

Sharing the Bomb:
Nonproliferation, Deterrence, and
Foreign Nuclear Deployments

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Introduction

When the United States dropped an atomic bomb on Hiroshima, Japan in August 1945, it launched a grand contest between two forces: nations determined to prevent the spread of nuclear weapons, and those determined to acquire their own. Early hopes of a long-lasting American atomic monopoly were dashed by the Soviet Union's first atomic test in 1949, followed by Great Britain in 1952, France in 1960, and China in 1964. Three more nations (Israel, India, and South Africa) successfully crossed the nuclear threshold by 1980, and by 1990 Pakistan had joined the nuclear club as well.

Since the end of the Cold War, however, the pace of nuclear proliferation appears to have slowed dramatically. Just two countries (North Korea and Pakistan) have conducted inaugural nuclear tests since 1990. Yet the production of scholarship and commentary about the causes of nuclear proliferation continues at a rapid clip.¹ The central questions in this literature are twofold. First, how can we explain why some states build nuclear weapons but not others? Second, how can barriers to nuclear proliferation be strengthened? At the heart of these questions is a presumption that the world is divided into two classes of nations: those that possess their own nuclear capabilities and those that do not.

But there is a third group, straddling the boundary between the nuclear haves and have-nots: countries that play host to another country's nuclear forces. Five countries today – Belgium, Germany, Italy, Netherlands, and Turkey – host nuclear weapons

¹ For reviews of recent literature on nuclear proliferation, see Scott D. Sagan, "The Causes of Nuclear Weapons Proliferation," *Annual Review of Political Science*, Vol. 14 (2011), pp. 225–44; Jacques E. C. Hymans, "Theories of Nuclear Proliferation: The State of the Field," *Nonproliferation Review*, Vol. 13, No. 3 (2006), pp. 455–65; and Scott D. Sagan, "Why Do States Build Nuclear Weapons? Three Models in Search of a Bomb," *International Security*, Vol. 21, No. 3 (1996/1997), pp. 54–86.

which, technically, do not belong to them. All five are NATO members, housing a total of perhaps 200 B-61 gravity bombs belonging to the United States.² These countries represent the last of a group that numbered more than twenty during the Cold War – more than twice the number that built their own nuclear arsenals. This club includes countries such as Morocco, Denmark, and Canada. Unsurprisingly, the United States accounts for most of the cases of foreign-deployed nuclear weapons during the nuclear age. At its peak in the early 1960s, the United States had nuclear weapons stationed in at least 14 foreign countries.³ However, the United States was not alone: both the Soviet Union and Great Britain also stationed portions of the nuclear arsenals abroad. The Soviet Union stationed weapons in Czechoslovakia, Poland, and even Mongolia, while the British deployed nuclear weapons to Cyprus, Singapore, and West Germany.⁴

The consequences of nuclear proliferation have been the subject of intense scrutiny since the beginning of the nuclear age. For decades, scholars and analysts have debated whether the spread of nuclear weapons will undermine international stability,⁵ increase low-intensity conflicts,⁶ lead to nuclear accidents,⁷ increase the risk of nuclear terrorism,⁸

² See Hans M. Kristensen, *Non-Strategic Nuclear Weapons*, Special Report No. 3 (Washington, D.C.: Federation of American Scientists, 2012), pp. 15–22.

³ It is perhaps ironic that the apex of U.S. foreign nuclear deployments coincided with the Cuban missile crisis, when the United States turned back the Soviet Union’s attempt to station nuclear weapons in Cuba.

⁴ The discussion in this chapter focuses on nuclear weapons that were based on foreign territory, but excludes seaborne weapons that may have made foreign port calls.

⁵ Scott D. Sagan and Kenneth N. Waltz, *The Spread of Nuclear Weapons: An Enduring Debate* (New York: W.W. Norton, 2013); and Peter R. Lavoy, “The Strategic Consequences of Nuclear Proliferation: A Review Essay,” *Security Studies*, Vol. 4, No. 4 (1995), pp. 695–753.

⁶ Robert Rauchhaus, “Evaluating the Nuclear Peace Hypothesis: A Quantitative Approach,” *Journal of Conflict Resolution*, Vol. 53, No. 2 (2009), pp. 258–77; and Mark S. Bell and Nicholas L. Miller, “Questioning the Effect of Nuclear Weapons on Conflict,” *Journal of Conflict Resolution*, Vol. 59, No. 1 (2015), pp. 74–92.

⁷ Scott D. Sagan, *The Limits of Safety: Organizations, Accidents, and Nuclear*

and lead to coercion and blackmail,⁹ among a variety of other consequences. These debates have employed a variety of research tools, including the use of declassified archives, sophisticated quantitative modeling, and even game theory.¹⁰ The contours of these debates are widely recognized, even if many historical and theoretical disagreements remain. As a result, our understanding of the effects of indigenous nuclear proliferation is now well-developed.

By contrast, we know comparatively little about the political and strategic consequences of *foreign-deployed* nuclear weapons.¹¹ What implications do these deployments carry for the nonproliferation regime? How do they shape international stability? And what can we expect the future of foreign-deployed nuclear weapons to look like?

Weapons (Princeton, N.J.: Princeton University Press, 1993); Bradley A. Thayer, “The Risk of Nuclear Inadvertence: A Review Essay,” *Security Studies*, Vol. 3, No. 3 (1994), pp. 428–93.

⁸ Graham Allison, *Nuclear Terrorism: The Ultimate Preventable Catastrophe* (New York: Macmillan, 2004).

⁹ Kyle Beardsley and Victor Asal, “Winning with the Bomb,” *Journal of Conflict Resolution*, Vol. 53, No. 2 (2009), pp. 278–301; Todd S. Sechser and Matthew Fuhrmann, “Crisis Bargaining and Nuclear Blackmail,” *International Organization*, Vol. 67, No. 1 (2013), pp. 173–95; and Todd S. Sechser, “Militarized Compellent Threats, 1918–2001,” *Conflict Management and Peace Science*, Vol. 28, No. 4 (2011), pp. 377–401.

