space technologies may be used as tools to change strategic nuclear stability: intelligence satellites may be used to locate mobile missiles or space-based interceptors may be deployed to stop them.[14] Second, space-based early-warning systems are important in nuclear decision-making processes and are vulnerable to attacks.[15] Third, some space assets are considered as important as nuclear weapons in the theory of cross-domain deterrence. According to the theory, an attack against space assets may trigger nuclear retaliation.[16]

Cyber weapons could also be used to attack nuclear weapons, nuclear command and control systems, and other elements in the nuclear force structure. The United States is developing the Left of Launch Operation, for example, which may

involve cyber weapons.[17] On the one hand, cyberattacks may disable some or all nuclear weapons and therefore change calculations about strategic stability; on the other hand, the effects of cyber weapons are uncertain, so cyberattacks may create misunderstandings and encourage early or accidental use of nuclear weapons.

Some vehicles under development may become new delivery systems for nuclear weapons. One example is the hypersonic vehicle. The performance and uses of these new vehicles are not yet clear, but their potential to fly great distances at low altitude, beneath traditional radar, and maneuver to avoid interception would certainly complicate calculations on strategic stability.

Artificial intelligence (AI) will also complicate future nuclear calculations. AI technologies may help locate nuclear targets and help improve the stealth of nuclear weapons. The result of competition between offense and defense might be very complicated. The technologies could also contribute to nuclear decision-making in stabilizing or destabilizing ways, depending on how people use the technologies.

As the number of nuclear players has grown, the new nuclear multipolarity has changed the nuclear order. After the end of the Cold War, Russia lost significant military resources, but has since made efforts to maintain a nuclear parity with the United States. Previous U.S. administrations at least acknowledged nuclear parity with Russia in their bilateral nuclear reductions, but the Trump administration may not have an interest in maintaining parity with Russia. No other nuclear-weapon state or nuclear-armed state has the capability to increase the size of its nuclear force to the level of the United States or Russia. The bipolar nuclear order will be abated. The new nuclear order will be a hierarchy: the first level is the United States; the second level is Russia; the third level is China, the United Kingdom, and France; and the fourth level is India, Pakistan, and Israel. The position of North Korea will depend on efforts to halt its nuclear weapons program. Nuclear threshold countries – countries that possess the technology to build nuclear weapons but have not yet done so – and nonstate actors could also cause proliferation dangers.

This all suggests that the global nuclear order may experience two future stages. In the first stage, the risks of nuclear confrontations and crises will mostly come from nuclear competition due to misperceptions and overreactions about power competition; in the second stage, the risks of nuclear dangers will mostly come from new non-nuclear technologies and new nuclear players.

International cooperation is necessary to stabilize the current and future nuclear order. Nuclear-weapon states and other members of the international community need to develop dialogues to explore possible cooperation on their strategic objectives and on concrete arrangements about nuclear issues.

The most important topic would be the strategic objectives of different countries. Strategic experts and governmental officials from nuclear-weapon states and other international members should meet to explain the strategic objectives

of their countries, to express their concerns over power challenges from other countries, and to clarify misunderstandings. This would help explain the nature of competition among countries. If power competition is not a central element in the relations among nuclear-weapon states and nuclear-armed states, they would have a better chance to develop cooperation on nuclear issues.

The nuclear-weapon states and nuclear-armed states may develop or revive their cooperation in the following four categories. The first category of cooperation would be on nuclear security against nuclear terrorism. President Obama proposed and developed international cooperation on this issue, and it is far from gone. The nuclear-weapon states and other international members should continue to make joint efforts to secure nuclear materials and facilities around the world to prevent nuclear terrorism. China would be happy to join the cooperation if it can be maintained or revived.

The second category of cooperation would be the prevention of accidental nuclear war. Various new technologies may add difficulties in nuclear decision-making and increase the risks of accidental nuclear war. For example, a cyber operation that aims to disable an enemy's nuclear weapons could mistakenly trigger the launch of the enemy's nuclear weapons instead. Cyber operations could also create false alerts in the rival's decision-making process and the rival may mistakenly launch a nuclear attack in retaliation. Nuclear-weapon states should have discussions at governmental or nongovernmental levels to understand the risks and thereby develop mutual understanding and a code of conduct to avoid accidental nuclear war.

A variety of non-nuclear activities run the risk of causing accidents. For example, some space activities may be identified as nuclear attacks; some AI technologies may misdiagnose signals as nuclear threats. Thus, multidisciplinary experts are needed to explore and fix potential problems. The efforts are in the interests of all nuclear-weapon states, and all of them, including China, should encourage their experts to join such discussions. The P5 states, which include China, France, Russia, the United Kingdom, and the United States, should share useful codes of conduct they develop with other countries, especially nuclear-armed ones, so they can become more careful and aware of participants in the nuclear community.

The third category of cooperation would be on nuclear nonproliferation. This includes general nonproliferation arrangements, for example, the strengthening of the NPT and other nuclear nonproliferation regimes. This class of cooperation includes joint efforts on specific nonproliferation cases, such as in Iran and North Korea. The United States should consider returning to the Joint Comprehensive Plan of Action. We also need more efforts in designing a road map of denuclearization and peace-building in North Korea. Nuclear-weapon states may have some difficulties in reaching a consensus on some of the nonproliferation issues, but they need to exchange views and positions. China should continue to play an important role in all these efforts.

