

# Understanding Deterrence

## Essential Questions for the Twenty-first Century

Adam Lowther, PhD, and Curtis McGiffin, Col (Ret)

National Institute for Deterrence Studies

alowther@thinkdeterrence.com and cmcgiffin@thinkdeterrence.com



### 1. What Is Deterrence?

According to the Department of Defense *Dictionary of Military and Associated Terms*, deterrence is defined as “[t]he prevention of action by the existence of a credible threat of unacceptable counteraction and/or belief that the cost of action outweighs the perceived benefits.” In the cult classic *Dr. Strangelove: How I Learned to Stop Worrying and Love the Bomb* (1964), the main character, Dr. Strangelove, explains, “Deterrence is the art of producing, in the mind of the enemy, the fear to attack!” As both the Department of Defense and *Dr. Strangelove* make clear, deterrence resides in the mind of the adversary. It is fundamentally a psychological effect. It is important to remember that deterrence takes many forms, ranging from crime prevention to nuclear deterrence. Here, however, the focus is on nuclear deterrence.

Deterrence is often described as the following formula: deterrence = capability x will x perception. In other words, deterrence is not achieved absent both the capability to punish an adversary for violating the status quo and the will to employ that capability—the target adversary must believe it. It is also important to remember that ineffective communication of national will and capability will likely prompt deterrence failure or war.

Cold War nuclear deterrence was successful because both the Soviet Union and the United States understood that each state possessed a nuclear arsenal capable of destroying the other. This ensured both powers believed the costs of war outweighed the benefits, thus engendering a fear of escalation or attack—preventing World War III.

### 2. Are Nations and Their Leaders Rational?

Deterrence theory is based on the rational actor model, which, in its simplest form, assumes that actors (1) have preferences, (2) rank their preferences, and (3) pursue preferences in the order of their rank—they calculate. Actors may have imperfect information, biases, and act under duress, but actors are still viewed as rational. Early deterrence theorists like Bernard Brodie, Thomas Schelling, and Glenn Snyder accepted the tenets of rational choice theory and applied it to Soviet/American interaction—believing “assured destruction” would prevent the nuclear war many feared. Prospect Theory is a theory of rational decision-making under conditions of risk and suggests that humans do not always calculate rationally. According to Daniel Kahneman and Amos Tversky’s *Judgment Under Uncertainty: Heuristics and Biases*, humans tend to irrationally overvalue losses and undervalue gains. Essentially, overly risk-averse decision-makers will seek to prevent



a loss even when the rational act might require them to take the risk to pursue a potential gain. If applied to deterrence, prospect theory helps explain why nuclear deterrence continues to hold after seven decades. In short, nuclear-armed states tend to fear the potential losses from nuclear retaliation or war more than the potential gain if they survive.

Whether the leaders of nuclear-armed states are rational or irrational, nuclear deterrence continues to avert major war or existential attacks out of fear of loss. It is, however, unwise to take this fact for



granted and assume deterrence will always hold. Continuously working to shape adversary psychology is critical to a future of successful nuclear deterrence.

### 3. What Is the Relationship between Capability, Will, and Communication?

Regarding the success or failure of deterrence, capability, will, and communication are central elements that must be understood and effectively managed. It is generally believed that the most important of the three is capability. That is, possessing

nuclear weapons, for example, is often seen as more important than the will to use them. The belief that their mere possession suffices to ensure deterrence is understandable but incorrect. Effectively conveying the will to use nuclear weapons—demonstrating a willingness to fight even if it means one’s own annihilation—is more important than just possessing exquisite capabilities.

Communicating to an adversary the capabilities they face and the will to employ those capabilities effectively is central to the success of deterrence. Absent effective communication, one adversary may fail to convince the other of the capability and will they face—leaving them to blunder into conflict. North Korea is one example of the relationship between capability, will, and communication. Prior to North Korea’s first detonation of a nuclear weapon in 2006, Kim Jong Il was effective in deterring South Korea and the United States from responding strongly to dozens of North Korean provocations through the effective deployment of a strong conventional military force that was certain to devastate South Korea in any conflict.

Thus, as North Korea developed and fielded a growing nuclear arsenal of ballistic missiles (short, medium, and intercontinental), aircraft delivered gravity bombs, and is seeking submarine-launched ballistic missiles (SLBM), the United States was deterred from destroying North Korea’s nuclear capability because Kim Jong Un, who came to power in 2011, is perceived to have the capability and will to use his nuclear and conventional forces in the event of an American-led attack. The very public demonstrations of North Korean capabilities (military parades, nuclear and ballistic missile tests, and more) and Kim’s public statements are effective in communicating North Korean capability and will. As North Korea demonstrates, it is not necessary to have the most powerful nuclear arsenal to deter an adversary (the United States). It is merely necessary to effectively communicate the willingness to use that capability. This leaves the United States in a relationship with North Korea where both nations are mutually deterred, even if the United States has the absolute ability to defeat North Korea.

