FEASIBILITY OF A NON-NUCLEAR STATE TO DETER A NUCLEAR ARMED ADVERSARY

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ABSTRACT

In this essay, the author argues that while it is feasible for non-nuclear states to deter nuclear armed adversaries, there are inherent challenges for non-nuclear states to employ an effective deterrence strategy. The author begins by explaining the theory of deterrence and exploring the prevailing sentiment that nuclear-armed states have a disproportionate advantage compared to non-nuclear states due to the exponential military power accorded by nuclear capabilities, which makes deterrence an inept strategy for non-nuclear states. Next, he assesses the feasibility of two existing strategies that a non-nuclear state can potentially pursue to deter a nuclear armed adversary, through two case studies. From these case studies, the author argues that deterrence strategies against nuclear armed adversaries have been largely ineffective in practice. Finally, the author assesses the potential adoption of conventional deterrence as a strategy for non-nuclear states to deter nuclear adversaries. He concludes that the advantages possessed by nuclear adversaries may decrease over time and that the future prospects for non-nuclear states' deterrence strategies will become more feasible, moving forward.

Keywords: Deterrence; Nuclear; Advancements; World; Cyber

INTRODUCTION

In this essay, the author argues that while it is feasible for non-nuclear states to deter nuclear armed adversaries, there are inherent challenges for non-nuclear states to employ an effective deterrence strategy. The author begins by explaining the theory of deterrence and exploring the prevailing sentiment that nuclear-armed states have a disproportionate advantage compared to non-nuclear states due to the exponential military power accorded by nuclear capabilities, which makes deterrence an inept strategy for non-nuclear states. Next, the author assesses the feasibility of two existing strategies that a non-nuclear state can potentially pursue to deter a nuclear armed adversary, namely (1) collective or extended deterrence through alliances, and (2) encouraging self-deterrence by its adversary, through the case studies of South Korea and the Treaty on the Prohibition of Nuclear Weapons (TPNW) respectively. From these case studies, the author argues that deterrence strategies against nuclear armed adversaries have been largely ineffectual in practice. Finally, the author assesses the potential adoption of conventional deterrence as a strategy for non-nuclear states to deter nuclear adversaries in the context of an increasingly willingness for nuclear armed states to use limited yield nuclear weapons, and the advancement in technology, particularly in the development of Strategic Non-Nuclear Weapons. In the light of the discussion, author highlights that the advantages possessed by nuclear adversaries may decrease over time and that the future prospects for non-nuclear states' deterrence strategies will become more feasible, moving forward.

The author also acknowledges that his views imply that deterrence is the only strategy available to non-nuclear states, but this underlying assumption ignores other possible options for non-nuclear states especially beyond the military realm, such as diplomacy and economic policies. States do not solely rely on a single strategy to safeguard themselves. Therefore, while the author does not examine other options besides deterrence, it should be noted that his conclusions do not mark the be-all-and-end-all of defensive or offensive options for non-nuclear states.

DEFINING DETERRENCE

The author examines deterrence strategies which non-nuclear state actors can reasonably exercise within their capabilities, and the limitations and challenges should these states pursue these courses of action. To

understand the state's calculations when pursuing a strategy of deterrence and its effectiveness, this essay goes beyond defining deterrence as the ability to 'dissuade an opponent from initiating an aggressive action because the costs and risks of doing so do not justify the perceived benefits,' and will use Rational Deterrence theory in its examination as it has remained influential in the analysis of strategic affairs in the post-war era and served as 'the intellectual framework of Western military policy.'[1]

Rational Deterrence Theory

Rational Deterrence theory hinges on the assumption of rationality. As proposed by Allison in his classic Rational Actor Model, the government is identified as a unitary decision maker, and governmental action is underpinned by the principle of value-maximisation, which weighs 'present threats and opportunities', 'pros and cons', and the costs of pursuing a course of action, to determine the optimal option.[2] Rational Deterrence theorists highlight that states resort to war only when the expected net benefits of mounting a challenge to the status quo exceed the expected costs of overcoming the other state's defences. Rational states would not initiate an aggressive action, if the net benefits do not justify doing so. The costs of resorting to war are determined by accounting for the effects of political and economic outcomes, beyond military losses. Therefore, the natural posture of a state is to maximise deterrence.