¹⁰ A recent exchange, for example, considered the usefulness of statistical methods in nuclear security studies. Francis J. Gavin, “What We Talk About When We Talk About Nuclear Weapons: A Review Essay,” *H-Diplo/International Security Studies Forum*, No. 2 (2014), pp. 11–36; and Matthew Fuhrmann, Matthew Kroenig, and Todd S. Sechser, “The Case for Using Statistics to Study Nuclear Security,” *H-Diplo/International Security Studies Forum*, No. 2 (2014), pp. 37–54. Both available at <http://issforum.org/ISSF/PDF/ISSF-Forum-2.pdf>.

¹¹ Exceptions include Matthew Fuhrmann and Todd S. Sechser, “Signaling Alliance Commitments: Hand-Tying and Sunk Costs in Extended Nuclear Deterrence,” *American Journal of Political Science*, Vol. 58, No. 4 (2014), pp. 919–35; Dan Reiter, “Security Commitments and Nuclear Proliferation,” *Foreign Policy Analysis*, Vol. 10, No. 1 (2014), pp. 61–80; and Matthew Fuhrmann and Todd S. Sechser, “Nuclear Strategy, Nonproliferation, and the Causes of Foreign Nuclear Deployments,” *Journal of Conflict Resolution*, Vol. 58, No. 3 (2014), pp. 455–80.

These questions are especially relevant today. In the United States, the utility of keeping U.S. nuclear weapons in Europe has prompted considerable debate among policymakers and analysts. While some U.S. observers have called for the reduction or elimination of forward-deployed nuclear weapons,¹² others have argued for maintaining or even expanding them.¹³ Elsewhere, U.S. nuclear sharing arrangements have prompted criticism from members of the Non-Proliferation Treaty (NPT). At the 2010 NPT Review Conference, for example, members of the Non-Aligned Movement asserted that NATO's nuclear sharing policies are "unjustifiable" and contravene the NPT.¹⁴ At the same time, some have speculated that Pakistan may soon embark on a nuclear sharing initiative of its own with Saudi Arabia.¹⁵ And some lawmakers in South Korea have called for the United States to redeploy tactical nuclear weapons to the Korean peninsula – a sentiment supported by key conservatives in the U.S. Congress.¹⁶ A quarter-century after the end of the Cold War, the foreign deployment of nuclear weapons remains a salient foreign policy issue.

This chapter examines two central questions: First, what are the origins of the NPT's apparent loophole for foreign nuclear deployments? Second, what are its broader effects?

¹² For example, see Barry Blechman and Russell Rumbaugh, "Bombs Away: The Case for Phasing Out U.S. Tactical Nukes in Europe," *Foreign Affairs*, Vol. 93, No. 4 (2014), pp. 163–74.

¹³ Thomas Karako, "Characteristics of a Future Nuclear Force: Smaller, Lower, Newer, More Diverse, and More Integrated," in Clark Murdock, Samuel J. Brannen, Thomas Karako, and Angela Weaver, *Project Atom: A Competitive Strategies Approach to Defining U.S. Nuclear Strategy and Posture for 2025–2050* (Washington, D.C.: Center for Strategic and International Studies, 2015), pp. 97–115.

¹⁴ "Working Paper Submitted by the Members of the Group of Non-Aligned States Parties to the Treaty on the Non-Proliferation of Nuclear Weapons," NPT/CONF.2010/WP.46 (April 28, 2010), p. 3.

¹⁵ For example, see Shashak Joshi, *Iran's Nuclear Trajectory*, Whitehall Paper 79 (Royal United Services Institute for Defence and Security Studies, 2012), p. 111.

¹⁶ "House Panel Calls for Study of Refueling Tactical Nukes in Western Pacific," *Global Security Newswire* (May 11, 2012).

Specifically, the chapter surveys what we know – or think we know – about foreign-based nuclear weapons, taking stock of the most up-to-date academic and policy research on nonproliferation, deterrence, and alliance cohesion.

The central conclusions of this chapter are twofold. First, although there is arguably tension between nuclear sharing and the NPT, there is little clear evidence yet that foreign nuclear deployments undermine nonproliferation; indeed, in some cases such deployments actually appear to have strengthened barriers against the spread of nuclear weapons. Second, nuclear sharing neither significantly bolsters deterrence nor encourages reckless behavior by allies. In short, the available historical evidence suggests that both the costs and benefits of nuclear sharing have been overstated. Less certain, of course, is whether or not these patterns will persist into the future.

Nuclear Sharing: An Overview

The first deployment of complete nuclear weapons to foreign territory¹⁷ occurred in May 1954, when the United States delivered nuclear gravity bombs to Morocco. A few months later, Britain received U.S. bombs as well. Over the next decade, the United States added a dozen more countries to the list of nuclear hosts, including Belgium, Denmark, Greece, Italy, Netherlands, Philippines, South Korea, Spain, Taiwan, Turkey, and West Germany (see Table 1).¹⁸ West Germany hosted the largest number of U.S. nuclear weapons –

¹⁷ Here I exclude deployments to territories controlled by the nuclear state in question, such as U.S. deployments to Guam (beginning in 1951), Okinawa (beginning in 1954), Puerto Rico (beginning in 1956), and elsewhere.

¹⁸ For descriptions of these deployments, as well as deployments by Britain and the Soviet Union, see Matthew Fuhrmann and Todd S. Sechser, “Appendices for ‘Signaling Alliance Commitments: Hand-Tying and Sunk Costs in Extended Nuclear Deterrence,’” typescript, Texas A&M University and the University of Virginia (2014).

Table 1. *Foreign Deployments of Nuclear Weapons, 1950–2015.*

| — UNITED STATES — | | — SOVIET UNION — | |
|-------------------|-----------|-------------------|-----------|
| Belgium | 1963– | Cuba | 1962 |
| Britain | 1954–2006 | Czechoslovakia | 1965–1990 |
| Canada | 1964–1984 | East Germany | 1958–1991 |
| Denmark | 1958–1965 | Hungary | 1974–1989 |
| Greece | 1960–2001 | Mongolia | 1967–1992 |
| Italy | 1957– | Poland | 1969–1990 |
| Morocco | 1953–1961 | | |
| Netherlands | 1960– | — GREAT BRITAIN — | |
| Philippines | 1957–1977 | Cyprus | 1960–1975 |
| South Korea | 1958–1991 | Malaysia | 1962–1970 |
| Spain | 1958–1976 | (West) Germany | 1972–1998 |
| Taiwan | 1958–1974 | | |
| Turkey | 1959– | | |
| (West) Germany | 1955– | | |

Source: Matthew Fuhrmann and Todd S. Sechser, “Signaling Alliance Commitments: Hand-Tying and Sunk Costs in Extended Nuclear Deterrence,” *American Journal of Political Science*, Vol. 58, No. 4 (2014), p. 926.

more than 3,000 – as well as the widest variety, at one point storing at least 21 different types of U.S. nuclear weapons.¹⁹

Concerns about the security of these weapons prompted a reevaluation of U.S. foreign nuclear deployments in the 1970s, and by the middle of the decade the number of U.S.

