



Humanities and Social Sciences  
Bachelor in International Relations

Final Bachelor Thesis

**An analysis of the South  
Asian nuclear era: the  
Indian and Pakistani  
case**

Student: Clara Sánchez Portela

Supervisor: Prof. D. Javier Gil

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## Abstract

The article analyzes the conventional and nuclear capabilities of India and Pakistan, along with their deterrence strategies. Despite India's advantages, Pakistan's natural geography and operational experience provide it with a defensive advantage, leading to a conditional symmetry in the balance of power. The states' lack of compliance with international safeguards suggests a willingness to engage in vertical proliferation. The article examines the complexities of nuclear deterrence, including the role of nuclear doctrines and the conditionality of deterrence. India's recent shift towards a counterforce nuclear posture raises questions about the credibility of its deterrence strategy, while Pakistan's diversification of means of delivery has made its deterrence more sophisticated. The presence of nuclear weapons in South Asia has prevented conflicts from escalating to nuclear warfare, but it has also fueled an arms race between India, Pakistan, and China. The article emphasizes the importance of both conventional and nuclear deterrence in preventing conflict, the need for continued investment in capabilities, and diplomatic efforts to reduce tensions. However, the risks associated with nuclear escalation and the arms race in the region remain a cause for concern, highlighting the need for international engagement.

**Keywords:** India, Pakistan, Conventional capabilities, Nuclear deterrence, Arms race, asymmetry

## Resumen

El trabajo analiza las capacidades convencionales y nucleares de India y Pakistán, junto con sus estrategias de disuasión. A pesar de las ventajas de India, la geografía natural y la experiencia operativa de Pakistán le proporcionan una ventaja defensiva, lo que conduce a una simetría condicional en el equilibrio de poder. La falta de cumplimiento de estados con las salvaguardias internacionales sugiere una disposición a participar en la proliferación vertical. El artículo examina las complejidades de la disuasión nuclear, incluido el papel de las doctrinas nucleares y la condicionalidad de la disuasión. El reciente cambio de India hacia una postura nuclear de contrafuerza plantea preguntas sobre la credibilidad de su estrategia de disuasión, mientras que la diversificación de los medios de entrega de Pakistán ha hecho que su disuasión sea más sofisticada. La presencia de armas nucleares en el sur de Asia ha evitado que los conflictos escalen a una guerra nuclear, pero también ha alimentado una carrera armamentista entre India, Pakistán y China. El artículo enfatiza la importancia de la disuasión convencional y nuclear en la prevención del conflicto, la necesidad de una inversión continua en capacidades y esfuerzos diplomáticos para reducir las tensiones. Sin embargo, los riesgos asociados con la escalada nuclear y la carrera armamentista en la región siguen siendo motivo de preocupación, lo que destaca la necesidad de un compromiso internacional.

**Palabras clave:** India, Pakistán, capacidades convencionales, disuasión nuclear, carrera armamentista, asimetría.

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## **1. Contextualization of the topic and interest**

The current nuclear landscape is characterized by multipolarity, rather than the previous bipolarity. An increasing number of countries in various regions have acquired nuclear capabilities, thereby altering the global security dynamic. South Asia, with its focus on Pakistan and India, has emerged as one of the most recent and central players in this new nuclear era. Hence, it is imperative to examine the impact of nuclear weapons on the security situation in South Asia.

In recent times, the neighbouring states have had a tumultuous relationship marked by rivalries, with their possession of nuclear weapons playing a significant role in shaping their defence policies. Their decision to develop these capabilities has been influenced by the global environment, but in the region, it is seen as the catalyst for a dangerous arms race, with the most perilous weapons at its centre: nuclear arms.

Neglecting to consider the status of nuclear weapons in South Asia while attempting to comprehend the current landscape of weapons of mass destruction would result in overlooking one of the most pressing issues in the field.

In my opinion, attempting to comprehend the security context of nuclear states without delving into their nuclear capabilities is futile. In today's nuclear world, it is imperative to fully grasp the often-overlooked nuclear powers to ensure a comprehensive understanding of global security. The security implications of these nuclear-armed states are significant, and their rivalry and history of conflict make them a fascinating case study for exploring the dynamics of nuclear deterrence and proliferation. By examining their nuclear capabilities and security strategies, I hope to gain a better understanding of the challenges and opportunities for managing nuclear risks in South Asia and beyond.

## **2. State of the art**

The initial segment of the paper centers on comprehending the existing literature concerning the subject matter. The State of the Art is subdivided into four distinct categories: an outline of academic perspectives regarding the nuclear arms race, an overview of nuclear capabilities, trends in proliferation, and conventional conflicts and capabilities. The underlying objective is to acquire an in-depth understanding of the context and capacities of each field of the respective countries to facilitate an effective comparison.

## 2.1 The nuclear arms race

To understand the nuclear arms race it is relevant to properly characterize the context framing it. The South Asian effort to achieve the bomb has been considered part of the second nuclear age. This period and the current nuclear status quo are not considered a nuclear crisis, but rather a new multipolar order with periodic crises. A new nuclear paradigm of sorts (Bracken, 2012). There are new actors that achieved nuclear capabilities at the end of the Cold War and have adjusted the dynamics of nuclear power. Within this category fall both India and Pakistan who announced their nuclear capabilities with nuclear tests in 1974 and 1998 respectively (SIPRI, 2022).

As stated by Huntington (1958) an arms race refers to the competitive acquisition of military superiority by nations, driven by the need for security, prestige, and power. The fear of falling behind in military technology and the belief in the need to always be prepared for the worst-case scenario fuel this cycle of military build-up and arms procurement, leading to an expensive and potentially destabilizing cycle of conflict and war. This cycle is one of “action-reaction” in which states mirror or strive to anticipate the adversary’s capabilities.

Academic consensus suggests that a spiral of action-reaction has led to a nuclear arms race in the region, although there is debate as to whether the sequence of tests of new capabilities constitutes an arms race. While academics often use military expenditure to demonstrate this relationship, there is no consensus on this matter in this case. Therefore, academics have turned to examine the linearity of tests and the types of capabilities involved, as previous studies of military expenditure have shown a linear relationship which cannot account for the behaviour of the nations. Nevertheless, using nuclear missile tests as an indicator of an arms race has its limitations. It can be problematic since the correlation between missile testing and missile deployment may not be direct, and missile tests may be planned years in advance, reflecting decisions made in prior years to crises or advances in capabilities. The lack of reciprocal causality in the timing of missile tests in South Asia is supported by the data, indicating that the tests are not causing each other (Dalton & Tandler, 2012).

## 2.2 Nuclear capabilities

Concerning nuclear capabilities, two aspects should be considered. The first is the capabilities in terms of the number of nuclear weapons, the second is the types of capabilities. One of the salient features of the subject under discussion pertains to the historical progression of capabilities. A discernible discourse on the presence or absence of symmetry in capabilities has ensued. Ganguly and Hagerty (2012) contend that capabilities are symmetrical. However, their argument is based solely on a comparison of nuclear arsenals and does not explore whether their respective nuclear and conventional capabilities can be confronted on an equal footing.

In contemplating the disparities between the arsenals of India and Pakistan, it is imperative to take into account two key factors. Firstly, in terms of numerical strength, their respective arsenals exhibit a near-perfect symmetry, with an aggregate inventory of 160 and 165 weapons for the Indian and Pakistani cases, respectively, as represented in Figure 1 and evidenced by the table presented in Appendix 1. Such an inventory situates both nations as intermediate nuclear powers, with respect to the arsenals of other nations. Secondly, it is important to acknowledge that the aforementioned figures are estimates, given that neither Asian state has provided concrete information on the status or scale of their nuclear arsenals. These estimates are based on the statements made about previous nuclear tests and their fissile stockpiles (SIPRI, 2022, p. 342).

