

The Cost Of Security: Economic And Political Dimensions Of The Nuclear Arms Race

The Cold War era witnessed an intense nuclear arms race between the United States and the Soviet Union, with significant consequences for international security and economic stability. This paper examines the evolution of this competition through the lens of the security dilemma, where efforts to increase security paradoxically fuel further insecurity and militarization. The study demonstrates the economic costs of the arms race, highlighting in particular that the misallocation of resources undermined domestic development and contributed to economic inefficiency and the eventual collapse of the Soviet Union. It also addresses current challenges related to nuclear proliferation and the potential for non-state actors to acquire weapons of mass destruction. Drawing on the theoretical frameworks of Robert Jervis and Mustafa Kibaroğlu, the discussion underlines the need for multilateral solutions, including arms control, preventive diplomacy, and strong international mechanisms. The findings emphasize the urgency of cooperative strategies to reduce the catastrophic risks posed by nuclear weapons.

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Introduction

The term arms race can be defined as a competitive and escalatory pattern of military capability expansion between two or more states, usually because of a desire for superiority and deterrence.² In fact, it is very frequently used in the wider sense of describing considerable increases in military build-up or spending in a group of states. Most of the time, an accumulation of military might is due to fundamental tensions and itself signals a dispute-like relational pattern in the relations among the interacting countries. This means that, with this variable, a security dilemma “occurs when a state seeks to heighten its security through a particular action from one or more other states.”³ This might lead to a situation in which the first state feels its security has been lessened by an action taken to heighten it. The present research focuses on the vigor of the nuclear arms competition between both the United States and the USSR during the Cold War and the serious economic reflections it imposed.

The deep-rooted desires of such superpowers to acquire and maintain such nuclear stockpiles and some of the significant opportunity costs like economic development and social betterment that they experienced in the name of such military goals are explored in this paper. It will, therefore, be possible for this paper to reflect the far-reaching implications of such a competitive dynamic for all the direct participants and for general global stability and development.

History of Nuclear Armaments between the US and USSR

From 1947 until 1991, one of the larger components of the Cold War was comprised of the nuclear arms race between the US and the USSR, including fierce geopolitical, ideological, and military rivalry between the two superpowers. The competition over nuclear weapons forged deep paths into the political, military, and economic landscapes of the 20th century and came to represent the greater conflict of the tussle between capitalism and communism. As nuclear weapons were seen as the ultimate tool of deterrence, both the US and the USSR invested heavily in their development, often leading to a cycle of escalation that left the world on the brink of disaster. It is only without the doctrine of Mutually Assured Destruction (MAD) that an expanded nuclear arms race could have been marked by endless cycles of military building, diplomacy, and crises.

It was with the start of the Manhattan Project that the road commenced in all seriousness, whereby the United States became the first state to develop and use atomic weapons in the Second World War. The atomic attacks of Hiroshima and Nagasaki in 1945 showed the horrors of 2 Sam Perlo-Freeman, “Arms Race,” *Encyclopedia Britannica*, April 19, 2024, <https://www.britannica.com/topic/arms-race>.

3 Anders Wivel, “Security Dilemma,” *Encyclopedia Britannica*, January 7, 2019, <https://www.britannica.com/topic/security-dilemma>.

the new type of weapon. The Soviet Union, realizing the significance of the nuclear capability toward their final strategic objectives, succeeded in developing its independent atomic bomb in the year 1949. An arms race ensued as both sides attempted to gain nuclear superiority or at least parity.

It was in 1952, within the decade of the 1950s, that the United States ran its first hydrogen bomb test, an occurrence that was responded to by a similar Soviet test in 1953.⁴ This incredibly powerful bomb dramatically shifted the balance of nuclear forces as each power was then able to inflict a devastating retaliation. It initiated, indeed, a real competitive arms race, initiated with the ICBMs (intercontinental ballistic missiles) and further developed with SLBMs (submarine-launched ballistic missiles) as part of improvements in nuclear deterrence and fast retaliation.

Throughout the 1960s, even as a continued build-up of nuclear stocks occurred, both sides recognized an increasing danger from each other's capabilities. In 1962, the Cuban Missile Crisis brought the world to the brink of nuclear war and drove home the core risks associated with such weapons.⁵ That crisis, along with the growing tensions associated with it globally, led to the creation of the first major arms control agreements, including the Partial Test Ban Treaty of 1963, which banned nuclear testing in the atmosphere, in space, and underwater.