¹⁹ Much of what we know about U.S. nuclear deployments abroad comes from a declassified 1978 report from the Department of Defense. Office of the Assistant to the Secretary of Defense (Atomic Energy), *History of the Custody and Deployment of Nuclear Weapons, July 1945 through September 1977* (February 1978), p. 177. Partially declassified and released under the Freedom of Information Act. For a terrific overview of this document, see Robert S. Norris, William M. Arkin, and William Burr, “Where They Were,” *Bulletin of the Atomic Scientists*, Vol. 55, No. 6 (1999), pp. 26–35 and 66–67.

weapons deployed abroad began to decline.²⁰ U.S. deployments to NATO countries, for example, peaked at 7,300 in 1971 (see Figure 1). By 1980, the United States had withdrawn its weapons from Denmark, Morocco, Philippines, Spain, and Taiwan, and had reduced its remaining deployments. In 1983 the United States decided to withdraw 1,400 warheads from Europe, and the Intermediate-Range Nuclear Forces (INF) Treaty of 1988 led to further reductions. The end of the Cold War, however, prompted the most significant pullback of U.S. nuclear weapons abroad. President George H.W. Bush terminated the U.S. nuclear deployment in South Korea altogether, and withdrew thousands more warheads from their remaining NATO hosts. By 1993, less than 1,000 U.S. nuclear warheads remained abroad. Today, the United States maintains nuclear deployments in five NATO countries, totaling perhaps 200 warheads.²¹

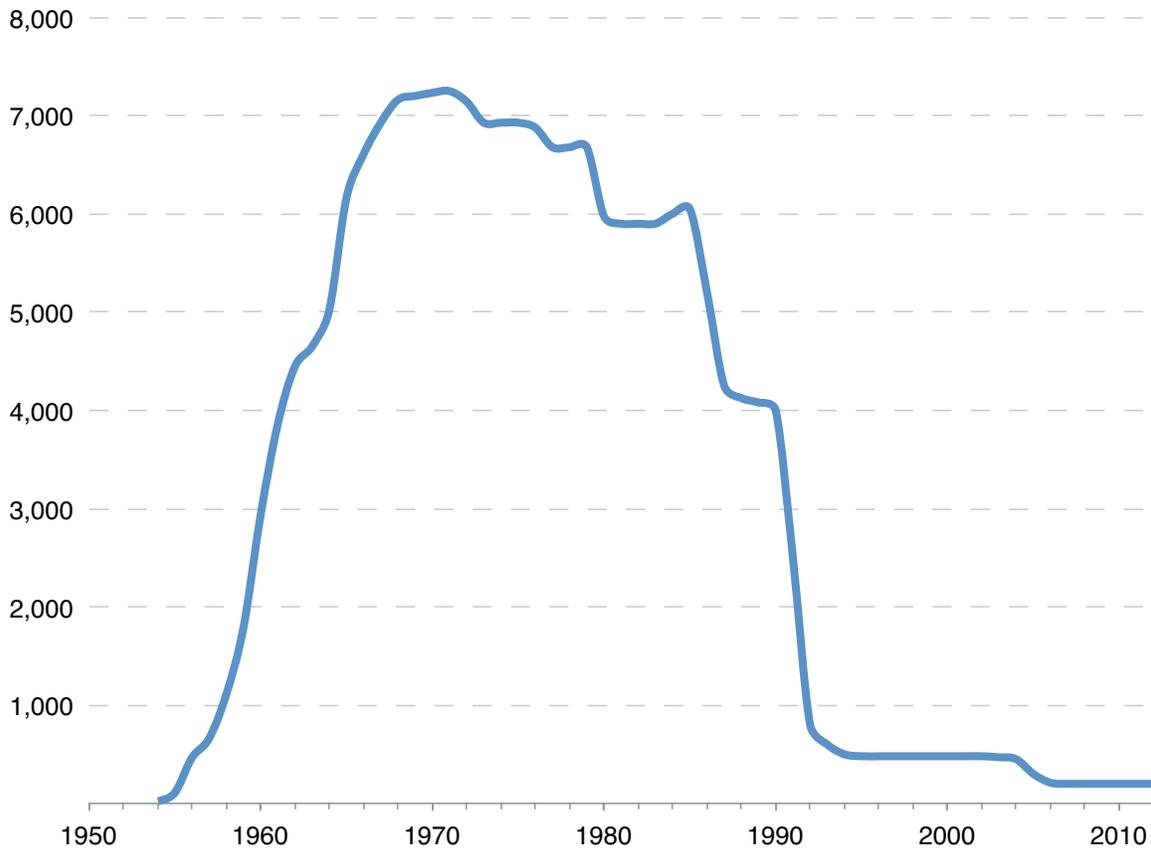
The United States, however, was not the only country to deploy nuclear weapons on allied territory during the Cold War. Great Britain stationed nuclear weapons in three countries: Cyprus, Singapore, and West Germany. All three deployments consisted of nuclear gravity bombs. The number of Britain's deployed weapons paled in comparison to the size of U.S. deployments, however, reaching totals of less than 100 warheads. Britain terminated its deployments in Singapore and Cyprus in the 1970s, but continued to station weapons in West Germany until 1998, when it withdrew its last remaining gravity bombs.²²

²⁰ See the discussion in Hans M. Kristensen, *U.S. Nuclear Weapons in Europe: A Review of Post-Cold War Policy, Force Levels, and War Planning* (New York: Natural Resources Defense Council, 2005).

²¹ Kristensen, *Non-Strategic Nuclear Weapons*. See also Robert S. Norris and Hans M. Kristensen, "U.S. Tactical Nuclear Weapons in Europe, 2011," *Bulletin of the Atomic Scientists*, Vol. 67, No. 1 (2011), pp. 64–73.