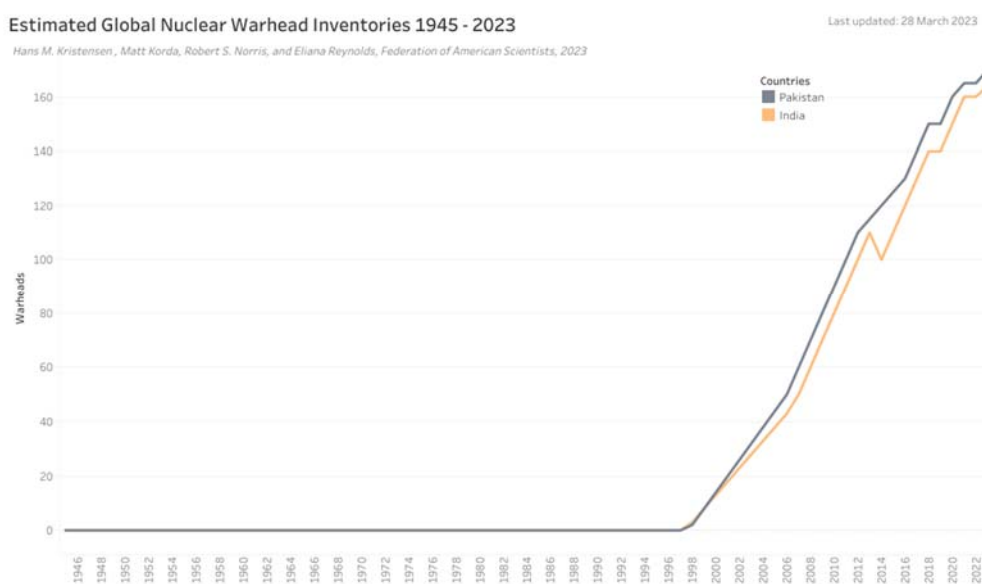


Figure 1: Estimated Nuclear Warhead Inventories India and Pakistan 1945-2023, Source: (FAS, 2023)

Concerning the classification of capabilities, India has successfully established a nuclear triad encompassing various means of delivery. Specifically, India's strike capabilities comprise aircraft, land-based missiles, and sea-based missiles. Notably, India's aircraft capabilities are the most advanced whilst the land-based capabilities include long, medium and short-range missiles. It has been suggested that India has additionally acquired nuclear cruise missile capabilities, but this assertion has yet to receive official confirmation (SIPRI, 2022, p. 391-395).

Similarly, Pakistan also possesses a nuclear triad of means of delivery, which primarily centres around land-based capabilities, but also encompasses aircraft and sea-based missiles. Pakistan's capabilities comprise both long and short-range missiles, with a particular emphasis on tactical weapons (SIPRI, 2022). Observing the military-grade fissile material reserves and production of both states is also pertinent since the arsenals of both states are based on boosted fission weapons instead of hydrogen bombs (Bracken, 2012).

The estimated stockpile of India's unirradiated high-enriched uranium (HEU) is approximately  $4.9 \pm 2$  tonnes, enriched to about 30% uranium-235 while the weapon-grade plutonium stockpile is around  $0.7 \pm 0.15$  tonnes, either already incorporated in weapons or available for military purposes, with an additional 9.2 tonnes of separated plutonium not directly accessible for military use. The weapon-grade plutonium stockpile in India, after accounting for production and removal figures, is estimated to be around  $0.63 \pm 0.14$  tons as of early 2021. India operates two plutonium production reactors, Dhruva and CIRUS, the latter of which has been inactive since 2010. India also has an operational uranium enrichment facility and plans to build a new plutonium reactor. It should be noted that these facilities are not subject to IAEA safeguards and are not accounted for (IPFM, 2022a, 2022b).

At the beginning of 2021, it is estimated that Pakistan had amassed a stockpile of approximately 0.5 tonnes of plutonium, which was generated in four production reactors located in Khushab. Furthermore, Pakistan is believed to have a stockpile of  $4 \pm 1.2$  tonnes of HEU as of early 2021, with ongoing production of HEU for its nuclear weapons program. Nevertheless, uncertainties persist regarding Pakistan's uranium reserves, as well as the operating history and enrichment capacity of its centrifuge plants, particularly at Kahuta and a potential second plant at Gadwal, which might be solely dedicated to HEU production. These uncertainties limit the reliability of the estimates (IPFM, 2022a, 2022c).

## **2.3 Trends in proliferation**

Given that the analysis aims to investigate the potential occurrence of an arms race and contextualize the proliferation strategies pursued by each country, it is essential to ascertain the types of proliferation transpiring in the region.

According to Bajia (1997, p. 48), "vertical proliferation" refers to an increase in the numbers and types of nuclear weapons within the arsenal of nuclear weapon states. This type of proliferation is distinct from "horizontal proliferation," which involves the spread of nuclear weapons to non-nuclear weapon states or the acquisition of nuclear weapon-making capabilities by such states. It is important to note that the concept of proliferation has historically been limited to horizontal proliferation by nuclear weapon states such as the US, which played a major role in drafting the NPT. In other words, both India and Pakistan are engaging in vertical proliferation by increasing the numbers and types of nuclear weapons in their respective arsenals.

It is widely acknowledged that both countries are actively engaging in vertical proliferation by augmenting their stockpiles of nuclear weapons, as depicted in Figure 1 (SIPRI, 2022). This trend is particularly evident in recent years, as demonstrated in Appendix 1. The Pakistani case is apparent since, during the 2006-2011 period, Pakistan effectively doubled the size of its nuclear arsenal and became the fastest-growing nuclear power in the world (Bracken, 2012).

## **2.4 Conventional conflicts and capabilities**

The tensions and conflicts between India and Pakistan have a long and complex history that predates their development of nuclear capabilities. The principal cause of these conventional conflicts has been territorial and border disputes between the two states. Two out of three Indo-Pakistani wars were fought conventionally over the territory of Kashmir. The four main conventional conflicts between the two states were the First Indo-Pakistani War of 1947, the Second Indo-Pakistani War of 1965, the Third Indo-Pakistani War of 1971, and the Kargil War of 1999, which was considered a limited war which caused the displacement of population along the Line of Control (LoC) (Schumann, 2020; Lyon, 2008). In 2003, the hostilities reached their peak, resulting in a cease-fire proposal by Pakistan, which has subsequently been renewed in 2021 (Kuchay, 2021). Since then, there have been several skirmishes at the LoC resulting in fatalities, as well as incidents



involving proxy groups that periodically escalate tensions between the neighbouring states (Center for Preventive Action, 2022). Some authors suggest that there were six major conflicts instead of four during the same period of twenty years (Bracken, 2012). Regardless, the consensus is that the region is unstable due to the presence of two rival powers with a history of conflicts that are increasingly relevant and important (Bracken, 2012). Making future conflicts plausible. Even if the past conflicts were conventional, developing nuclear capabilities is a key aspect of the arms race and the conflicts within the region. The biggest example is the crisis in 1984 in which India tried to destroy Pakistan's budding nuclear capabilities with preventive airstrikes (Ganguly, Hagerty, 2012).

The question of whether the conventional capabilities of India and Pakistan are symmetric or asymmetric is a complex one. India possesses an active military personnel of 1,463,700, while Pakistan has 651,800 personnel. Additionally, India has a superior armament (Hackett, 2023). The Indian army is the primary focus of the country's military capabilities and strategy and receives the greatest allocation of budget and personnel. India has an orthodox offensive doctrine, prioritizing the use of force independent of political decisions to impose a punitive cost on enemies (Kaushal et al., 2021; Tarapore, 2020). On the contrary, Pakistan possesses a significant conventional advantage in terms of terrain, which enables it to formulate a more effective defence strategy. The country places immense value on its conventional capabilities, considering them a crucial element of its conventional deterrence against India. Notably, the border separating the two states represents a key vulnerability for Pakistan, a reality that the state acknowledges. Accordingly, Pakistan has deployed more than 80 percent of its divisions towards defending this border (Ladwig, 2015).