Nevertheless, these agreements and competition in nuclear armaments continued unabated well into the 1970s. As Marek Thee remarked in his 1974 article entitled "The Nuclear Arms Race," rapid nuclear proliferation during this period was further exacerbated by the growth of an international nuclear community of increasing size and complexity.⁶ As the United States and the Soviet Union continued developing and testing new nuclear weapons, countries like India joined the list of nuclear powers, increasing the global risks of nuclear confrontation. This reveals that by 1974 alone, the United States had stockpiled an equivalent quantity to 600,000 Hiroshima bombs in nuclear weapons, representing the scale of nuclear proliferation during the era in question.⁷

The numerous arms control agreements, including the SALT I and SALT II treaties, were designed to put an upper limit on the number of strategic offensive arms. Additionally, according

4 Jonathan Masters, "U.S.-Russia Nuclear Arms Control," *Council on Foreign Relations*, May 1, 2017, <https://www.cfr.org/timeline/us-russia-nuclear-arms-control>.

5 Jonathan Masters, "U.S.-Russia Nuclear Arms Control," *Council on Foreign Relations*, May 1, 2017, <https://www.cfr.org/timeline/us-russia-nuclear-arms-control>.

6 Marek Thee, "The Nuclear Arms Race," *Bulletin of Peace Proposals* 5, no. 4 (1974): 291–292, <http://www.jstor.org/stable/44480265>.

7 Marek Thee, "The Nuclear Arms Race," *Bulletin of Peace Proposals* 5, no. 4 (1974): 291–292, <http://www.jstor.org/stable/44480265>.

to Thee, many new weapon systems that emerged in the late 1970s were viewed as no more than a tool in future bargaining rather than a genuine step towards disarmament.⁸

Nuclear arms competition has structurally altered the nature of international conflict and raised moral debates on the questions of deterrence. According to Thee, the nuclear arms race was far more than a military race; it was a political race in which nuclear weapons played the role of an instrument in the service of diplomacy-a method of exerting political pressure.⁹

The historical background of the nuclear race of the two superpowers, the United States and the Soviet Union, underlines poignantly the catastrophic possibilities of nuclear weapons and the persisting problems linked with such weapons-the regulation of proliferation and the prevention of their use in future conflicts.

Understanding the Security Dilemma through the Nuclear Arms Race

The nuclear armament race at this point indicated a critical constituent of the security dilemma, whereby one state's measure to improve its security inadvertently dislocates other states' security, which then spirals into a self-reinforcing pattern of mistrust and escalatory militarization. Scholars such as Simon Dalby and Charles Glaser discussed this dilemma in regard to the Cold War but, at the same time, linked it to today's security environment.

As Simon Dalby points out, the concept of security, particularly in the context of national security, has generally been understood from the perspective of a nation seeking protection against some sort of external threat.¹⁰ Nuclear weapons have, of course, become regarded as the ultimate deterrent within this logic. Yet, again, an obvious contradiction arises. In attempting to increase national security by acquiring nuclear weapons, for example, international insecurity is greatly heightened. The logic of nuclear deterrence, steeped as it is in mutually assured destruction and consequently carrying within it the meaning of the security dilemma, is such that nations arm themselves to feel secure but, in so doing, provoke adversary nations to seek similar military improvements which then create an overall sense of heightened insecurity. Dalby believes that rather than indicating a way to have an environment free from conflict, nuclear armaments express the fundamental contradictions within state-centric models of security. To put it another way, he says, "The paradox of nuclear deterrence is that it bases security on pre-

8 Marek Thee, "The Nuclear Arms Race," *Bulletin of Peace Proposals* 5, no. 4 (1974): 291–292, <http://www.jstor.org/stable/44480265>.

9 Marek Thee, "The Nuclear Arms Race," *Bulletin of Peace Proposals* 5, no. 4 (1974): 291–292, <http://www.jstor.org/stable/44480265>.