²² See Richard Moore, "Where Her Majesty's Weapons Were," *Bulletin of the Atomic Scientists*, Vol. 57, No. 1 (2001), pp. 58–64.

Figure 1. *U.S. Nuclear Warhead Deployments in NATO Europe, 1950–2012.*



Source: Hans M. Kristensen, *Non-Strategic Nuclear Weapons*, Special Report No. 3 (Washington, D.C.: Federation of American Scientists, 2012), p. 18.

The Soviet Union famously deployed nuclear weapons in Cuba in 1962, withdrawing them only after the Cuban missile crisis. The Soviets also deployed weapons to Mongolia, as well as several Eastern European countries, including Czechoslovakia, East Germany, Hungary, and Poland. While much less is known about these deployments, it appears that the first Soviet deployment abroad was to East Germany in the fall of 1958. Soviet deployments included a variety of weapons, including nuclear artillery, gravity bombs, and short-and intermediate-range ballistic missiles. The end of the Cold War

prompted the Soviets to withdraw their nuclear forces abroad, the last of which returned home in 1992.

Nuclear Sharing and the NPT

The Nuclear Non-Proliferation Treaty (NPT), which entered into force in 1970, explicitly prohibits the transfer of nuclear weapons between member states. Article I of the treaty states:

Each nuclear-weapon State Party to the Treaty undertakes not to transfer to any recipient whatsoever nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices directly, or indirectly; and not in any way to assist, encourage, or induce any non-nuclear-weapon State to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices, or control over such weapons or explosive devices.

Article I prohibits NPT members from transferring nuclear weapons to other countries, while Article II further prohibits members from receiving such weapons. Does the foreign deployment of nuclear weapons violate these prohibitions?

Nuclear sharing was a key point of contention between the United States and the Soviet Union during the negotiation of the NPT. The Soviet Union objected to NATO's nuclear sharing arrangements at the time, arguing that they undermined nonproliferation objectives. During the late 1950s and early 1960s, Soviet negotiators proposed a variety of resolutions that would have jeopardized U.S. nuclear sharing arrangements with NATO countries, including its plans for a "Multilateral Force" (MLF) of nuclear-armed

submarines and warships operated by NATO crews.²³ As a result, the United States remained lukewarm about any nonproliferation agreement until it became clear that its NATO allies lacked enthusiasm for the Multilateral Force proposal.

Even after the MLF idea faltered, however, the United States continued to resist Soviet proposals to restrict nuclear sharing. Whereas Soviet treaty proposals sought to specify the legal status of intra-alliance transfers of nuclear weapons, the United States pressed instead for broad language that would leave the issue ambiguous. As a U.S. State Department official explained to the Secretary of Defense in 1968: “The language of Articles I and II of the NPT was chosen in order to protect alliance consultations on nuclear defense as well as on nuclear defense deployment arrangements.”²⁴ Ultimately the Soviets yielded and accepted the more ambiguous language preferred by the United States.

The United States has exploited this ambiguity, claiming that U.S. nuclear sharing policies are consistent with nonproliferation objectives in general, and Article I of the NPT in particular. As Secretary of State Dean Rusk wrote in a 1968 letter to President Lyndon B. Johnson, the NPT “does not deal with arrangements for deployment of nuclear weapons within allied territory as these do not involve any transfer of nuclear weapons or control over them.”²⁵ This continues to be the U.S. stance today: the United States and

²³ See Henry D. Sokolski, *Best of Intentions: America's Campaign Against Strategic Weapons Proliferation* (Greenwood, Ct.: Praeger, 2001), especially chapter 4.

²⁴ Letter from the Under Secretary of State (Katzenbach) to Secretary of Defense Clifford, Document No. 232, *Foreign Relations of the United States, 1964–1968, Volume XI: Arms Control and Disarmament* (Washington, D.C.: U.S. Department of State), p. 573.

²⁵ Dean Rusk, “Questions on the Draft Non-Proliferation Treaty Asked by US Allies together with Answers Given by the United States,” *NPT Hearings 90–92* (Washington, D.C.: United States Senate, 1968), pp. 262–63. Likewise, Defense Robert McNamara argued before Congress in 1966 that “there is no conflict” between nuclear sharing and

NATO countries argued at the 1995 NPT Review and Extension Conference that “existing security arrangements are implemented in full compliance with Articles I and II of the Treaty.”²⁶

The United States argues that its nuclear sharing policies do not violate the NPT in part because U.S. personnel maintain custody of U.S. nuclear weapons in NATO countries.²⁷ While the United States in some cases implemented dual-key arrangements that gave allied nations joint authority over the use of U.S. weapons,²⁸ the use of permissive action links (coded switches) beginning in the 1960s ensured that the United States retained “positive control” over the decision to use them.²⁹ While the NPT does not define what it means to transfer a nuclear device, nor what constitutes control over a nuclear weapon, the United States has argued that dual-key arrangements do not violate the treaty since Article I does not explicitly prohibit them.³⁰

While these sharing arrangements have kept U.S. nuclear weapons in the custody of U.S. personnel during peacetime, custody during wartime is a different matter. In order for allied aircraft to deliver dual-key nuclear warheads during wartime, the electronic

nonproliferation. Robert S. McNamara, “Statement of Secretary of Defense Robert S. McNamara before the Joint Committee on Atomic Energy on the Nonproliferation of Nuclear Weapons,” March 7, 1966.

²⁶ Quoted in Nicola Butler, *NPT à la Carte? NATO and Nuclear Non-Proliferation* (Acronym Institute for Disarmament Diplomacy, April 2005).

²⁷ This was not always the case: in the 1950s, West German pilots had virtual control of their nuclear bombs when their aircraft were placed on alert. See Norris, Arkin, and Burr, “Where They Were,” p. 30.

²⁸ In dual-key arrangements, an ally’s nuclear warheads are assigned to delivery vehicles owned and operated by the host nation. The arrangement effectively gives the host nation the ability to veto the use of nuclear weapons, without being able to unilaterally order their use.

²⁹ Peter Stein and Peter D. Feaver, *Assuring Control of Nuclear Weapons: The Evolution of Permissive Action Links* (Lanham, Md.: University Press of America, 1989).