India is also committed to continuously improving its conventional capabilities and has been the world's largest buyer of conventional weapons since 1997. Moreover, India has doubled its real terms defence spending since 1997, with an average yearly increase of 6.3 percent (Ladwig, 2015). In addition to its significant conventional capabilities, India has been actively modernizing its military equipment and organization, including the establishment of a Chief of Defence Staff (CDS) position. Moreover, India declared its defence budget for 2022-23 in February, amounting to INR 5.25 trillion (USD 66.6 billion), showing a 4.4% rise from the adjusted budget for 2021-22. The noteworthy aspect of the budget is the emphasis on advancing modernization efforts, as seen in the 12.7% rise in the capital budget, which finances research and development and procurement (Hackett,

2023). However, despite these efforts, there are ongoing issues related to India's adherence to its orthodox offensive doctrine, which may limit the effectiveness of these reforms. While India is undergoing deep structural reforms, the lack of accompanying doctrinal change may limit the impact of these efforts. Additionally, the military has been resistant to change, and there has been little involvement of other sectors of society in implementing these reforms (Tarapore, 2020). In contrast, Pakistan appears to be less committed to modernizing its military capabilities to the same extent as India. While conventional capabilities remain a vital component of its overall defence capabilities, Pakistan has directed its attention towards alternative investments and developments, such as tactical nuclear weapons (Ladwig, 2015). With regard to its military expenditures, Pakistan has allocated a larger budget for the 2021-22 period, with an increase of 6%. This trend has been observed over the last few years (Hackett in 2023). Pakistan has been trying to keep up with India's modernization within its own resource constraints.

### **3. Theoretical background**

To comprehend the current state of nuclear proliferation in South Asia, three fundamental theories have been selected as the conceptual framework: realism, state survival theory and deterrence theory.

#### **3.1 Realism**

Realism is considered to be one of the dominant theoretical perspectives within the field of international relations and is widely regarded as the foundational school of thought for the study of international politics. The realist approach is based upon a set of fundamental assumptions that underpin the theory. Firstly, realists posit that states are the principal actors in the international political arena and that their actions are motivated by a desire to maintain and enhance their power and influence. Secondly, realists maintain that international relations are characterized by a struggle for power, which takes place within a context of anarchy. Finally, realists argue that states are required to balance their interests against those of other states to survive within the international system (Morgenthau et al., 1985). These core tenets of realism have been central to the development of the theory and continue to inform much of the current scholarship in the field of international relations.

The theoretical perspective of realism that is utilized in this analysis is structural realism, also referred to as neorealism. This perspective places significant emphasis on the role of the international system in shaping the behaviour of states. Structural realists contend that the distribution of power among states within the international system is the primary determinant of state behaviour, as opposed to the characteristics of individual states or the decisions of their leaders. The anarchic nature of the international system, according to structural realists, creates an environment in which states must rely on their resources and capabilities to survive, leading to the pursuit of power and security to ensure their own survival in the face of potential threats from other states. Structural realism is set apart from other realist perspectives by its emphasis on the systemic level of analysis, and its focus on the balance of power as the principal mechanism through which stability and order are maintained within the international system (Waltz, 2010; Mearsheimer, 2007).

In the context of structural realism, two theoretical frameworks exist: defensive and offensive structural realism. Defensive structural realism posits that the primary motivation of states is the attainment of security, rather than power and that their conduct is determined by the distribution of power and resources in the international system. This approach emphasizes the importance of defensive strategies such as alliances and military buildup to deter potential threats from other states, as well as the need for a balance of power among states to sustain stability in the international system. Overall, defensive structural realism provides an alternative viewpoint to offensive structural realism, which contends that states are primarily motivated by a desire to increase their power and influence, rather than their security. In defensive structural realism, power does not necessarily equate to security, as per the assertions of Waltz (2010).

In the context of realism, the security dilemma constitutes a central theory for comprehending security and arms races. The crux of the theory is that the pursuit of greater security by one state may imperil the security of other states. This can occur when a state's actions to enhance its security, such as military build-up or alliances, are perceived as a threat by other states, leading to insecurity spirals of mistrust, suspicion, and ultimately conflict. The fundamental cause of the security dilemma is the difficulty in accurately assessing the intentions of other states. Even if a state's actions are defensive in nature, they can still be interpreted as offensive by others, leading to a vicious cycle of escalation and mistrust (Waltz, 2010).

### **3.2 State survival**

The perspective of state survival theory in international relations is centred on the idea that the main objective of states is to ensure their own survival in an anarchic and competitive international system. This theory assumes the main principles of classical realism and suggests that states constantly seek ways to protect their interests and security. Military power, including advanced weapons systems, is a key strategy used by states to ensure their survival, with nuclear weapons being a crucial factor. Possession of nuclear weapons can serve as a deterrent against potential aggressors and provide a powerful form of military protection. The theory of nuclear deterrence, a subset of state survival theory, proposes that the threat of nuclear retaliation can deter an adversary from attacking, even in the absence of other conventional military capabilities (Waltz, 1981).

Despite the potential benefits of nuclear weapons for state survival, they also pose significant risks and challenges, such as accidental use, the spread of nuclear weapons to non-state actors, and the possibility of a catastrophic global conflict (Saalman & Topychkanov, 2021). Consequently, the pursuit of state survival through nuclear weapons remains a contentious and intricate issue in international relations. State survival theory proposes that international cooperation and peace are feasible only when states have established a stable balance of power with other states and are confident in their survival (Waltz, 1981).

### **3.3 Deterrence theories: nuclear and conventional deterrence**

The use of force can serve different purposes, including offensive, defensive, deterrent, and coercive goals. When seeking to prevent another state from attacking, there are two primary methods of dissuasion. The first approach involves the defensive ideal, which involves fortifying one's defences to such an extent that an attack is perceived as a daunting challenge. The second approach involves deterrence, which entails discouraging aggression by threatening a severe punishment in response (Waltz, 1981). Deterrence hinges not on the ability to defend oneself, but rather on the ability to retaliate. For deterrence to be effective, the ability to deter must be credible, meaning that the threat of punishment must be real. The deterrent effect is dependent on both the capabilities and the resolve to use them, both aspects need to be credible (Walz, 1981; Schelling, 1980). Nevertheless, deterrence is not infallible, and can be unstable due to factors such as misunderstandings, misperceptions or errors (Waltz, 1981).

Nuclear weapons constitute a critical component of contemporary deterrence theory, as they challenge the fundamental principles of deterrence. According to nuclear deterrence theory, nuclear weapons serve as the ultimate deterrent. Because the decision to go to war is no longer predicated on the prospect of securing a victory, but rather on the need to gamble with state survival and face potential unlimited suffering. This imperative to avoid annihilation, renders nuclear wars highly improbable. Possessing nuclear weapons slows down arms races, thereby mitigating the likelihood of escalation to a nuclear conflict. As a result, nuclear weapons can act as a stabilizing force both at the national and regional levels. Still, there are significant risks associated with nuclear deterrence, notably the danger of accidental escalation or unanticipated outcomes (Waltz, 1981).

The theory of nuclear deterrence raises an intriguing issue known as the thermonuclear dilemma. This predicament arises when two or more states possess a substantial nuclear arsenal and the ability to annihilate each other. While this capability serves as a deterrent, it also renders the states vulnerable to a devastating counterattack in the event of a first strike. Both sides have an interest in maintaining a credible nuclear deterrent through nuclear capabilities and a willingness to employ them. While also seeking to safeguard their state's survival and prevent nuclear war (Waltz, 2010). This school of thought of deterrence theory is known as existential deterrence. The strategy focuses on preventing an adversary from using its nuclear weapons in a way that would cause an existential threat to the deterred state (Brodie & Dunn, 1946). Although the possibility of nuclear war always looms, the goal is to avoid it, and any escalation of conflict raises the risk of its occurrence (Waltz, 2010).