10 Simon Dalby, "Security, Modernity, Ecology: The Dilemmas of Post-Cold War Security Discourse," *Alternatives: Global, Local, Political* 17, no. 1 (1992): 95–134, <http://www.jstor.org/stable/40644733>.

cisely the threat it supposedly deters.”¹¹

In a further review, Charles Glaser revisits the original discussion presented by Robert Jervis.¹² With regards to the security dilemma, especially the suggestion that an anarchic international environment often confronts the occurrence whereby states, while seemingly pulled by converging interests, usually find their way into competition and further into conflict. This is because, in improving one country’s security through military activities such as being at the forefront of technological armaments or positioning, the security of another country is inadvertently undermined. The upshot is a build-up of armaments on either side, hence perpetuating a cycle of insecurity. Glaser’s analysis explains the deep appearance of the security dilemma within the context of the nuclear era: how steps that are necessary to strengthen the defense would be an invitation for hostile responses from the opponent through, say, the use of sophisticated strategic weapons, which escalate the arms race.¹³ He further emphasizes that while the interdependent spiral caused by the security dilemma may be based on rational analyses, how the pervasive misperception and misinterpretation often occur between states heightens the situation in a way that extreme cooperation is rarely achieved.¹⁴

In sum, the nuclear arms race is a serious example of a security dilemma in which one state’s efforts to increase its own security inadvertently undermine others, leading to security concerns and, in turn, an arms race. Scholars such as Simon Dalby and Charles Glaser have traced the roots of this dilemma from the Cold War to today’s security challenges, demonstrating how nuclear deterrence and arms competition deepen global insecurity.

The Economic Costs of a Nuclear Arms

The nuclear arms race between the United States and the Soviet Union during the Cold War had profound economic consequences for both superpowers. This period was marked by significant military expenditures that affected various aspects of their economies. This competition for nuclear weapons created significant opportunity costs by changing economic structures and priorities.

In the nuclear arms race, both countries faced tremendously high financial costs. It is estimated

11 Simon Dalby, “Security, Modernity, Ecology: The Dilemmas of Post-Cold War Security Discourse,” *Alternatives: Global, Local, Political* 17, no. 1 (1992): 95–134, <http://www.jstor.org/stable/40644733>.

12 Editor’s note: For Robert Jervis’ work on the security dilemma, see Robert Jervis, “Cooperation under the Security Dilemma,” *World Politics* 30, no. 2 (1978): 167–214, <https://doi.org/10.2307/2009958>.

13 Charles L. Glaser, “The Security Dilemma Revisited,” *World Politics* 50, no. 1 (1997): 171–201. <http://www.jstor.org/stable/25054031>.

14 Charles L. Glaser, “The Security Dilemma Revisited,” *World Politics* 50, no. 1 (1997): 171–201. <http://www.jstor.org/stable/25054031>.

that the military expenditure in the United States on nuclear armaments and related programs topped \$6 trillion during the Cold War.¹⁵ The expenses were related to the research, development, and production of the many nuclear warheads and their continuous maintenance. This expense was frequently a significant share of the federal budget and, at times of mobilization, as in the Reagan administration's build-up of defense during the 1980s, was extraordinarily high.¹⁶ These expenses could be justified based on the perceived need to maintain parity—even superiority over the Soviet Union. However, it meant that other sectors of the United States economy, particularly its infrastructure and social programs, got less attention. This became even more overpowering financially for the Soviet Union as military spending comprised a very high percentage of its total GDP. Estimates of defense spending by the Soviet Union during the Cold War put the figures at 15% to 20% of its economy.¹⁷ Such a mismatched concentration on military production burdened the economic infrastructure of the country “tremendously, rendering it inefficient and promoting the general mismanagement of resources. The highly centralized, state-dominated Soviet economy simply could not afford the burden of this expenditure, in contrast with the highly diversified US economy that was better equipped to absorb such costs.

Year	United States Military Budget (Billion USD)	Soviet Union Military Budget (Estimated % of GDP)
1950	\$49.1	15%
1960	\$135.2	17%
1970	\$143.4	18%
1980	\$220.2	19%
1990	\$280.1	20%

Table 1: Historical Defense Budgets

Source: Data from Higgs 1988; and Weida et al. 1998.

Opportunity cost puts into perspective a far larger range of implications that resulted from military spending during the Cold War era. In both superpowers, the diversion of growing resources into military as opposed to civilian purposes entailed significant costs. Policymakers within the United States had to make hard decisions throughout the early Cold War about how

15 William J. Weida et al., “The Economic Implications of Nuclear Weapons and Nuclear Deterrence,” in *Atomic Audit: The Costs and Consequences of US Nuclear Weapons Since 1940*, edited by Stephen I. Schwartz, 519–44. Brookings Institution Press, 1998, <http://www.jstor.org/stable/10.7864/jj.17497069.18>.

16 Robert Higgs, “U.S. Military Spending in the Cold War Era: Opportunity Costs, Foreign Crises, and Domestic Constraints,” *Cato Institute* (1988), <http://www.jstor.org/stable/resrep04986>.