³⁰ Martin Butcher et al., *NATO Nuclear Sharing and the NPT: Questions to Be Answered* (Project on European Non-Proliferation, Research Note 97–3, June 1997).

locks on these weapons would need to be deactivated. Allied pilots therefore would have full control over the weapons during the period after they were unlocked but before they were delivered. This would appear to contravene Articles I and II of the NPT: indeed, a 1964 National Security Council staff report went so far as to say that “the non-nuclear NATO partners in effect become nuclear powers in time of war” as a consequence of this dual-key system.³¹ However, the United States has maintained that “the treaty would no longer be controlling” in the event of war.³²

Since the indefinite extension of the NPT in 1995, several treaty members have raised objections to U.S. nuclear deployments, claiming that they violate the spirit – if not the letter – of Articles I and II. In 1999, for example, Egypt proposed an interpretation of Articles I and II that would have prohibited NATO’s existing nuclear sharing arrangements.³³ Even some NATO countries that currently host U.S. foreign nuclear deployments have made the argument that they undermine nonproliferation goals.³⁴ The United States has countered that deploying nuclear weapons abroad “in no way contravenes Article I of the NPT,” and that the negotiators of the treaty intentionally drafted Article I to exclude foreign nuclear basing arrangements.³⁵ From a legal

³¹ Charles E. Johnson, *U.S. Policies on Nuclear Weapons*, Lyndon B. Johnson Library (December 12, 1964). Partially declassified and released under the Freedom of Information Act. Quoted in Martin Butcher, Otfried Nassauer, Tanya Padberg, and Dan Plesch, *Questions of Command and Control: NATO, Nuclear Sharing, and the NPT* (Project on European Non-Proliferation, 2000), p. 20.

³² Rusk, “Questions on the Draft Non-Proliferation Treaty.”

³³ Butcher, Nassauer, Padberg, and Plesch, *Questions of Command and Control*, p. 15.

³⁴ See the country reports in Paolo Foradori, ed., *Tactical Nuclear Weapons and Euro-Atlantic Security: The Future of NATO* (New York: Routledge, 2013).

³⁵ Statement of Madeleine Albright, October 21, 1997, *Hearings Before the Committee on Appropriations, United States Senate, 105th Congress, First Session: North Atlantic Treaty Organization Enlargement Costs* (Washington, D.C.: U.S. Government Printing Office, 1998), p. 73.

standpoint, then, the permissibility of foreign nuclear deployments under the NPT remains in dispute.

Setting aside the question of strict legality, however, it is worth considering the possibility that foreign deployments – legal or not – may have consequences for nonproliferation even without technically violating the NPT. Several arguments have been made along these lines. First, states in close proximity to foreign-deployed nuclear weapons might perceive a potential threat from nearby weapons and be motivated to build their own deterrent arsenals to counter them. Foreign nuclear deployments therefore may exacerbate security motivations for proliferation.³⁶ Second, some observers in Europe and elsewhere have argued that foreign nuclear deployments are inconsistent with the disarmament obligations imposed on nuclear states by Article VI of the NPT. These observers have argued that maintaining a forward-deployed nuclear posture conveys the impression that the United States intends to keep nuclear weapons at the center of NATO’s defense strategy and is not fully committed to negotiating in good faith toward the elimination of nuclear weapons, as Article VI requires.³⁷ Foreign nuclear deployments therefore could shake international confidence in the NPT regime, bolster the view that the NPT creates an unfair double standard, and undermine normative prohibitions against acquiring nuclear weapons. Steven E. Miller, for instance, has argued that “many parties view the U.S. policy of extended deterrence to be just another example

³⁶ On security motivations for proliferation, see, for instance, Zachary S. Davis and Benjamin Frankel, eds., *The Proliferation Puzzle: Why Nuclear Weapons Spread and What Results* (New York: Routledge, 1993); and Sagan, “Why States Build Nuclear Weapons.”

³⁷ For instance, see Butcher, Nassauer, Padberg, and Plesch, *Questions of Command and Control*.

of the one-sided and hypocritical character of the NPT regime.”³⁸ Third, forward-deployed nuclear weapons may pose safety and security risks, increasing the odds that theft or seizure could lead to nuclear weapons falling into the hands of terrorist groups or rogue states.³⁹

The U.S. assertion of a wartime exception to the NPT is dubious. The treaty contains no explicit exception for times of war, and the United States has fought several major conflicts since 1970 without claiming exemption from the treaty. Although Article X allows member states to withdraw from the NPT due to “extraordinary events,” members are required to give three months’ notice of their intent to exit, which would seem to rule out abruptly withdrawing from the treaty in the moments before transferring control of nuclear weapons to allied pilots. The centrality of nuclear weapons to NATO strategy furthermore seems at odds with the pursuit of “general and complete disarmament” stipulated by Article VI.

At the same time, there is little evidence that this tension has had tangible consequences for nonproliferation. Within the NPT regime, perhaps the most vocal

³⁸ Steven E. Miller, *Nuclear Collisions: Discord, Reform and the Nuclear Nonproliferation Regime* (Cambridge, Mass.: American Academy of Arts and Sciences, 2012), p. 20.

³⁹ See, for instance, William C. Potter and Nikolai Sokov, “Nuclear Weapons That People Forget,” *International Herald Tribune* (May 31, 2000); Robertus C.N. Remkes, “The Security of NATO Nuclear Weapons: Issues and Implications,” in *Reducing Nuclear Risks in Europe: A Framework for Action*, ed. Steve Andreasen and Isabelle Williams (Washington, D.C.: Nuclear Threat Initiative, 2011), pp. 66–75; Eric Schlosser, “Nuclear Weapons: An Accident Waiting to Happen,” *The Guardian* (September 14, 2013); and Blechman and Rumbaugh, “Bombs Away,” among many others. For fascinating – and terrifying – descriptions of accidents involving foreign-deployed nuclear weapons during the Cold War, see Scott D. Sagan, *The Limits of Safety: Organizations, Accidents, and Nuclear Weapons* (Princeton, N.J.: Princeton University Press, 1993); Norris, Arkin, and Burr, “Where They Were;” and Eric Schlosser, *Command and Control: Nuclear Weapons, the Damascus Accident, and the Illusion of Safety* (New York: Penguin, 2013).

critics of nuclear sharing have been Iran, Egypt, and other members of the Non-Aligned Movement, a group that has criticized U.S. nuclear policy on many grounds for decades. It is unclear whether U.S. nuclear sharing amounts to anything more than a useful talking point for these countries, whose skepticism of the NPT is far more deeply rooted.⁴⁰ Furthermore, although officials in NATO countries such as Germany and the Netherlands have expressed opposition to U.S. nuclear deployments, it is implausible that their commitment to nonproliferation has been weakened by the presence of these weapons. Overall, despite rhetoric to the contrary, there appears to be little evidence that U.S. nuclear sharing policies have accelerated the spread of nuclear weapons.