Conventional deterrence theory operates on a slightly different logic than nuclear deterrence theory. A crisis is more likely to escalate into a conflict when the aggressor believes that a quick victory is attainable. However, the probability of success is not the sole consideration, as agility, proportionality, and cost of victory are also crucial factors to ponder. Different types of wars vary significantly in length, and states are more likely to engage in each type of war based on their strategic objectives. In wars of attrition, capabilities are eroded over time, through sustained and diverse tactics. If an aggressor believes that attrition is the only available strategy, they are likely to avoid engaging in the conflict because it would be too costly. In this scenario, the possibility of attrition serves as a deterrent. Conversely, in a blitzkrieg war, the attacker believes that it can achieve rapid success. In this type of war, there is no conventional deterrence (Mearsheimer, 1985).

#### **4. Objectives and hypothesis**

The main aim of this analysis is to gain an understanding of the relationship between the military capabilities of India and Pakistan, with a particular focus on their respective nuclear arsenals. The two additional secondary objectives of this study are to investigate the correlation between conventional and nuclear capabilities within the context of deterrence and to comprehend the dynamics of the arms race unfolding in the region.

To achieve these objectives, various research questions need to be addressed. These include the following: Are nuclear weapons escalating tensions or stopping a conflict from taking place? How are both states engaging in an arms race? What effects does this dynamic have on the nuclear doctrine of both states?

The main hypothesis posits that an arms race, involving both nuclear and conventional weapons, is occurring in the region, and it is having diverse effects on both states and the broader region. Nuclear weapons are serving as both a trigger and the motivation for the arms race, while also potentially acting as a stabilizing force in the region.

## **5. Methodology**

The present study utilizes a deductive approach to conduct a qualitative analysis of the India-Pakistan dynamic from the 1960s to the present day. The methodology employed for this study, primarily involves a comprehensive analysis of existing literature on the subject; including academic articles, policy papers, and other relevant publications. The study also incorporates primary sources such as official statements by both governments to gain a better understanding of their nuclear strategies and doctrines and the implications for the region. Additionally, to gain insight into public opinion on the matter, the study employs the tool Google Trends<sup>1</sup> to research related topics and gauge public interest on them.

The study aims to provide a holistic understanding of the role of nuclear weapons in the dynamic and the potential arms race in the region. To achieve this goal, the study takes a comparative approach, analyzing the neighbouring states at both domestic and international levels. Through this analysis, the study seeks to explore the complexities of the India-Pakistan dynamic, including regional factors that may influence their behaviour and decisions related to nuclear weapons and the potential for an arms race in the region. The study does not attempt to assess the ethical implications of nuclear weapons possession or use. As such, the comparative study does not incorporate ethical considerations. Overall, this study provides valuable insights into the complex nature of the India-Pakistan relationship, the potential for escalation in the region and the role of deterrence.

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<sup>1</sup> Publicly available at (<https://trends.google.com/>).

## 6. Analysis

Mr. Bhutto once proclaimed regarding Pakistan's pursuit of the atomic bomb:

*"If India builds the bomb, we will eat grass or leaves, even go hungry, but we will get one of our own. We have no alternative."*

In light of the aforementioned context and in an effort to provide a comprehensive response to the analysis, the section is divided into multiple segments that mirror the structure of the State of the Art, starting with a comparison of capabilities divided by type and moving to the broader considerations and effects of the capabilities. These sections include a comparison of conventional capabilities, conventional deterrence, trends in proliferation, nuclear capabilities, nuclear use doctrine and strategies, nuclear deterrence, the link between nuclear and conventional capabilities, the impact and public perception of risks associated with nuclear proliferation.

### 6.1 Comparison of conventional capabilities: conditional symmetry

The first aspect that warrants analysis is the comparison of the conventional military capabilities between the two neighbouring countries. Both India and Pakistan acknowledge the importance of their conventional capabilities, and in recent years, they have continued to increase their military spending (Hackett, 2023). It may seem intuitive to assume that India has the advantage in conventional warfare due to its major power status and greater resources as compared to Pakistan, which is a secondary world power (Bracken, 2012).

However, the reality is less straightforward. While India does possess more resources in absolute terms, both in respect of personnel and armament (Hackett, 2023), and has been modernizing its military capabilities by procuring conventional armament (Ladwig, 2015). Pakistan's natural enclave and terrain provide it with an equivalent advantage that is not tied to its behaviour or investments. In conventional conflicts, the terrain is a fundamental aspect to consider, and in this case, it favours Pakistan (Ladwig, 2015).

Despite India's clear advantage in resources, there are limitations to its conventional power. Its adherence to an orthodox offensive doctrine can be limiting in overcoming the natural disadvantage posed by the terrain (Tarapore, 2020). The configuration of the Indian



forces, its resistance to change and the terrain ensures that having an element of surprise when attacking Pakistan would be impossible, further undermining its doctrine and conventional superiority. On the other hand, Pakistan has a defensive strategy for its conventional capabilities and has deployed most of them to protect the border (Hackett, 2023; Ladwig, 2015).

India's modernization efforts are indeed significant, but the skill of its forces is also a crucial factor in overcoming the disadvantages discussed earlier and utilizing its technical edge to gain a clear conventional advantage over Pakistan. To do so, India must possess a skill asymmetry that favours its forces (Biddle, 2004; Ladwig, 2015). However, currently, there is no evidence to suggest that such a skill gap exists between the two militaries. While India possesses a technical advantage that it has acquired through its modernization efforts, Pakistan has significant operational experience from decades of counterinsurgency operations (Hackett, 2023), giving it the necessary skills to erode the Indian technical advantage and level the playing field.

Therefore, it can be concluded that although the two states possess different conventional capabilities, they are more symmetric in terms of military strength than initially assessed. Nonetheless, it would be inaccurate to describe the situation as entirely symmetric either; a more appropriate term would be conditional symmetry. This means that the precarious balance of power between the two states could potentially become increasingly asymmetric due to the existing factors, such as the continued modernization of military capabilities or a doctrinal change on the Indian side.

## **6.2 Conventional deterrence**

Based on the previously established conditional symmetry, conventional deterrence theory can be applied to determine the likelihood of conflict between India and Pakistan. Conventional deterrence theory is based on the ability of a state to deny its opponent their objectives on the battlefield using conventional forces. The key factors for successful deterrence are agility, the likelihood of victory, and the cost as explained in the state of the art (Mearsheimer, 1985). In the case of India and Pakistan, the existing conditional symmetry means that both states can hold their own in a conflict, making the possibility of a clear victory for either side remote and granting both sides conventional deterrence.

This, in turn, provides both states with a compelling reason to avoid engaging in a conventional war. This is also determined by agility, states in general try to avoid waging attrition wars since they extend over time and increase the costs dearly (Mearsheimer, 1985). Additionally, agility is a critical factor in conventional deterrence. In the case of India and Pakistan, there are no indicators that a potential conflict would be agile. The existing symmetry points towards the opposite conclusion: that any conflict would likely drag on for an extended period, increasing costs for both sides (Mearsheimer, 1985). There is no clear winner for a conventional conflict.

These factors resulting from the conditional symmetry (the high cost, unguaranteed victory and lack of agility) strengthen conventional deterrence between India and Pakistan, making it less likely that any future conflicts will escalate into fully-fledged conventional wars, as has been historical circumstance.

The historical context is likely to be another factor contributing to the credibility of conventional deterrence. Half of the four preceding conflicts lasted for more than a year, and even the longest one, the second Indo-Pakistani war of 1965, did not produce a definitive winner. These conflicts typically involved the cyclical exchange of captured and lost territories (Lyon, 2008). The historical precedent set by these wars provides reassurance for conventional deterrence, since previous conflicts ended without a clear winner or at a high cost due to symmetry and international support. The credibility of present conventional deterrence is further strengthened by the past, which gives it greater weight as credibility is a key aspect of deterrence theory in general (Walz, 1981; Schelling, 1980).