17 William J. Weida et al., “The Economic Implications of Nuclear Weapons and Nuclear Deterrence,” in *Atomic Audit: The Costs and Consequences of US Nuclear Weapons Since 1940*, edited by Stephen I. Schwartz, 519–44. Brookings Institution Press, 1998, <http://www.jstor.org/stable/10.7864/jj.17497069.18>.

much they would devote to defense rather than to central domestic priorities like healthcare, education, and public infrastructure. For example, one B-1 bomber built during this period took money away from several civilian projects, like schools, hospitals, and roads. In fact, as scholars like Robert Higgs have noted, the economic return of defense spending was generally small compared to what might have been achieved by investment in civilian areas.¹⁸ Military spending typically generated lesser economic returns, which means they contributed less to the economy's growth over the years than would have otherwise similar civilian projects. Preoccupation with the production of military products was at the expense of consumer goods and new industrial ideas in the Soviet Union. Whereas the military industry prospered, the rest of the sectors were under-invested. The basic products were often hard to find, and the people of the Soviet Union lived at lower standards compared to those of Western countries.¹⁹ Besides, the rigid economic system of the USSR gave birth to the bad usage and waste of resources on some ineffective methods of production and poorly designed industrial strategies.²⁰

The economic impact of the Cold War arms race was long-lasting, influencing the course of both superpowers for decades to come. Concerning the United States, while the economy was robust, the arms race underlined problems related to balancing the needs of defense with domestic imperatives. Discussions on the apportionment of federal funds to other needy areas of the state and society slowly took center stage through the post-Cold War era and brought about fiscal policy changes along with a rethinking of expenses earmarked for the military.²¹ The Soviet Union found the economic burden of maintaining high defense expenditure too much to handle and thus dissolved. The struggle to balance the military needs with those of the civilian economy underlined the structural weaknesses built into the Soviet structure. In an attempt to overcome such inefficiencies, the reforms instituted by Gorbachev, especially perestroika, exposed the unsavable features of the economic and political structure of the USSR. The 1991 dissolving of the Soviet Union is proof that massive repercussions result from heavy militarization and binds that come with an economy whose operations revolve primarily around defense.²²

Addressing the Threats of Nuclear Armaments and Exploring a World Beyond Them

There has never been a time when atomic terrorism was seen as an imminent threat as it is to

18 Robert Higgs, "U.S. Military Spending in the Cold War Era: Opportunity Costs, Foreign Crises, and Domestic Constraints," *Cato Institute* (1988), <http://www.jstor.org/stable/resrep04986>.

19 Scott D. Sagan, "The Perils of Proliferation: Organization Theory, Deterrence Theory, and the Spread of Nuclear Weapons," *International Security* 18, no. 4 (1994): 66–107, <https://doi.org/10.2307/2539178>.

20 Scott D. Sagan, "The Perils of Proliferation: Organization Theory, Deterrence Theory, and the Spread of Nuclear Weapons," *International Security* 18, no. 4 (1994): 66–107, <https://doi.org/10.2307/2539178>.

21 Robert Higgs, "U.S. Military Spending in the Cold War Era: Opportunity Costs, Foreign Crises, and Domestic Constraints," *Cato Institute* (1988), <http://www.jstor.org/stable/resrep04986>.

22 Scott D. Sagan, "The Perils of Proliferation: Organization Theory, Deterrence Theory, and the Spread of Nuclear Weapons," *International Security* 18, no. 4 (1994): 66–107, <https://doi.org/10.2307/2539178>.

day. As Kibaroglu contends, “the risk of misuse of fissile materials, particularly highly enriched uranium (HEU) and plutonium, has become a grave cause of concern.”²³ However, this has not just been applied to states alone; the threat of non-state agents coming into possession of this type of material led to dreadful actions across the whole world. Regardless of initiatives like the Nuclear Security Summits, Kibaroglu notes, scores of states are not yet fully cognizant of the gravity of the threats posed by unsecured nuclear materials and the various possible ways in which they might be misused.²⁴ This lack of a sense of urgency and awareness bolsters the gaps within the international nuclear security architecture.