Indeed, it is possible that foreign nuclear weapons might even dampen proliferation: a country that hosts an ally's nuclear weapons may be less likely to decide that it needs an independent nuclear deterrent to protect its security.⁴¹ It was widely believed during the Cold War, for example, that the presence of U.S. nuclear weapons in Europe was a critical firewall preventing West Germany – and perhaps others in Western Europe – from building nuclear weapons.⁴² Conversely, fears of American abandonment appear to have played a central role in driving South Korea to explore a nuclear weapons program – an program that was scuttled only after President Jimmy Carter reversed the planned

⁴⁰ For a good summary, see Jaswant Singh, “Against Nuclear Apartheid,” *Foreign Affairs*, Vol. 77, No. 5 (1998), pp. 41–52.

⁴¹ Reiter, “Security Commitments and Nuclear Proliferation;” and Philipp Bleek and Eric Lorber, “Can Security Assurances Prevent Allied Nuclear Proliferation?” *Journal of Conflict Resolution*, Vol. 58, No. 3 (2014), pp. 429–54.

⁴² As one scholar put it, “Why would a country like West Germany place greater faith in the puny nuclear forces of its middle-power allies across the Rhine River than in the massive arsenal of its superpower ally? The ultimate implication of a Western Europe minus the United States, therefore, is a nuclear-armed Federal Republic with other Western European countries to follow.” Josef Joffe, “Europe’s American Pacifier,” *Foreign Policy*, No. 54 (1984), pp. 64–82.

withdrawal of U.S. nuclear weapons from the Korean peninsula.⁴³

Consequences for Deterrence

From the very beginning, U.S. nuclear deployments to the Western European theater were designed primarily to protect NATO allies by deterring Soviet aggression. From the 1950s onward, U.S. leaders believed that they were facing a foe with vastly superior conventional strength. To counter the Soviet conventional juggernaut, U.S. leaders believed that NATO needed a credible nuclear capability in order to keep the Soviets at bay. In the mid-1950s, the United States began to deploy nuclear weapons in the European theater, beginning with nuclear gravity bombs in Morocco and Britain in 1954. Even today, official NATO policy continues to emphasize the importance of keeping U.S. nuclear weapons in Europe as a deterrent to aggression.⁴⁴

How might forward-deployed nuclear weapons make deterrence more effective? At least three different reasons have been offered. The first and most obvious of these is that nuclear deployments could enhance warfighting capabilities abroad. Early in the Cold War, before intercontinental missiles became the backbone of the U.S. nuclear deterrent, delivering nuclear weapons to distant targets posed a considerable challenge. Placing

⁴³ Michael J. Siler, "U.S. Nuclear Nonproliferation Policy in the Northeast Asian Region during the Cold War: The South Korean Case," *East Asia*, Vol. 16, Nos. 3–4 (1998), pp. 41–86; and Rebecca K. C. Hersman and Robert Peters, "Nuclear U-Turns: Learning from South Korean and Taiwanese Rollback," *Nonproliferation Review*, Vol. 13, No. 3 (2006), pp. 539–53.

⁴⁴ For instance, NATO's recently departed General Secretary argued in 2010 that "the presence of American nuclear weapons in Europe is an essential part of a credible deterrent." NATO Transcript, "Press Conference by NATO General Secretary Anders Fogh Rasmussen at the Informal Meeting of NATO Foreign Ministers – Tallinn, Estonia," April 22, 2010, available at http://www.nato.int/cps/en/natolive/opinions_62810.htm.

nuclear weapons in close proximity to possible theaters of combat would allow U.S. forces to more quickly blunt an enemy attack.⁴⁵ In this way, foreign nuclear deployments could strengthen “deterrence by denial,” dissuading the adversary by undermining its ability to achieve key military objectives.

Second, the presence of nuclear weapons on an ally’s territory could pose a more credible threat of nuclear escalation. The basic problem with extended nuclear deterrence is that no sane ally would risk its homeland by escalating to nuclear war in order to defend an ally. Indeed, during the Cold War, Charles de Gaulle doubted whether the United States would really be willing to “trade New York for Paris.” Stationing nuclear weapons abroad – and in particular, situating them with military units near the front line – could help solve this problem by creating a risk of *unintentional* escalation: a battlefield unit that was about to be overrun by enemy forces might resort to using nuclear weapons, even if it had not been authorized to do so.⁴⁶ The enemy therefore might be reluctant to initiate a conflict, knowing that even if a U.S. president could be deterred from escalating, battlefield commanders might not be. Scholars such as Thomas Schelling have argued that this lack of control was an essential virtue of U.S. defense strategy in Europe. The primary purpose of U.S. forces in Europe during the Cold War, he argued, was not to deny Soviet military objectives, but rather to frighten the Soviets by creating a risk that a limited Soviet invasion might unintentionally escalate to a more costly “general” war between the superpowers. Introducing nuclear weapons into the mix could

⁴⁵ See, for example, Stephen D. Biddle and Peter D. Feaver, *Battlefield Nuclear Weapons: Issues and Options* (Lanham, Md.: University Press of America, 1989).

⁴⁶ Albert C. Wohlstetter, “Nuclear Sharing: NATO and the *N + 1* Country,” *Foreign Affairs*, Vol. 39, No. 3, pp. 383; and Paul J. Bracken, *The Command and Control of Nuclear Forces* (New Haven, Conn.: Yale University Press, 1983).

strengthen deterrence by raising that risk dramatically.⁴⁷

Third, some analysts have argued that the sheer expense of foreign nuclear deployments might strengthen deterrence by signaling to an adversary that a country is committed to defending its allies. For a patron state trying to deter an attack against its protégé, the main challenge is to prove to potential adversaries that it is resolved enough to defend its protégé in time of war. One way to do this is to pay costs that an unresolved patron would not be willing to pay.⁴⁸ The extensive economic and political costs of foreign-deployed nuclear weapons⁴⁹ – often derided by critics⁵⁰ – therefore may be a virtue, not a vice. Indeed, some scholars have gone so far as to argue that U.S. intermediate-range nuclear missiles in Europe were effective signals of the U.S. alliance commitment precisely because they were wastefully expensive, costing billions of dollars to develop and deploy.⁵¹ While no leader has argued that the purpose of deploying nuclear weapons abroad is to waste money, the cost of such deployments nonetheless may signal one's commitment to defend an ally.