All the aforementioned factors are crucial in determining the effectiveness of conventional deterrence in terms of the willingness to engage in a conventional war. Conversely, according to conventional deterrence theory, there is no guarantee that a conventional war will not devolve into a war of attrition, which neither state would want. In the event of a prolonged conventional war, India would have a better chance of success based on basic conventional deterrence theory, since it is a major power with greater resources and could potentially endure the sustained cost of war for a longer period of time (Bracken, 2012).

The presence of the established conditional symmetry between the two states indicates the existence of strong conventional deterrence in the region, as there is no clear evidence of a definitive win or superiority for either side. Moreover, having symmetric capabilities also increases the likelihood of a protracted war, which both sides would strive to avoid.

### **6.3 Trends in proliferation and nuclear capabilities**

The analysis focuses on examining whether there is an intent to further vertically proliferate by examining the nuclear stockpiles of both nations and whether nuclear capabilities and their use are expanding. This analysis takes a macro-level, state-level perspective on nuclear proliferation. The term "vertical proliferation" is used in this analysis, as it specifically refers to the increase of nuclear arsenals within nuclear states. The discourse surrounding nuclear proliferation often avoids the use of this term to redirect attention away from the nuclear arms race occurring within already nuclear states and increase the focus towards preventing the creation of new nuclear states (Bajia, 1997). The main object of study in this analysis is the dynamic of expansion of nuclear arsenals. It is argued that this dynamic of vertical proliferation is occurring in the region. The literature indicates that nuclear proliferation is taking place, with complex causes that are analyzed in the sections on nuclear doctrine and the link between conventional and nuclear deterrence. The operationalization of vertical proliferation differs between the two states as can be observed in the stockpiles of fissile material and nuclear weapons.

Regarding fissile material stockpiles, it is important to consider the differences between the two states to understand their behaviour. The levels of highly enriched uranium (HEU) and plutonium available, as well as the capability to produce both, are taken into account. Unirradiated HEU is a type of uranium that has been enriched to a high level of isotope. The levels of weapon-grade plutonium are also important since the arsenals of both states are based on boosted-fission weapons that require fissile materials such as HEU and weapon-grade plutonium. India has an estimated stockpile of  $4.9 \pm 2$  tonnes of unirradiated HEU; Pakistan has  $4 \pm 1.2$  tonnes of HEU. Their estimated stockpiles of HEU are extremely similar to one another. However, Pakistan is facing a clear production constraint due to the deficit of natural uranium needed to scale its production and continue it further (Tellis, 2022).

The primary difference in the fissile material stockpiles between India and Pakistan arises from plutonium, which accounts for strategic differences in the type of systems they have developed. India has an estimated  $0.7 \pm 0.15$  tonnes of weapon-grade plutonium, along with an additional 9.2 tonnes of separated plutonium that is not directly accessible for military use. In contrast, Pakistan is estimated to have a stockpile of only 0.5 tonnes of plutonium with no other reserves (IPFM, 2022a, 2022b).

Both India and Pakistan can domestically enrich uranium and plutonium without relying on imports for fissile materials. Pakistan's plutonium is generated in four production reactors, while India has two plutonium production reactors and plans to construct an additional plutonium reactor (IPFM, 2022a, 2022b). However, there are uncertainties regarding Pakistan's uranium reserves and enrichment ability, which limit the reliability of estimates. Nevertheless, Pakistan can produce HEU in at least one enrichment facility and seems to have plans for a second plant at Gadwal (IPFM, 2022a, 2022c; Bracken, 2012). India has an operational uranium enrichment facility, and the plans for constructing new facilities indicate towards a trend of vertical proliferation (IPFM, 2022b). Both states have a desire to continue developing their fissile material production capabilities to expand their fissile material stockpiles, as evident from their plans for building new production facilities (Tellis, 2022). Although the arsenals and capabilities are symmetrical now, in the future, unless Pakistan addresses its production constraints, it will not be able to keep up with India's growth rate of its nuclear arsenal. Making it impossible to scale its fissile material production to maintain symmetry

One relevant characteristic of the fissile material production capabilities of India and Pakistan pertains to whether they are subject to International Atomic Energy Agency (IAEA) safeguards. These safeguards serve as a crucial mechanism to verify compliance with commitments against developing nuclear programs for military purposes (IAEA, n.d.). However, both states possess several facilities that either fall short of the required standards or are not subject to the safeguards. For instance, India has 10 power reactors that are not under IAEA safeguards (Appendix 1; IPFM, 2022b), while Pakistan's enrichment plants, production reactors, fuel production facilities, and reprocessing plants lack international safeguards (IPFM, 2022a), despite the reactors being under IAEA safeguards, as shown in Appendix 1. This trend suggests their willingness to continue vertically proliferating. The objective of IAEA safeguards is to promote the peaceful use of nuclear energy while preventing military applications. India and Pakistan's construction

of new facilities without international controls indicates a desire to increase their fissile material stockpiles for military use, without IAEA oversight to ensure their material is not intended for such purposes (Robertson & Carlson, 2016).

The aforementioned inclination of India and Pakistan to engage in vertical proliferation is further substantiated by their attitudes towards treaties aimed at reducing fissile material stockpiles. Pakistan, in particular, is obstructing the negotiation of the Fissile Material Cutoff Treaty (FMCT), which seeks to limit the expansion of fissile material stockpiles. Islamabad is insisting that the treaty should also include a cap on the existing nuclear stockpiles, not just future ones, to address the existing asymmetry with Indian stockpiles (Arms Control Association, 2018). This demand is mainly motivated by the asymmetry in plutonium stockpiles. If the FMCT were to lock stockpiles at current levels, it would leave India and Pakistan in the current asymmetrical situation, which Pakistan is not willing to accept. On the other hand, India's purported non-proliferation efforts are increasingly being called into question, as it refuses to consider Pakistan's proposal for a reduction of the current nuclear stockpile. This is because India seeks to maintain its advantage in terms of fissile material stockpiles, which it believes will translate into clear nuclear superiority in the future if it continues to produce nuclear weapons. The fact that both states are unwilling to relinquish the possibility of having a superior fissile material stockpile indicates their continued intent to develop their nuclear capabilities.

Another crucial aspect to consider in terms of vertical proliferation is whether the intent to increase fissile material stockpiles translates into their nuclear capabilities. In the case of India and Pakistan, this intent is evident. Although both states are considered intermediate nuclear powers and have similar numeric capabilities, with India possessing an inventory of 160 warheads and Pakistan having 165 warheads (SIPRI, 2022, p. 342), there are slight differences in their nuclear capabilities. However, their arsenals are based on boosted fission weapons and, overall, they mirror each other. Both countries have established nuclear triads consisting of aircraft, land-based missiles, and sea-based missiles (Ganguly and Hagerty, 2012). India has the most advanced capabilities, including the development of nuclear cruise missile capabilities, while Pakistan's capabilities primarily focus on land-based capabilities with an emphasis on tactical weapons (Bracken, 2012; SIPRI, 2012).

The usage and testing of nuclear capabilities by India and Pakistan demonstrate a parallel behaviour of vertical proliferation, with India having launched a total of 228 tests by 2020 compared to Pakistan's 98. However, Pakistan has a slightly better success rate with 94 percent of successful launches compared to India's 85 percent (CNS & NTI, 2020). The increase in launches in recent decades is an indicator of their active engagement in vertical proliferation, as nuclear tests and launches are key components of the improvement of new technologies and nuclear capabilities, as shown in Figures 2 and 3. Along the same line, it is widely acknowledged that both countries are actively engaging in vertical proliferation by augmenting their stockpiles of nuclear weapons (SIPRI, 2022). Both states are growing the size of their nuclear arsenal yearly, as shown in Figure 1. This trend is particularly evident in the case of Pakistan, as shown in Appendix 1, which effectively doubled the size of its nuclear arsenal between 2006 and 2011 and became the fastest-growing nuclear power in the world (Bracken, 2012).