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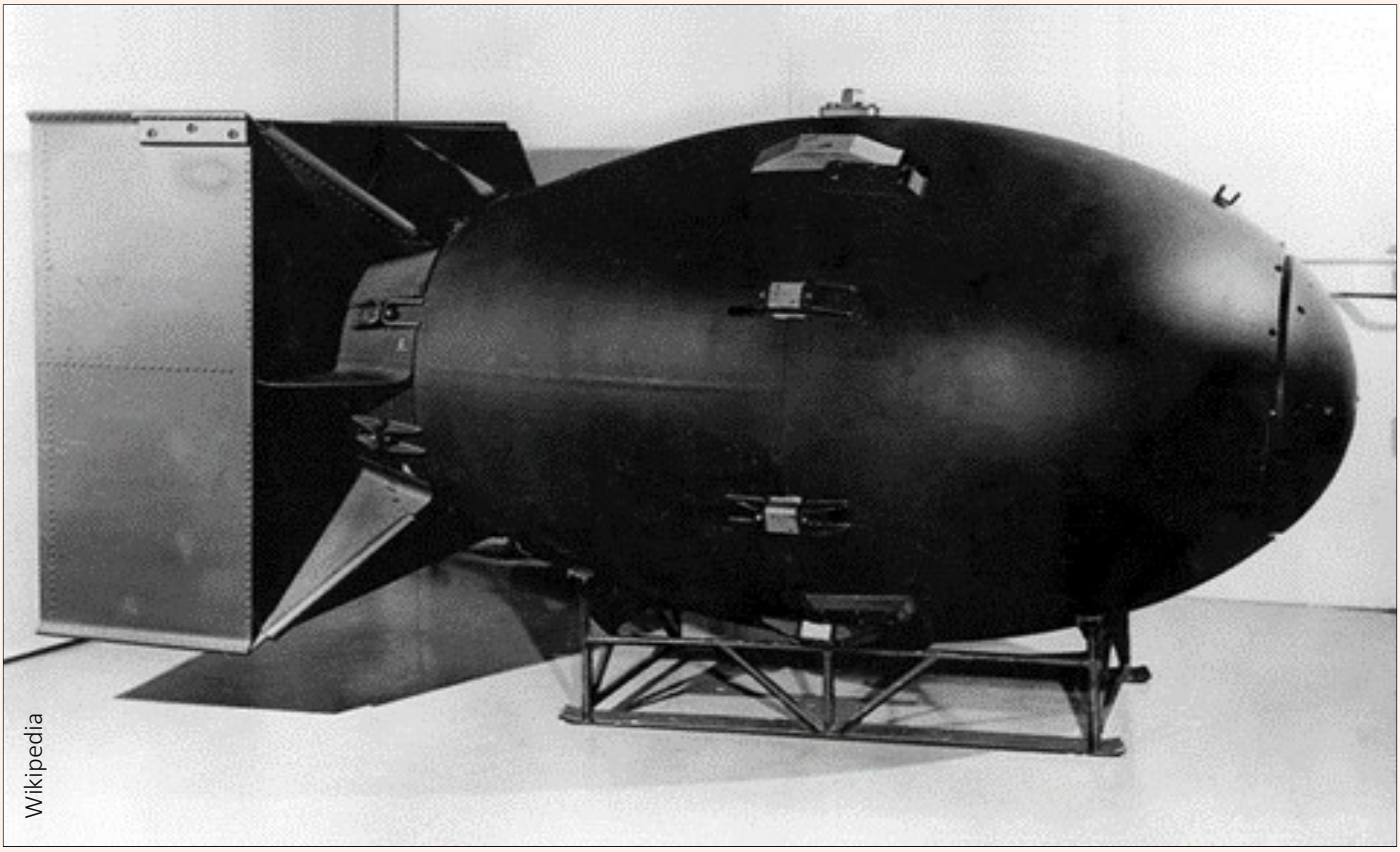
The main criticisms of the model are that the assumption of rationality ignores the flaws in human decision-making and the unpredictability of actors in crisis or in desperation. However, to avoid delving into a theoretical debate on the weaknesses of deterrence as a strategy, the author adopts the starting-point assumption that deterrence is a rational and viable strategy, and focuses on discerning the practical policy considerations and limitations for non-nuclear states by assessing different approaches for deterrence.