While the logic is compelling, however, evidence of a connection between foreign nuclear deployments and deterrence is surprisingly weak. A 2014 study found that countries that hosted American, British, or Soviet nuclear weapons during the Cold War

⁴⁷ Thomas C. Schelling, *Arms and Influence* (New Haven, Conn.: Yale University Press, 1966).

⁴⁸ James D. Morrow, "Alliances, Credibility, and Peacetime Costs," *Journal of Conflict Resolution*, Vol. 38, No. 2, pp. 270–97; and James D. Morrow, "Alliances: Why Write Them Down?" *Annual Review of Political Science*, Vol. 3 (2000), pp. 63–83.

⁴⁹ See Stephen C. Schwartz, *Atomic Audit: The Costs and Consequences of U.S. Nuclear Weapons since 1940* (Washington, D.C.: Brookings Institution Press, 1998).

⁵⁰ For example, see Tom Sauer and Bob van der Zwaan, "U.S. Tactical Nuclear Weapons in Europe after NATO's Lisbon Summit: Why Their Withdrawal Is Desirable and Feasible," *International Relations*, Vol. 26, No. 1 (2012), pp. 78–100; and Blechman and Rumbaugh, "Bombs Away."

⁵¹ Barry O'Neill, "The Intermediate Nuclear Force Missiles: An Analysis of Coupling and Reassurance," *International Interactions*, Vol. 15, Nos. 3–4, pp. 345–63.

were no less likely to be the targets of aggressive military acts from adversaries.⁵² While deterrence during the Cold War was largely successful, it was successful both with and without foreign nuclear deployments. South Korea, for example, stands out as an example of a country that was repeatedly provoked by its main adversary (North Korea) in the 1950s and onward, despite the presence of U.S. nuclear weapons until 1991. Conversely, the withdrawal of U.S. nuclear weapons from Taiwan in 1974 did not trigger a rash of new challenges from China.⁵³ At the same time, however, this does not imply that nuclear weapons are irrelevant for extended deterrence: indeed, the same study found that having a nuclear-armed *ally* is one of the most significant factors contributing to deterrence. In short, an alliance commitment from a nuclear state appears sufficient for deterrence, whereas deploying nuclear weapons to allies does little to strengthen this effect. Schelling's "threat that leaves something to chance" appears to work better in theory than in practice.

Deterring Allies

In the 1970s, scholars researching the effects of automobile safety regulations were puzzled to find that new safety features in cars apparently were not reducing traffic fatalities. Some scholars argued that this was because features like seat belts and anti-lock brakes emboldened drivers to drive more aggressively and take greater risks.⁵⁴ Shielded from the costs of their behavior, drivers were making choices that *increased* the

⁵² Fuhrmann and Sechser, "Signaling Alliance Commitments."

⁵³ Matthew Fuhrmann and Todd S. Sechser, "To Help Allies, Send Security Guarantees, Not Nuclear Bombs," *USApp – American Politics and Policy Blog*, November 24, 2014. Available at <http://eprints.lse.ac.uk/60433>.

⁵⁴ Sam Peltzman, "The Effects of Automobile Safety Regulation," *Journal of Political Economy* Vol. 83, No. 4 (1975), pp. 677–725.

likelihood of an accident. Some scholars have argued that alliances in international politics may operate according to a similar logic. A strong commitment an ally might deter adversaries, but it could also embolden the ally to become more aggressive.⁵⁵ In this view, alliances are similar to fire insurance or motorcycle helmets in that they can embolden risky behavior.

By this logic, nuclear sharing arrangements might have the perverse effect of emboldening allies to engage in more confrontational foreign policy behavior. Host states might reason that the foreign weapons on their soil offer insurance against the risks of aggressive behavior. Such reasoning may have played a role in escalating the 1962 Cuban Missile Crisis: the presence of Soviet nuclear weapons in Cuba may have emboldened Fidel Castro to take provocative actions (including firing on U.S. reconnaissance planes) that he hoped would ultimately trigger a U.S.-Soviet war.⁵⁶

An alternative perspective, however, is more skeptical of this logic. While a motorcycle helmet or seatbelt cannot refuse to protect a driver who is behaving recklessly, an alliance partner certainly can. Indeed, patron states often make their alliance promises conditional on good behavior: one recent study surveyed more than 300 defensive alliance agreements between 1816 and 2000, and found that more than three in four contained a clause restricting the circumstances under which alliance members could expect protection.⁵⁷ These restrictions may constitute a sort of insurance liability

⁵⁵ Glenn H. Snyder, "The Security Dilemma in Alliance Politics," *World Politics*, Vol. 36, No. 4 (1984).

⁵⁶ Some of Castro's most provocative actions are recounted in Michael Dobbs, *One Minute to Midnight: Kennedy, Khrushchev, and Castro on the Brink of Nuclear War* (New York: Alfred A. Knopf, 2008).

⁵⁷ Brett V. Benson, "Unpacking Alliances: Deterrent and Compellent Alliances and Their Relationship with Conflict, 1816–2000," *Journal of Politics*, Vol. 74, No. 3 (2011), pp. 427–39.

limitation, circumscribing the patron's responsibility in the event that the ally provokes a conflict.⁵⁸

The weight of the evidence suggests that the skeptical perspective may be closer to the truth. Academic studies have found that conditional alliance commitments are effective in restraining reckless behavior by allies – particularly those that depend heavily on the alliance for their defense.⁵⁹ Foreign nuclear deployments in particular appear to have virtually no effect on the conflict behavior of alliance members.⁶⁰ Together, this evidence suggests that foreign nuclear deployments do not embolden – and may in fact restrain – the behavior of allies. The question for the future is whether this possible benefit outweighs other potential costs, including the risk of theft and accidents.