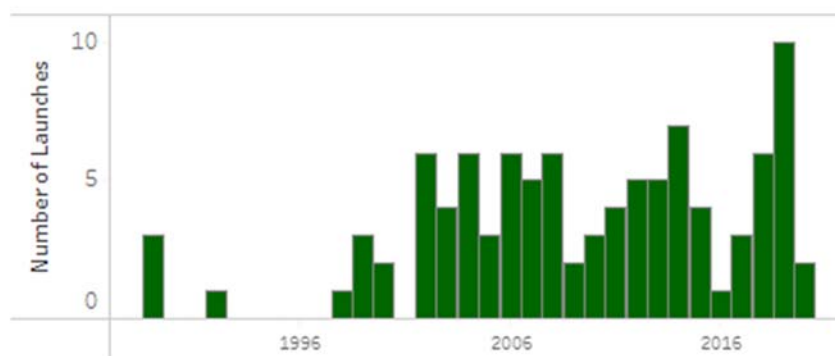


Figure 2: Number of launches of nuclear missiles by Pakistan 1989-2020

Source: (CNS & NTI, 2020)

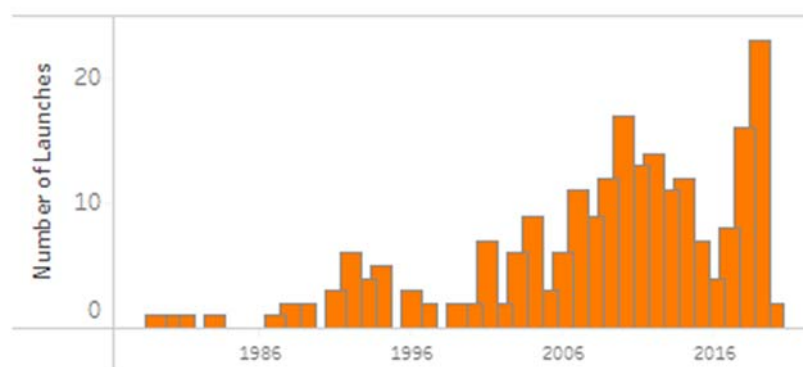


Figure 3: Number of launches of nuclear missiles by India 1989-2020

Source: (CNS & NTI, 2020)

Both countries are developing new weapons and working to improve their existing nuclear capabilities, as demonstrated by their efforts in developing cruise missiles. India has successfully tested several cruise missiles, including the Indigenous Technology Cruise Missile (ITCM), after several failed test launches of ICTMs in previous years (Bisht, 2023). Similarly, Pakistan is carrying out major investments in its nuclear program and recently tested a nuclear-capable sea-launched cruise missile (Hackett, 2023). This behaviour confirms their intent to augment their stockpiles of nuclear weapons and achieve more nuclear power through vertical proliferation.

The present and potential enlargement of arsenals, stockpiles of fissile materials, and non-adherence to regulations, along with attempts to enhance existing nuclear capabilities, collectively demonstrate the vertical proliferation underway in both states. In sum, currently, the capabilities are symmetric in terms of size but are becoming increasingly asymmetrical in terms of technological development and type. The future dynamic is also probably one of asymmetry, with India taking the lead considering the gap in their respective fissile stockpiles, which will enable different growth in the near future.

## **6.4 Nuclear use doctrine & strategy**

In the context of nuclear doctrine, it is pertinent to acknowledge that a significant portion of the nuclear strategy theories that were previously utilized have become obsolete (Ganguly & Hagerty, 2012). Therefore, there is a pressing necessity to incorporate contemporary frameworks that surpass the concept of mutually assured destruction and restructure existing frameworks to accommodate the second nuclear age (Bracken, 2012). Understanding the potential impact of nuclear use strategies is crucial since comprehending the context that these strategies provide is indispensable for understanding a state's nuclear deterrence or deterrent capabilities.

India's nuclear strategy is multifaceted, wherein it proclaims to be adhering to a non-proliferation and disarmament strategy, although its de facto behaviour aligns with other nuclear strategies. India's official doctrine, commonly referred to as the cold start strategy, is directed towards Pakistan. The strategy allows India to launch a retaliatory attack on Pakistan without resorting to its nuclear capabilities or crossing the nuclear threshold (Ladwig, 2007). This approach demonstrates India's emphasis on conventional retaliation via limited war instead of relying on its nuclear arsenal.

India has adopted a strategy of presenting itself as committed to disarmament and non-proliferation, which includes its NFU Policy. This policy forms a crucial aspect of India's nuclear doctrine and was formulated in 1999 and declared officially in 2003. However, the policy has faced some challenges over the years. The central idea behind the NFU policy is that India's nuclear arsenal will only be utilized in response to a nuclear attack, and not in response to a conventional attack of any kind (Dalton, 2019). This policy is closely linked to traditional theories of nuclear doctrine such as disarmament and MAD (Bracken, 2012). The policy also recognizes the danger that the use of nuclear weapons can pose to states and is therefore linked to the theory of state survival and structural realism (Walz, 2010).

India's NFU policy was expanded in the 2003 caveat in which the state clarified that nuclear weapons can be used as retaliation to any type of WMD including chemical and biological weapons not only in retaliation to nuclear (Prime Minister's Office, 2003). While the NFU policy can help prevent the use of nuclear weapons, it also implies a guaranteed second-use policy. This second-use policy is seen as a way to establish a firm deterrence (Bracken, 2012).

Despite India's stated NFU policy, recent statements from Indian government officials have raised doubts about their commitment to it (NTI, 2022). These officials have openly questioned the NFU policy since 2016, with a growing list of critiques that continue to the present day (Singh, 2016; Saalman, 2020). Although they claim that these are their personal opinions and not the position of the government, it is significant that officials responsible for implementing the policy do not believe in it (Saalman, 2020). This indicates that the NFU policy is starting to crumble, and India's nuclear doctrine may change shortly.

As the SIPRI explains: "This growing emphasis on increased readiness and quicker ability to launch has prompted some analysts to consider the possibility that India could be transitioning towards a counterforce nuclear posture to target an adversary's nuclear weapons early in a crisis, before they could be used." (SIPRI, 2022 p. 393.). This change may be motivated by China's nuclear development and border tensions, which are prompting India to adjust its nuclear arsenal and strategy accordingly (Kumar, 2023; Saalman, 2020; Kerttunen, 2009).



In summary, while India's stated NFU policy forms a crucial aspect of its nuclear doctrine, recent official statements and actions suggest that the policy may not be sustainable in the long run. India's evolving nuclear strategy is likely to be influenced by its changing security environment, including tensions with China and ongoing conflicts with Pakistan.

Despite the apparent weaknesses in the foundation of India's nuclear non-proliferation strategy, the country continues to maintain the facade of consistency in its approach, while also pretending to support disarmament efforts.

One notable example of India's purported non-proliferation efforts was the strategic partnership established with the United States in 2005, which led to the signing of the U.S.-India Agreement for Cooperation Concerning Peaceful Uses of Nuclear Energy in 2008. The project's stated goal was: "to strengthen the global non-proliferation regime" (U.S. Department of State, 2008).

Despite previously expressing doubts, India welcomed the Joint Statement of the Leaders of the Five Nuclear-Weapon States on Preventing Nuclear War and Avoiding Arms Races in 2022 (The Times of India, 2022; The White House, 2022).

By presenting itself as committed to horizontal non-proliferation, India is attempting to deflect attention from its covert vertical proliferation strategy. However, recent actions and statements by India have led experts to question whether it is actually following a strategy of strategic ambiguity instead of one of strategic consistency (Saalman, 2020).