The first nuclear weapons were gravity bombs, such as this 'Fat Man' weapon.

UNASSAILABLE ADVANTAGE OF NUCLEAR ARMED ADVERSARIES

Nuclear Deterrence by Punishment

Conventional wisdom argues that a non-nuclear state has faint prospects of deterring a nuclear armed adversary due to the unassailable advantage that nuclear capabilities provide as a means of punishment. Deterrence by punishment is achieved through manifesting the ability to overcome an adversary's defensive forces and wreck destruction on its home territories, which in turn dissuades an adversary from acts of aggression. Along with sufficient capability to inflict incalculable punishment, credibility (or will), which comes from reputation for resolve, is necessary to achieve positive deterrence outcomes.[3] Deterrence calculations need to consider damage to oneself as a result of aggression but also damage to the enemy, since they are theoretically making the same calculation. Therefore, nuclear deterrence focuses on comparative damage. No matter how large the damage to an opponent, there is no gain if it fails to have a deterrent effect. In this context, nuclear armed adversaries have a disproportionate advantage as the punitive extent of their military power is exponential once the state possesses nuclear capabilities—in fact, they can inflict catastrophic damage or total annihilation in a single move. Coupled with the knowledge of the largely indefensible reality of such capabilities, it places non-nuclear states in a non-contestable situation. Hence, in a deterrence by punishment strategy, the act of possessing nuclear weapons 'communicates a state's ability to inflict unacceptable costs on its adversaries.'[4]

The strategic realities of non-nuclear states further exacerbate the seemingly dire positions they are in—the majority of non-nuclear states are neither regional nor medium powers, and as smaller states, they possess strategic vulnerabilities that amplify the cost of war and the gaining of territory by an enemy could 'lend a certain inevitability to the death of the state itself.'[5] Based on nuclear deterrence theory which states that stability is only achieved through the balancing of two nuclear powered adversaries, the strategic positions of non-nuclear states are compounded by their limited options against the existential nuclear threat posed by their adversary, who is likely to also be shielded by the impact of retaliatory actions given its vast military power and dispersed populations and assets. The issue of contestable costs aptly represents the divide of the nuclear 'haves' and 'have nots'—conventional weapons are fundamentally contestable costs or threats, whereas even holding a small number of nuclear weapons represents incontestable threats of unacceptable cost infliction.

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EXISTING DETERRENCE STRATEGIES FOR NON-NUCLEAR STATES

Non-nuclear states have pursued various strategies to deter nuclear armed adversaries despite the purported advantage that nuclear capabilities provide its owners. This section assesses two existing deterrence strategies adopted by non-nuclear states, which are potential practical options for non-nuclear states: (1) Collective or Extended Deterrence through Alliances in the case of South Korea; and (2) Invoking Self-Deterrence in the case of the TPNW.

(1) Collective Deterrence through Alliances – Extended Nuclear Assurance

Non-nuclear states can obtain some form of nuclear retaliation capability by seeking the protection of or a nuclear guarantee from a nuclear-armed state, i.e., deterrence through alliances. In theory, the threat of retaliatory strikes would dissuade a nuclear armed adversary from acting against a non-nuclear state as the adversary rationally considers the potential imposition of unacceptable collective costs on its population. This form of deterrence is often defined as Extended Deterrence, and includes arrangements between the United States (US) and its allies, in which the US' nuclear deterrence umbrella is extended to countries such as Japan, South Korea, Taiwan, and countries within the

North Atlantic Treaty Organisation (NATO).[6] Often, these arrangements also benefit the provider of the nuclear guarantee, as it would seek commitment from non-nuclear states to not start their own independent nuclear weapons programme.