The fourth category of cooperation would be on strategic stability. This includes many topics, such as strategic reductions and missile defense. The P5 had some good cooperation in this category. For example, the P5 states have a working group on nuclear disarmament terminology and one on the verification of deep nuclear reductions. The two working groups had good cooperation and produced some important products.[18] China should work with other nuclear-weapon states to explore new solutions on possible limits on missile defense and on deep strategic nuclear reduction. The limits on missile defense could be about the number of interceptors or about the size of the protection of the missile defense systems.[19] So far, the counting rules in the U.S.-Russia strategic reduction treaties cannot apply to China. The Chinese experts should work with their counterparts in other nuclear-weapon states to explore new counting rules that are universally useful.

ABOUT THE AUTHOR

Li Bin is a Professor of Tsinghua University's Department of International Relations. He is the author of *Arms Control Theories and Analysis* (2007) and has been published in such journals as *Bulletin of the Atomic Scientists* and *Science & Global Security*.

ENDNOTES

[1] The White House, *National Security Strategy of the United States of America* (Washington, D.C.: The White House, 2017), 2, 27, https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf.

[2] For an explanation of this counting rule, see Treaty between the United States of America and the Union of Soviet Socialist Republics on the Reduction and Limitation of Strategic Offensive Arms, Moscow, Russia, July 31, 1991, Article III, accessed via Federation of American Scientists, https://fas.org/nuke/control/start1/text/start1.htm.

[3] Some research suggests that when it followed an expansionist policy, the United States did not receive a hard balance (challenging U.S. military preponderance), but might have received some soft balance (using international institutions, economic statecraft, and diplomatic arrangements to delay, frustrate, and undermine U.S. policies). See Robert A. Pape, "Soft Balancing against the United States," *International Security* 30 (1) (2005): 7–45.

[4] World Bank and OECD National Accounts, "GDP (Current US$)–China," https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=CN.

[5] See the speech of Jiang Zeming after the NATO bombing of the Chinese embassy in Yugoslavia. According to Zemin, "经济建设是中心，国防建设也要不断加强" ["Economic development is still our focus, while the construction of national defense should be strengthened gradually"; author's translation]. "Jiang Zemin Speaks after Bombing

of Chinese Embassy in 1999," *People's Daily Online*, September 3, 2014, http://history.people.com.cn/n/2014/0903/c372327-25595103.html.

[6] "China Calls for More Equitable, Stable Int'l Order," China Plus, July 8, 2019, http://chinaplus.cri.cn/news/politics/11/20190708/313879.html.

[7] "Modernization of Nuclear Weapons Continues; Number of Peacekeepers Declines: New SIPRI Yearbook Out Now," Stockholm International Peace Research Institute, June 18, 2018, https://www.sipri.org/media/press-release/2018/modernization-nuclear-weapons-continues-number-peacekeepers-declines-new-sipri-yearbook-out-now.

[8] Sun Xiangli, "Mao Zedong's Strategic Thinking on Nuclear Weapons Is Always Brilliant [毛泽东关于核武器的战略思想永放光芒]," *Chinese Journal of Military Conversion to Civilian Purposes* 10 (2014): 16–20.

[9] See the debates in Charles L. Glaser and Steve Fetter, "Should the United States Reject MAD? Damage Limitation and U.S. Nuclear Strategy toward China," *International Security* 41 (1) (2016): 49–98; and Matthew Kroenig, "Correspondence: The Limits of Damage Limitation," *International Security* 42 (1) (2017): 199–201.

[10] On the relation between a quantitative nuclear arms race and power competition, see Li Bin, "Differences between Chinese and U.S. Nuclear Thinking and Their Origins," in *Understanding Chinese Nuclear Thinking*, ed. Li Bin and Tong Zhao (Washington, D.C.: Carnegie Endowment for International Peace, 2016), 11–13.

[11] U.S. Department of Defense, *Nuclear Posture Review* (Washington, D.C.: Office of the Secretary of Defense, 2018), xii, https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.pdf.

[12] Li, "Differences between Chinese and U.S. Nuclear Thinking and Their Origins," 7–8.

[13] U.S. Department of Defense, *2019 Missile Defense Review* (Washington, D.C.: Office of the Secretary of Defense, 2019), xii, https://media.defense.gov/2019/Jan/17/2002080666/-1/-1/1/2019-MISSILE-DEFENSE-REVIEW.pdf.

[14] Li Bin, "Tracking Chinese Strategic Mobile Missiles," *Science and Global Security* 15 (2007): 1–30; and U.S. Department of Defense, *2019 Missile Defense Review*, xi.

[15] Tong Zhao and Li Bin, "The Underappreciated Risks of Entanglement: A Chinese Perspective," in *Entanglement: Russian and Chinese Perspectives on Non-Nuclear Weapons and Nuclear Risks*, ed. James M. Acton (Washington, D.C.: Carnegie Endowment for International Peace, 2017), 51–53, https://carnegieendowment.org/files/Entanglement_interior_FNL.pdf.

[16] King Mallory, "New Challenges in Cross-Domain Deterrence," PE-259-OSD (Santa Monica, Calif.: RAND Corporation, 2018), 7, https://www.rand.org/pubs/perspectives/PE259.html.

[17] Riki Ellison, "Left of Launch," March 16, 2015, https://missiledefenseadvocacy.org/alert/3132/.

[18] Andrea Berger, "The P5 Nuclear Dialogue–Five Years On," occasional paper (London: Royal United Services Institute, 2014), https://rusi.org/sites/default/files/201407_op_the_p5_nuclear_dialogue.pdf.

[19] Li Bin, "China's Attitudes toward Missile Defense and Its Limitation," *Bulletin of the Atomic Scientists* 74 (4) (2018): 243–247.