Pakistan's nuclear policy is relatively straightforward compared to India's. The country has never adopted an NFU policy and maintains the right to use nuclear weapons in warfare, both in response to any type of weapons and as a first-strike option (Dalton, 2019; The Economic Times, 2019). While its doctrine in other areas has changed over time, its stance on first use has remained consistent and unambiguous (Tasleem, 2016). Historically, Pakistan has adhered to a doctrine of strategic ambiguity, with the possibility of using nuclear weapons first being the only clear tenet (Saalman, 2020).

## 6.5 Nuclear deterrence

Nuclear deterrence in the context of the India-Pakistan relationship is a highly complex issue with various interrelated factors to be taken into account. Apart from comparing the nuclear capabilities of both nations, the configuration of nuclear deterrence is also determined by the nuclear use doctrines adopted by each state. Per Waltz's concept of deterrence (1981), credibility is a key factor, which is dependent on both capabilities and the resolve to use them. Consequently, Pakistan has a more credible nuclear deterrent than India, despite India possessing superior capabilities. If only nuclear capabilities were considered without factoring in the nuclear use strategies of each state, India would have a stronger nuclear deterrent due to its more potent capabilities. However, India's adoption of an NFU policy alters the dynamics of nuclear deterrence in the region.

The India-Pakistan dynamic exemplifies the thermonuclear dilemma as described by Waltz (2010), where both states possess sufficient nuclear capabilities to pose a credible nuclear threat to one another. Both countries seek to ensure their survival and avoid the use of nuclear weapons to avoid mutual destruction, but they also need to maintain a minimum credible deterrent to maintain the balance. Currently, Pakistan is maintaining its minimum credible deterrent with its nuclear weapons. The adoption of India's NFU policy means that it is not willing to use nuclear weapons except in response to other WMDs. This policy does not undermine deterrence as long as both states maintain the credibility of their resolve to use nuclear weapons if necessary. However, Pakistan's greater resolve to use nuclear weapons gives it more credible nuclear deterrence than India.

India's deterrence strategy relies heavily on second-strike capabilities to enforce the punitive aspect of deterrence. The guaranteed second-use policy improves India's deterrence position somewhat. However, the recent change in India's stance on NFU policy raises questions about the credibility of its deterrence strategy. The lack of a coherent nuclear use strategy aligned with India's actions can undermine effective deterrence (Bracken, 2012). There is no guarantee that NFU policy will continue, or that it will disappear. The rate of vertical proliferation agility will not solve the credibility issue, regardless of the amount of fissile material produced or missiles developed by India. As long as Pakistan has reliable first-strike capabilities, the only way to correct the imbalance is by revising India's NFU policy.

Pakistan's nuclear deterrence strategy has evolved from a simple policy of deterrence by punishment to a more complex deterrence by denial approach, although it has yet to achieve it. (Tellis, 2022). This more sophisticated posture is reflected in Pakistan's diversification of means of delivery, as it no longer relies solely on the prospect of massive retaliation but instead seeks to implement a graduated response. Making its deterrence even more credible and sophisticated (Tasleem, 2016). Pakistan's evolving deterrence posture indicates a move away from a narrow focus on avoiding annihilation toward a more nuanced approach to survival and deterrence.

## **6.6 Link between nuclear and conventional**

While it is essential to comprehend the subsequent analysis, the prior examination of conventional and nuclear capabilities is not the primary focus. The most significant factor to evaluate is the interconnectivity between conventional capabilities and nuclear capabilities, as well as both forms of deterrence (Bracken, 2012). There exists a crucial association between nuclear capabilities, and conventional and non-traditional forces, which previous literature has mainly examined in isolation rather than as a triple nexus. Past analyses have separately examined conventional deterrence and nuclear deterrence without elucidating their potential implications on each other.

The preceding discussion has established that, at worst, there is only a minor asymmetry between the conventional capabilities of India and Pakistan, which is likely a conditional symmetry. In the first scenario, India has a slight advantage, while in the second, they are essentially evenly matched. Ganguly and Hagerty (2012) support the second scenario, as they contend that neither state possesses conventional superiority for conventional deterrence and has consequently reached a stalemate. Based on the configuration of their conventional military forces and according to Walz (1981), India has conventional deterrence anchored in the punitive aspect of its orthodox offensive doctrine, whereas Pakistan's approach to violence is centred on achieving the defensive ideal rather than deterrence (Tarapore, 2020; Ladwig, 2015). India possesses sufficient conventional capabilities such that a conventional attack is perceived by Pakistan to be unlikely to reach success, as the existing gap is substantial. Nonetheless, in reality, the gap is not as clear-cut, and conventional deterrence exists for both sides or neither. For both states, conventional deterrence is a crucial element of their strategic deterrent (Ladwig, 2015).

Irrespective of which side one supports regarding whether one state has conventional deterrence or whether they are evenly matched, the outcome remains the same. In either scenario, both states are unlikely to engage in a conventional conflict. In both situations, the goal is to avoid a prolonged conflict since the gap between their conventional capabilities is not substantial enough to ensure victory or prevent defeat. The existence or absence of conventional deterrence implies that both states are unlikely to initiate a conventional war without taking other factors into account. This aspect needs to be evaluated in conjunction with the ongoing arms race aimed at modernizing their conventional forces to break the conditional symmetry. However, the entire dynamic changes when considering the role of nuclear deterrence, which is arguably the most significant factor impacting the conditionality of deterrence.

Due to the defensive nature of Pakistani forces, the state has resorted to leveraging its nuclear capabilities as a means of deterrence, in addition to its defensive strategy. This can be attributed to the tendency of weaker states to find it easier than stronger states to establish their credibility by resorting to nuclear deterrence. Weak states are less likely to stretch their deterrent forces to cover other territories, and their vulnerability to conventional attacks lends credence to their nuclear threats (Walz, 1981). Despite potential symmetry in conventional capabilities, Pakistan remains a secondary world power and an overall weaker state. While some scholars, such as Ladwig (2015), dispute the need for Pakistan to rely on nuclear deterrence to compensate for conventional weaknesses, others argue that Pakistan's defensive strategy is necessary given its overall weaker status. In contrast, India holds a conventional deterrence advantage, assuming that there is conventional asymmetry. However, its overall deterrence strategy is weakened by its reliance on nuclear weapons as a means of deterrence, as previously noted.

Pakistan currently holds an advantageous position due to its lead in nuclear deterrence and only slightly weaker conventional deterrence. This overall leading position is only apparent when both aspects of deterrence are considered together. However, this position is likely to change soon as India's nuclear and conventional capabilities are expected to grow rapidly over the next few decades. Furthermore, India's recent erosion of its NFU policy, which was arguably the biggest weak spot in its deterrence credibility, has further weakened its position. According to nuclear deterrence theory, nuclear weapons serve as the ultimate deterrent, and the possibility of India changing its nuclear use doctrine is worrisome for Pakistan. A real explicit change of India's nuclear use doctrine could be

enough to tilt the balance in its favour and achieve a solid credible minimum deterrence it seems to be missing at the moment.

As Bracken (2012) explains, Pakistan is relying heavily on its nuclear capabilities for deterrence, using them as a “one-trick pony”. Nevertheless, this dependence on nuclear deterrence can be problematic as it often leads to states becoming too reliant on nuclear weapons and failing to keep up with the race in other aspects of deterrence. This appears to be the case with Pakistan as India is currently pursuing a profound modernization of its conventional capabilities to balance deterrence in its favour. Therefore, Pakistan's current advantage in deterrence may not be sustainable in the long run.

The linkage of nuclear deterrence to NFU policy is undermining India's overall deterrence capability. This is because Pakistan is more likely to resort to conventional warfare against India, given that it can rely on the option of breaking any emerging asymmetry with the first use of nuclear weapons (Dalton, 2019). Pakistan possesses nuclear deterrence that is not constrained by any limiting factors and enjoys full credibility, providing it with the freedom to use nuclear weapons as it sees fit. This erodes the already questionable gap in conventional deterrence and effectively achieves total deterrence for Pakistan against India. Such a situation of "full-spectrum deterrence" (M. Kristensen & Korda, 2021a, 2021b), arises due to the bleeding of nuclear deterrence into conventional deterrence. Consequently, Pakistan can utilize its conventional forces without fear of escalation to the nuclear domain until it deems it necessary, as it has the advantage of deciding when to cross the nuclear threshold. In essence, Pakistan's total deterrence hinges entirely on nuclear deterrence, as highlighted in the preceding paragraph.