### 4. Does Size Matter in Extended Deterrence?

According to *Air Force Doctrine Publication (AFDP 3-72) Nuclear Operations*, “Extended deterrence is a commitment to deter and, if necessary, to respond across the spectrum of potential nuclear and non-nuclear scenarios in defense of allies and partners. This commitment is often described as providing a ‘nuclear umbrella.’ Extended deterrence also serves as a non-proliferation tool by obviating the need for allies and partners to develop, acquire, and field their own nuclear arsenals.”

Extended deterrence credibility depends on the perception of both allies and adversaries toward American capability and will. Denis Healy, former Minister of Defense for the United Kingdom, once said, “It only takes five percent credibility to deter the Russians, but ninety-five percent to reassure the Europeans.” Healy’s remark illustrates the difficulty of extended deterrence. During the Cold War, the United States deployed many thousands of nuclear weapons in Europe and Asia, along with large conventional forces. This ensured that American extended deterrence remained credible in the eyes of both the Soviet Union and North Atlantic Treaty Organization (NATO) member-states.

Today, however, the United States has fewer than 200 B61 fighter-delivered gravity bombs in Europe and no nuclear weapons on ally territory in Asia. Russia, on the other hand, has between 2,000 and 6,000 non-strategic nuclear weapons. China and North Korea have an unknown number of non-strategic nuclear weapons. These types of weapons are particularly important to allies because they view them as a visible manifestation of American extended deterrence. Allies under the nuclear umbrella are beginning to wonder about the credibility of American commitment.

In short, size matters. Allies are constantly watching and listening to determine the credibility of America’s commitment to extended deterrence. Capability matters. Words matter. It should come as no surprise that as the size of Russian, Chinese, and North Korean nuclear arsenals grow, while the American arsenal does not, allies may question whether the United States will employ nuclear weapons to defeat an aggressive regional adversary on their behalf.



## 5. What Is the Future of Arms Control?

When, on February 21, 2023, Russian President Vladimir Putin announced that he was “suspending” Russian participation in New START, nuclear arms control effectively ended. When Russia’s violations of the Chemical Weapons Convention, Biological Weapons Convention, the Vienna Document, Treaty of Conventional Armed Forces in Europe, Opens Skies, Intermediate Nuclear Forces Treaty, and likely violation of the Threshold Test Ban Treaty, are considered Putin’s suspension of New START is unsurprising and may signal that Russia is or may soon violate New START’s limit of 1,550 operationally deployed strategic nuclear weapons. With an inferior conventional military, greater reliance on nuclear weapons is a logical approach to balance American and NATO conventional strength. The poor performance and heavy losses of Russian conventional forces in Ukraine only reinforce the perception that nuclear weapons are increasingly central to Russia’s security.

If the Sino-American arms control discussions that took place on November 6, 2023, are any indication of China’s willingness to engage in arms control, the answer is clearly no. Little more than a month after arms control talks saw no progress made, Chinese President Xi Jinping, in remarks discussing Taiwan, said, “The realization of the complete reunification with the motherland is an inevitable course of development, is righteous and what the people want. The motherland must and will be reunified.” Such comments underscore Xi’s determination to seize Taiwan and prevent American intervention. China’s rapid expansion of its nuclear arsenal, which is squarely designed to coerce the United States into sitting out a Chinese invasion of Taiwan, cannot take place if China engages in arms control. This leaves little room for China to engage in any meaningful arms control efforts.

On January 1, 2023, North Korean dictator Kim Jong Un ordered an “exponential” expansion of the regime’s nuclear arsenal. He certainly understands that the strength of his own arsenal is his best insurance and central to remaining in power. With North Korea sending conventional munitions to

Russia for Putin's war on Ukraine, there is concern that, in return, Kim will receive the special nuclear material needed to rapidly grow his nuclear arsenal, which some speculate will reach 500 in coming years.

If this brief synopsis of the current state of arms control offers any lessons, it is that arms control is likely dead for the foreseeable future. The resurrection of arms control will only take place when it is in the interest of America's adversaries.