In the case of South Korea, beyond the indirect nuclear retaliation capability which allows South Korea to exact deterrence by punishment, the deployment of the Terminal High Altitude Area Defence (THAAD) systems in South Korea enables a form of deterrence by denial, i.e., denting North Korea's expectation of military success should they choose to utilise its nuclear capability. However, North Korea's recalcitrant ballistic missile tests and belligerent continuation of its nuclear programme are indications of the limited success of South Korea and the US' strategy of Extended Deterrence.

Two significant limitations of extended deterrence are evident in South Korea's case and perhaps explains North Korea's calculus in undertaking its actions. First, it does not deter nuclear armed adversaries from initiating conventional or unconventional attacks on non-nuclear states. Jackson perceptively observes that while 'strategic deterrence has held on the Korean Peninsula for more than a half-century, tactical deterrence has repeatedly failed,' with North Korea resorting to small-scale, isolated provocations against both the US and South Korea.[7] Thus, while extended deterrence has appeared successful in deterring use of nuclear capabilities till date, South Korea has had to continue investments in its conventional capabilities to respond to these provocations. Second, the effectiveness of extended deterrence is largely dependent on the actions and calculus of the allied nuclear power. Academics have cited that extended deterrence might be untenable for non-nuclear states due to the differences between the state's and its ally's national interests. This was evident in the 2010 attacks on South Korea by North Korea, which US policymakers deemed acceptable 'as long as war did not break out anew,' but sparked adjustments in South Korean military capabilities, doctrine and force posture, and incited talks in favour of developing their indigenous nuclear capability.[8] Sagan further asserts that it is 'inconceivable that a US president would order nuclear retaliation except as a response to nuclear attack against the American homeland or US troops deployed overseas.'[9] Therefore, the reliability of extended deterrence as a strategy and its feasibility as

Two THAAD launchers shortly after being flown into South Korea in March 2017.

the sole deterrent for non-nuclear states is questionable, given the unlikelihood of an ally risking nuclear war to defend a non-nuclear state, especially when there is no direct threat.

Given the above, the employment of extended deterrence by non-nuclear states while useful in replicating the stability between two nuclear powered states or nuclear peace theory, has limited effectiveness in fully deterring nuclear armed adversaries from pursuing provocations through conventional means. Similarities can be drawn in the case of Taiwan, where China has continued to exercise destabilising actions through incursions into Taiwanese airspace. Furthermore, the age-old adage that there are no permanent friends and only permanent interest reminds non-nuclear states that pursuing extended deterrence creates an uneasy dependency on allies, who may or may not choose to act. Thus, extended deterrence does not fully constrain the actions of nuclear armed adversaries nor does it provide complete assurance, and non-nuclear states will need to continue investing in its conventional deterrence capabilities.

(2) Invoking Self-Deterrence – Tradition of Non-Use

Next, while not strictly a deterrence strategy in the conventional sense, non-nuclear states may potentially consider a constructivist approach by establishing favourable conditions or norms for self-deterrence to occur. This can be done by amplifying the moral, reputational and political costs of using nuclear weapons to the extent of invalidating its use and relevance as a form of deterrence, especially towards non-nuclear states. Paul argues that states are concerned about how they are perceived and that the use of nuclear weapons would result in worldwide condemnation and irreparable reputational costs.[10] In particular, a state's 'deterrence reputation' against nuclear states is distinct from its 'non-use reputation', which aims to promote a benign image and suppress interest in acquiring nuclear weapons among non-nuclear states.[11] Therefore, non-nuclear states may reasonably incorporate the unlikelihood of states utilising nuclear capabilities and the reputational costs of this immoral act in their deterrence calculus.