Jervis takes it a step further by describing how misinterpretation and miscommunication between nuclear-armed states enhance current dangers. He emphasizes how even actions taken in self-defense—that is, with the view to preserve or gain more atomic bombs—can be perceived as aggressive on the part of the other party, thereby escalating a spiral of insecurity. Remarks by Jervis reveal that perils associated with nuclear weapons are not merely given by technical and logistic features but also by their deep psychological causes and dynamics in international relations.²⁵

Further, Kibaroglu discusses the particular problems created by those non-state actors in pursuit of WMD, such as nuclear weapons. He says that while most NSAGs avoid the pursuit of WMD because of its uncontrollable and destructive results, some of those groups—those terrorist organizations in particular—find such a destructive tool to serve their goals.²⁶ Kibaroglu furthers that individuals of such groups may even feel that their WMD attacks will result in more ‘martyrs’ like them so that they all may go together to heaven. It justifies the irrational motives that differentiate these actors from the traditional state adversaries.²⁷ The breakdown of Soviet control over facilities housing weapons during the post-Cold War period has further contributed to these risks, making it easier for these groups to exploit gaps in nuclear security. This evolu-

23 Mustafa Kibaroglu, “How Can Countries Ensure That the Nuclear Security Summit Does Not Lose Momentum and Become Just Another Gathering?” *Bulletin of the Atomic Scientists* 68, no. 2 (2012): 81–83, <https://doi.org/10.1177/0096340212440356>.

24 Mustafa Kibaroglu, “How Can Countries Ensure That the Nuclear Security Summit Does Not Lose Momentum and Become Just Another Gathering?” *Bulletin of the Atomic Scientists* 68, no. 2 (2012): 81–83, <https://doi.org/10.1177/0096340212440356>.

25 Robert Jervis, “Deterrence, the Spiral Model, and Intentions of the Adversary,” in *Perception and Misperception in International Politics: New Edition*, REV-Revised, 58–114. Princeton University Press, 1976, <https://doi.org/10.2307/j.ctvc77bx3.8>.

26 Mustafa Kibaroglu, “Dealing with the Threat Posed by Non-State Armed Groups Aspiring to Weapons of Mass Destruction,” in *Defence Against Weapons of Mass Destruction Terrorism*, 161–169. Amsterdam: IOS Press, 2009.

27 Mustafa Kibaroglu, “Dealing with the Threat Posed by Non-State Armed Groups Aspiring to Weapons of Mass Destruction,” in *Defence Against Weapons of Mass Destruction Terrorism*, 161–169. Amsterdam: IOS Press, 2009.

tion in the nature of threats, Kibaroglu argues, renders traditional deterrence models ineffective, calling for different approaches like far-reaching intelligence sharing and acting in advance to forestall the possibility of NSAGs gaining access to nuclear materials.

Both explain the importance of institutional frameworks and continuous diplomatic efforts on the path to handling nuclear risks. Put together, their views suggest that nuclear risk reduction requires a comprehensive approach, as it is not only a matter of technical protection but also of political will and a strong dedication to building trust within the system.

Conclusion

The nuclear arms race of the Cold War, or the rivalry between the United States and the Soviet Union, was indeed a classic example of all the dangers and complexities related to the security dilemma in international relations. While the apparent path to safety through nuclear supremacy actually generated global insecurity by perpetuating the vicious circle of suspicion and escalation, this contradiction underlines the complexities of power politics and the great consequences coming from misunderstanding in the realm of international diplomacy.

The arms race economically endowed both superpowers with profundity of effects: the enormous expense necessary to maintain nuclear parity siphoned resources that could have been spent on social and economic development. Whereas for the United States, the arms race determined a clash between military expenditure and domestic aims, for the Soviet Union, it did show the inefficiency of its centrally controlled economic system and became one factor contributing to its dissolution.

The other important factor is that nuclear weapons are already beyond states alone due to the looming threat. As Kibaroglu and Jervis said, the proliferation of nuclear capabilities, together with the rise of the non-state actors impelled by illogical motives, brought new dimensions to the threats to global security. Nuclear terrorism and misuse of fissionable material call to give up the traditional deterrence constructs in favor of comprehensive and integrated strategies based on intelligence sharing, proactive measures, and shared international responsibility.

All these risks have to be mitigated through a multi-pronged approach: diplomatic imperatives aimed at reducing tension and building trust among nuclear weapon states and institutional mechanisms to ensure that nuclear materials are kept safe and do not fall into the hands of non-state actors. The Cold War sends important messages about implications and perils from uninhibited races in armaments and underlines the imperative of a constant commitment to arms control and disarmament as paths to a safer, more secure world. In all, the nuclear arms race is a case study of what happens when military might is prized more than cooperative security. If

there is any hope for the future of stability in the world, it lies in lessons learned and in nurturing an international community that stresses cooperation, not competition, so that the horrific possibilities of nuclear weapons will never be realized.