## 6. Is Nuclear Proliferation Likely?

In a February 2023 United Nations inspection of Iran's Fordo facility, the International Atomic Energy Agency (IAEA) found uranium particles enriched to 83.7 percent, which is close to that needed for a nuclear weapon and far more than the 3–5 percent used in nuclear power. Should Israel or the United States begin striking Iranian targets beyond those in Iraq, Syria, and Lebanon, because of the regime's support for Hamas or Houthi attacks on commercial shipping in the Persian Gulf, Iran may believe it is necessary to move from nascent nuclear power to actual nuclear power. Such a move would set off a proliferation cascade that will likely include the acquisition of nuclear weapons by Saudi Arabia, the acquisition or development of nuclear weapons by Turkey, and the possible acquisition of nuclear weapons by Egypt.

China's regional neighbors are watching the growing threat to Taiwan with great anxiety because they do not believe the Chinese Communist Party's ambitions end with Taiwan. Both South Korea and Japan fear that they, too, may fall under Chinese coercion and have little ability to resist—absent their own nuclear arsenal. North Korea's expanding nuclear arsenal and regular provocations doubly increase the threat seen by South Korea and Japan.

While the 2023 Washington Declaration, which detailed new American extended deterrence commitments with South Korea, is certainly helpful, both South Korea and Japan are watching China and North Korea very closely as they measure the sufficiency of American action. Should either nation believe they can ill afford to go without an independent nuclear arsenal, the other nation will follow in short order. The years ahead may prove the most precarious for nonproliferation since the early Cold War. If America's interests are to ensure nonproliferation holds, the United States may need to rapidly grow its non-strategic nuclear arsenal and prepare to expand the nuclear umbrella across the Middle East and Asia in tangible ways that unseen submarines and intercontinental ballistic missiles (ICBM) cannot.

## 7. Does the United States Still Need a Nuclear Triad?

The United States maintains a triad of nuclear-armed bomber aircraft, ICBMs, and SLBMs because each leg of the triad has strengths and weaknesses that, when combined, ensure adversaries demonstrate restraint when contemplating an attack against American vital interests. Absent any single leg of the triad, gaps in strategic deterrence exist. A look at the strengths and weaknesses of each leg is instructive.

Bombers are the only leg of the triad that serve as a powerful tool in signaling American intent to adversaries. For example, nuclear bombers can be placed on alert and, in the case of the B-52, are visible to adversary radar. This means they can play a role in demonstrating escalation and de-escalation—all in a way that SLBMs and ICBMs cannot. They also strike targets that a ballistic missile cannot reach. Bombers are, however, the most vulnerable leg of the nuclear triad because they are susceptible to attack on the ground and are not guaranteed to penetrate advanced air defenses. Bombers also take many hours to fly from the United



States to targets overseas, which is either a weakness or a strength, depending on an adversary's response.

Intercontinental ballistic missiles are the nation's most economical and responsive leg of the triad—striking targets within half an hour of receiving a launch authorization. They are also the only leg of the nuclear triad that requires an adversary to expend about 900 nuclear warheads to destroy the ICBM force. Bombers can be destroyed with a small number of conventional missiles or bombs. Submarines are susceptible to torpedoes. This means that any adversary understands that attacking the ICBM force will lead to a devastating nuclear response from the United States. The same is not necessarily true of an attack on an airborne bomber or ballistic missile submarine at sea. The ICBM force's great weakness is that it is stationary, making it susceptible to a nuclear first strike.

The submarine leg of the nuclear triad is often described as the nation's most survivable. This is because once on deep ocean deterrence patrol, they are almost impossible to track and destroy. This ensures the nation always has an at-sea secure second strike. Submarines are, however, the most expensive leg of the triad and are vulnerable to attack when in port and when leaving port. During the Cold War, there were several instances in which Russian or American attack submarines collided with the ballistic missile submarines they were stalking as they left port for a deterrent patrol. As the preceding paragraphs illustrate, each leg of the triad has its strengths and weaknesses. When combined, they create a formidable deterrent for any adversary considering a strategic attack against the United States.

## **8. Are Nuclear Weapons Unaffordable?**

The Congressional Budget Office estimates that the United States will spend approximately \$64 billion per year over the next decade to operate, maintain, and modernize the nuclear arsenal. While this may seem like a significant amount of money, context offers great clarity. The 2024 defense budget passed by Congress authorizes the Department of Defense to spend \$841.4 billion. This means that 7 percent of the defense budget is allocated to nuclear spending. When the cost of the nuclear arsenal is compared to the cost of the federal budget (\$6.134 trillion), that number declines to 1 percent of the federal budget.