UN member states debate the idea of a nuclear-weapon-ban treaty, Geneva, May 2016.

Non-nuclear states can also further delegitimise nuclear capabilities through encouraging arms control and disarmament agreements, and legalisation to cement the tradition of non-use. The practice of shaping normative behaviour through institutions and legal agreements is not new in the international system—the Nuclear Non-Proliferation Treaty (NPT) was established to dampen an international nuclear arms race and succeeded in reducing the global numbers of strategic nuclear warheads owned by its signatories to about a fifth of its size prior to the NPT.

Likewise, pledges of 'No First Use' by nuclear powers, namely China and India, introduced new norms and spurred discussions internationally. Therefore, by constructing an environment with greater normative and legal constraints on nuclear powers, non-nuclear states inevitably force nuclear capable adversaries to compete without their nuclear capabilities, transforming the competition dynamic to one within conventional deterrence capabilities, i.e., negating the effects of possessing nuclear capabilities.

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The TPNW is a useful case study which demonstrates how non-nuclear states can drive initiatives to formally and legally bind nuclear adversaries to meet responsibilities of disarmament, which in turn reinforces the tradition of non-use and encourages self-deterrence. The TPNW took 'nearly a decade of [mobilisation] by a coalition of civil society organisations and non-nuclear states' and was negotiated by more than 130 states.[12] Given its entry into force in January 2021, and the 86 signatories and 58 ratifications to the treaty as at December 2021, the TPNW has arguably achieved success in shaping international norms.[13] However, despite the treaty's apparent international support, all nuclear-armed states had boycotted the treaty negotiations in 2017 and have yet to ratify the treaty. As observed, invoking self-deterrence as a strategy is limited by inherent difficulties in measuring nuclear armed states' self-interest that drives its actions, and the prevailing reality suggests limited effectiveness as nuclear adversaries continue to exert control over relevant norms — evidence by the majority of nuclear powers continued opposition to the 'No First Use' policy, and initiatives such as the NPT and 'No First Use' policy originating from nuclear powers rather than from non-nuclear states' pressure. While it remains viable for non-nuclear states to invoke self-deterrence, the sobering reality remains that non-nuclear states cannot act alone, nuclear powers will have to agree to and drive these changes, and such efforts take a long time to bear results.

RESURGENCE OF CONVENTIONAL DETERRENCE

Notwithstanding the less immediate and salient impact of conventional capabilities, this section examines the prospects for non-nuclear states in pursuing a conventional deterrence strategy. This section argues that conventional deterrence is becoming an increasingly feasible strategy against nuclear adversaries as the character of warfare is evolving and we are standing on the edge of a 'Third Nuclear Age' enabled by technological advancements and international norms that challenge the dominant global nuclear order.[14]

Conventional Deterrence – Deterrence by Denial

Conventional deterrence involves convincing the adversary that it cannot accomplish its objectives within an acceptable time frame and cost, and therefore is dissuaded from taking aggressive action. Stern et al. suggests that successful conventional deterrence is achieved by a state's ability to impose great costs on a potential adversary; commitment to respond to an attack by imposing such costs; and clear communication of its commitment to these actions.[15] For example,

Singapore employs a modern military as its deterrent and defence force of last resort, and utilises the concept of Total Defence and conscription to exemplify a national commitment to the security and survival of the state.[16] Following the premise that the extreme nuclear option may not always be feasible or moral, the use of conventional forces still remains the primary means for most states, including nuclear armed states. Thus, non-nuclear states could reasonably pursue a conventional deterrence strategy against nuclear adversaries by enhancing and building credible conventional capabilities, demonstrating commitment to respond, and communicating clear redlines in which these capabilities would be used to inflict severe costs on the adversary.