What We Don't Know: New Agendas for the Future

At first glance, debates about the effects of foreign-deployed nuclear weapons seem anachronistic: today, just five countries host foreign nuclear weapons, and the last new foreign deployment of nuclear weapons was initiated more than 40 years ago. Moreover, some analysts argue that in the age of highly accurate ICBMs and precision-guided bombs and missiles, the military function of foreign-deployed nuclear weapons has become obsolete.⁶¹ Yet the issue of U.S. nuclear weapons in NATO countries remains a

⁵⁸ Matthew Fuhrmann and Todd S. Sechser, "The Moral Hazard Myth: Nuclear Umbrellas and Reckless Allies," presented at the Annual Meeting of the International Studies Association, Toronto (March 26–29, 2014).

⁵⁹ Brett V. Benson, *Constructing International Security: Alliances, Deterrence, and Moral Hazard* (New York: Cambridge University Press, 2012); Songying Fang, Jesse C. Johnson and Brett Ashley Leeds, "To Concede or to Resist? The Restraining Effect of Military Alliances," *International Organization*, Vol. 68, No. 4 (2014), pp. 775–809.

⁶⁰ Fuhrmann and Sechser, "The Moral Hazard Myth."

⁶¹ See, for example, Blechman and Rumbaugh, "Bombs Away."

highly salient and divisive issue. Several European countries, led by Germany (which hosts perhaps 10–20 U.S. nuclear weapons), have called for the United States to withdraw its nuclear weapons from Europe.⁶² In addition, South Korean officials have hinted at the possibility of once again hosting U.S. nuclear weapons.⁶³ And it remains possible that Russia, China, Pakistan, or another country might forward-deploy nuclear weapons at some point. Attaining a full understanding of the consequences of foreign nuclear deployments is as important as ever.

Yet it is clear that our understanding of the consequences of nuclear sharing remains incomplete. At least three significant questions remain. The first question: to what extent do foreign nuclear deployments reassure allies? It is often argued by advocates of U.S. nuclear deployments in Europe that they are important political symbols, reassuring NATO allies of the U.S. commitment to their security.⁶⁴ Indeed, the U.S. Defense Department’s 2010 Nuclear Posture Review argued that U.S. nuclear deployments in Europe “contribute to alliance cohesion and provide reassurance to allies and partners who feel exposed to regional threats.”⁶⁵ Another Defense Department report argued in 2008 that opposition to U.S. nuclear deployments “fails to comprehend – and therefore undermines – the political value our friends and allies place on these weapons, the political costs of withdrawal, and the psychological impact of their visible presence.”⁶⁶

⁶² See Giorgio Franceschini and Harald Müller, “Germany,” in Foradori, ed., *Tactical Nuclear Weapons and Euro-Atlantic Security*, pp. 44–60.

⁶³ For example, Julian Borger, “South Korea Considers Return of U.S. Tactical Nuclear Weapons,” *The Guardian* (November 22, 2010).

⁶⁴ For example, Petr Suchy and Bradley A. Thayer, “Weapons as Political Symbolism: The Role of U.S. Tactical Nuclear Weapons in Europe,” *European Security*, Vol. 23, No. 4 (2014), pp. 509–28.

⁶⁵ See United States Department of Defense, *Nuclear Posture Review Report* (April 2010), p. 32.

⁶⁶ Secretary of Defense Task Force on DoD Nuclear Weapons Management, *Report*

Support for hosting U.S. nuclear weapons today is particularly strong in Turkey, in part as a result of anxiety about Iran’s nuclear program.⁶⁷ But the reassurance function of foreign-deployed nuclear weapons remains largely an article of faith. How have foreign nations been reassured by nuclear sharing arrangements, and how do the technical aspects of those arrangements shape reassurance? Moreover, what have been the tangible benefits of reassurance? Can we pinpoint the ways in which the behavior of host nations has been shaped by foreign nuclear deployments? These are pressing questions that will require new research to answer.

Second, what are the domestic and international consequences of withdrawing foreign nuclear weapons? Although many have argued that U.S. nuclear weapons in NATO countries are militarily obsolete, others have countered that withdrawing them would have significant political repercussions. One observer argued that foreign deployments among allies are like wedding rings in a marriage: “once you start wearing one, it means something entirely different to be seen without it than it does for someone who never wore one.”⁶⁸ If this logic is correct, terminating an ongoing nuclear sharing arrangement is quite different from declining to initiate one. Yet we know little about the consequences of terminating nuclear deployments. This is not for a lack of cases: the United States, Soviet Union, and Britain have canceled nuclear sharing arrangements 17 times during the last half-century, beginning with the withdrawal of U.S. weapons from Morocco in 1961. Scholars could make a valuable contribution by examining these cases

of the Secretary of Defense Task Force on DoD Nuclear Weapons Management, Phase II: Review of the DoD Nuclear Mission (December 2008), p. 59.

⁶⁷ Mustafa Kibaroglu, “Isn’t it Time to Say Farewell to Nukes in Turkey?” *European Security*, Vol. 14, No. 4 (2005), pp. 443–57.

⁶⁸ Quoted in Clark A. Murdock and Jessica Yeats, *Exploring the Nuclear Posture Implications of Extended Deterrence and Assurance* (Washington, D.C.: Center for Strategic and International Studies, 2009).

and assessing how nuclear withdrawals shaped the domestic politics and international behavior of former host countries.⁶⁹

Third, in what ways might future foreign nuclear deployments differ from deployments we have seen in the past? Although the United States today deploys nuclear weapons only to stable, democratic nations, other nuclear states may not make the same choices. If Pakistan were to deploy nuclear weapons to Saudi Arabia, for example, an insurgent challenge to royal Saudi rule could create unprecedented security threats. In addition, we know little about the effects of initiating new deployments on nearby states. If the United States were to reintroduce nuclear weapons into South Korea, would it exacerbate North Korean security concerns and prompt more aggressive North Korean behavior toward Seoul or Tokyo? We do not yet have answers to these questions.

The current body of research on foreign nuclear deployments therefore remains incomplete. As the debate about U.S. nuclear weapons abroad becomes increasingly relevant in the coming years, understanding the granulated political effects of these weapons will become even more urgent.

⁶⁹ One useful attempt to think about this problem is Malcolm Chalmers and Andrew Somerville, eds., *If the Bombs Go: European Perspectives on NATO's Nuclear Debate*, Whitehall Report 1–11 (Royal United Services Institute for Defence and Security Studies, 2007).

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