During World War II, the United States spent half of the nation's gross domestic product (GDP) on the war. Over the past six decades, defense spending has fluctuated between a high of 9.33 percent of GDP to a low of 3.09 percent of GDP and currently averages less than 4 percent of GDP. It is because of the nation's nuclear arsenal and the deterrence it provides that the Soviet Union never chose conventional or nuclear war with the United States. Absent the nuclear arsenal, the United States may very well have found itself in a third world war that consumed half of the nation's gross domestic product and caused great devastation. According to the Centers for Medicare and Medicaid Services, which manages both programs for the federal government, these programs lose an estimated \$70 billion every year to waste, fraud, and abuse. In other words, the cost of the entire nuclear enterprise is less than the cost of mismanagement in Medicare and Medicaid—a fact most Americans do not even know.

If nuclear weapons are the nation's ultimate national security insurance, that insurance costs the average American about \$192 per year. Compare this to automobile insurance, which, according to *Forbes*, costs the average driver \$2,150 per year. The Kaiser Family Foundation estimates that average American spends \$7,911 per year on health insurance premiums. American spending habits are also instructive. For example, Americans spent \$328.1 billion on soft drinks and an additional \$709 billion on trips to the coffee shop in 2023. This means that Americans can pay for the nuclear arsenal by drinking one less energy drink or stopping at the coffee shop one less time each week.

With this context in mind, it is worth returning to the original question: are nuclear weapons unaffordable? The answer is clearly no. The benefits of being free from attacks and world wars are well worth the small costs of a nuclear deterrent.

## **9. Is the World Better Off without Nuclear Weapons?**

The short answer to this question is no. Why? Nuclear weapons contribute to the reduction and prevention of conflict, which the world has enjoyed for the past seven decades. The absence of great-power wars and the reduction of smaller wars are responsible for the more than 94 percent reduction in conflict-related deaths since 1945. In other words, the development and use of nuclear weapons in 1945 were directly responsible for the reduction in conflict that followed. Nuclear weapons achieve this effect in three main ways.

First, nuclear-armed great powers avoid war with one another. This prevents wars like World War I and II, where more than 100 million people, mostly civilians, perished.

Second, nuclear-armed great powers restrain their allies' desires to wage war against their adversaries because the great powers fear being pulled into a conflict with their nuclear-armed great-power adversaries. Thus, not only do nuclear weapons prevent great-power wars, but they also reduce or prevent wars between smaller countries.

Third, nuclear weapons allow nations around the world to reduce their defense spending and focus resources elsewhere. This reduction in spending on defense and war made the resources available for the technological progress and prosperity enjoyed after 1945.

The elimination of nuclear weapons does not solve global disagreements and would plunge the world back into a time when great powers regularly wage conventional wars where many millions of people die each year.



## 10. How Do Russia, China, and North Korea View the Use of Nuclear Weapons?

Russian President Vladimir Putin's numerous threats to use nuclear weapons in relation to the war against Ukraine leave many experts uncertain as to if or when Russia will use nuclear weapons. Many experts now believe Russia plans to use nuclear weapons in three cases: (1) either in a first strike against the United States or in response to a nuclear attack against Russia; (2) as part of an "escalate to deescalate" strategy to either end a conventional conflict early or save poorly performing Russian forces; or (3) Russia believes the survival of the state is at risk. Because Russian conventional forces are inferior to those of NATO, Russia must rely on nuclear weapons in a range of scenarios the United States would rely on advanced conventional forces.

Officially, China maintains a "no first use" nuclear policy. However, there is reason to believe that China has an expansive view of the "defensive" cases in which it would employ nuclear weapons in a conflict. Because China is opaque in its military doctrine and nuclear policy, it is difficult to describe China's view of nuclear use with much certainty. China's rapidly expanding nuclear arsenal suggests that it is clearly moving away from a minimum deterrence strategy and toward one similar to Russia.

Much of what is known about North Korea's approach to nuclear weapons use comes from the speeches of Kim Jong Un. In an April 26, 2022, speech celebrating the 90th anniversary of the Democratic People's Republic of Korea, Kim said that he will use nuclear weapons if the "fundamental interests" of North Korea are violated. In 2023, the Supreme People's Assembly revised the North Korean constitution to say that the state "develops highly nuclear weapons to ensure" the nation's "rights to existence" and to "deter war." Many analysts believe that Kim understands that the use of nuclear weapons against South Korea or the United States will result in the destruction of the regime, making nuclear weapons largely for the purpose of preserving the regime.