That said, the viability of conventional deterrence still hinges on the adversaries' 'correct' interpretation of the state's actions and constraints on the use of its nuclear capabilities. Worryingly, the post-Cold War era notion that nuclear weapons are exceptional and represent a dramatic escalation has declined and rhetoric suggests the growing acceptance towards the use of low yield nuclear weapons against specific targets being within the realm of conventional military action.[17] The US declared in its 2018 Nuclear Posture Review that its nuclear capabilities acted as a 'hedge against the potential rapid growth or emergence of nuclear and non-nuclear strategic threats, including chemical, biological, cyber and large-scale conventional aggression.'[18] Similarly, some quarters believe that Russia has an 'escalate to de-escalate strategy' which proposes the use of 'a relatively low yield nuclear weapon in an otherwise conventional conflict… to halt a trajectory of further conventional escalation.'[19] This has spurred efforts to develop new deterrence concepts incorporating the use of lower-yield nuclear weapons as a politically 'usable' option to deter adversaries (including non-nuclear states) and suggest that the scales might once again be tipped back in favour of nuclear capable states, while limiting the effectiveness of a conventional deterrence strategy by non-nuclear states.

The Implications of Emerging Technologies and Erosion of Nuclear Deterrence

However, the absolute character of nuclear weapons is also increasingly challenged by technological developments today, and can erode the viability of nuclear deterrence in the future. Futter and Zala assert that four key technological developments are shifting the centre of gravity away from nuclear punishment towards non-nuclear denial, i.e., increased prominence of Strategic Non-Nuclear Weapons (SNNWs): (1) Measures to protect strategic forces and population centres against nuclear attacks; (2) Maturation and spread of non-nuclear weapons that could threaten and disarm an adversary's nuclear and associated systems; (3) Emergence of unconventional capabilities that enables defence against or attack of an adversary's nuclear systems; and (4) Ability to target, track and monitor an adversary's nuclear capabilities.[20] Examples of these technological advancements include, interceptors and anti-missile defences, precision and prompt hypersonic weapons, new methods to track and attack nuclear-armed submarines, cyberattack capabilities, and Artificial Intelligence (AI), which are part of the research and development efforts of most modern militaries. These trends suggest that SNNWs can potentially blur the lines and integrate conventional and nuclear deterrence concepts to the extent that competition proceeds on a level plane as the advantage provided by nuclear capabilities is negated. Therefore, while there may be substantial costs involved in pursuing such an option, the prospects for non-nuclear states are arguably improving as technology disrupts long held assumptions that underpin nuclear deterrence and presents an opportunity for non-nuclear states to achieve conventional deterrence by acquiring or investing in SNNWs to balance against nuclear capabilities.

CONCLUSION

In sum, the author argues that the possession of nuclear capabilities still presents significant advantages regardless of whether it is viewed through the nuclear deterrence by punishment or conventional deterrence lenses, and existing deterrence strategies have proven

largely unfeasible for non-nuclear states in deterring aggression from nuclear armed adversaries. However, with the advancement in technology and proliferation of SNNWs, there are optimistic prospects for non-nuclear states to deter nuclear armed adversaries. The options proposed by the author in this essay are not mutually exclusive, and states can and must explore a combination of these strategies to secure their survival amidst the potential of total annihilation and achieve deterrence. Due to their strategic vulnerabilities and in a world dominated by realpolitik, one may argue that it is not only feasible but also necessary for non-nuclear states to adopt deterrence strategies—but, these strategies must be adapted to the state's available resources, diplomatic relations and the nuclear armed adversary in question. Nonetheless, as technological advancements continue to disrupt and change the character of warfare through the development of other means of delivering strategic costs, there is also room to acknowledge the decline of nuclear deterrence and the corresponding levelling of the playing field. Notwithstanding the future potential for deterrence as a strategy for non-nuclear states, it is important to note its limitations—non-nuclear states will thus need to consider a holistic strategy to guarantee its success, and complement its deterrence approach with diplomacy, political alliances, and economic co-operations to be more effective in deterring any potential aggressor.

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