States are acutely aware of the existing deterrence imbalances and the status quo, and this has significant implications. The pursuit of improved deterrence has a bearing on how states are vertically proliferating, including changes in nuclear doctrine and the type of technological advancements in their nuclear arsenal. The choice of nuclear capabilities and systems being developed is justifiable based on the existing and desired deterrence capabilities, as well as the defensive posture being pursued. The reasons motivating vertical proliferation vary, depending primarily on the adversary state that is driving the need for deterrence. As SIPRI (2022, p. 391) explains: “Until the early 2010s, the limited ranges of India’s initial nuclear systems meant that their only credible role was to deter Pakistan. However, with the development over the subsequent decade of longer-range missiles capable of targeting all of China, it appears that India has placed increased

emphasis on China in recent years". As a result, India has increasingly focused on China as a security threat, given the historical and ongoing border conflicts (Tarapore, 2020). In contrast, Pakistan's change in deterrence capabilities is not driven by a shift in priorities regarding its national adversaries, as India remains the primary security threat and the focus of its deterrence. Rather, it is a consequence of Pakistan's fissile material stockpiles and production abilities. The role of China and the role of fissile materials in Pakistan's choice of nuclear capabilities and range are discussed further in the subsequent analysis of the arms race taking place.

India's pursuit of a more credible deterrent has been implemented through military modernization efforts. However, experts are concerned that this pursuit may disrupt the conventional balance in the region, leading to a destabilization of deterrence and potential conflict. This is particularly worrisome for Pakistan, as India's modernization efforts are perceived as threatening Pakistan's conventional deterrence and could force Pakistan to consider crossing the nuclear threshold more easily (Ladwig, 2015). Even if India is not modernizing due to strategic aspirations, but rather domestic interests (Cohen & Dasgupta, 2013). As a result, Pakistan has turned to vertical proliferation of its nuclear capabilities, with a focus on developing new nuclear weapons, such as low-yield warheads and delivery systems that can be used in combat, or tactical nuclear weapons. While India's actions are often blamed for threatening Pakistan's deterrence, this justification may not be the sole reason for Pakistan's decision to focus on low-yield capabilities, as the availability of fissile materials may also be a key factor (Ladwig, 2015). This causal relationship is not evident since other reasons make more sense for the decision to focus on low-yield capabilities, mainly fissile material availability. This cause is explored when discussing the different tracks within the existing arms race.

## **6.7 Effects: stability and arms race**

After considering all the effects previously discussed concerning the comparison of the nuclear and conventional capabilities of both states, it is evident that nuclear capabilities have a twofold impact on the region. On the one hand, the conventional capabilities of both states prevent them from further escalation and the eventual use of their nuclear weapons. On the other hand, the relationship is inverted: nuclear weapons also prevent further escalation of conflicts using conventional capabilities out of fear of

triggering nuclear use. The more complex aspect of the effects of these capabilities is how they reduce the escalation of conflicts and stabilize the area while simultaneously triggering an arms race. Both countries engage in a conventional and nuclear arms race due to the fear of needing to use their arsenal to retaliate against the other state, but also to improve their deterrent. As a result, a bilateral dynamic emerges: the possible use of nuclear weapons stops the escalation of conflicts, but conventional and non-traditional capabilities prevent the use of nuclear weapons, and both capabilities trigger the dynamic of an arms race. Thus, nuclear escalation represents both a risk and a calming deterrent.

One of the primary causes of the arms race in the region is the significant cost differential between conventional and nuclear capabilities. As a secondary power, Pakistan finds it particularly challenging to keep up with the investment needed to improve its conventional capabilities than to expand its nuclear capabilities (Bracken, 2012). However, the arms race is also fueled by a nuclear truel taking place in the region. India's strategic environment has undergone significant changes since the last conflict it engaged in back in 1999 (Doshi, 2020). India has emerged as Pakistan's clear rival, but India, Pakistan is not the sole rival in the region (Salik, 2009). The rise of China has transformed the nature of the conflict, making it a truel. China is currently undergoing a massive modernization of its military, and as a historic rival of India, this increases the need for India to improve its deterrence and defence capabilities. China poses a threat to India not only at the border but also in new domains such as cyberspace or outer space and new locations such as the Indian Ocean (Doshi, 2020). Another significant aspect of the truel is the growing partnership between China and Pakistan. China has become Pakistan's primary defence partner, providing an increasing amount of Chinese military equipment (Hackett, 2023). Furthermore, the two countries have established an economic corridor, which has altered the balance in the region. The China-Pakistan partnership deters India from engaging in a conflict against Pakistan and, as a result, strips India of its status as a major power. Pakistan, with the support of another major power, ceases to be a secondary power, and the conflict becomes a two-front war, a truel.

The stability brought about by nuclear deterrence in the region is based on the effect it has on both states. The credible deterrent posed by both conventional and nuclear capabilities means that both India and Pakistan are less likely to use their arsenals. They are hesitant to use their conventional capabilities due to the fear of escalation that might trigger nuclear use. This, in turn, reduces the overall risk of major war not only between

India and Pakistan but also between China and India since all three are nuclear states (Doshi, 2020; Kerttunen, 2009). The same dynamic also reduces the willingness of actors to engage in intrastate conflict, as the state has the ability to deploy the nuclear deterrent internally. Even if a conventional, non-nuclear conflict starts, the fear of nuclear escalation shortens it (Waltz, 2010). States are interested in avoiding nuclear use, as they seek to guarantee their survival (theory of state survival). Although the deterrent reduces the risk of full-scale war, it also leads to states turning to different strategies, increasing the salience of military strategies below the threshold of war. These strategies are developed further in the analysis.

On the contrary, comprehending how nuclear capabilities contribute to the destabilization of the region necessitates consideration of the possibility that, despite prioritizing state survival, employment of nuclear capabilities is not entirely implausible for both nations (Ganguly & Kapur, 2010). Several contingencies exist that could trigger the utilization of nuclear weapons by Pakistan, such as the breakdown of its conventional deterrence, India's modernization, or the failure of command-and-control structures (Pahwa, 2002; Tasleem, 2016). Moreover, the fact that this has sparked an arms race has a definitive destabilizing effect on the region. The risks posed to stability are related primarily to nuclear deterrence, particularly the danger of accidental escalation or unforeseen outcomes (Ganguly & Kapur, 2010; Kaushal et al., 2021; Waltz, 1981). This is aggravated by the arms race and the armament strategies of both nations, as exemplified by the 1984 crisis between India and Pakistan, in which India initiated a conventional conflict to obliterate Pakistan's fledgling nuclear capabilities (Ganguly & Hagerty, 2012). The attempt to destroy nuclear capabilities resulted in an escalation of conflict using conventional capabilities.

The preceding section demonstrates that the region is turning towards nuclear capabilities to break the impasse and defend itself against other threats. Given the vertical proliferation occurring, can we conclude that there is an arms race in progress? The development of nuclear capabilities is undoubtedly the key driver of this race, as evidenced by the investment in modernizing and developing military capabilities. Scholars such as Bracken (2012), Ladwig (2015), and Bajia (1997) have all established that an arms race is indeed underway in the region. While there is no consensus in the academic community that this dynamic is specifically a nuclear arms race, the vertical proliferation and stockpiling of fissile material point to one. Even if one were to argue that a classical arms



race is not occurring, given the investments and modernization processes, it is difficult to deny that a nuclear arms race is taking place (Doshi, 2020). This overall nuclear arms race is unfolding and being operationalized differently by each state, depending on its power, economy, and national objectives, and is thus running on different tracks (Doshi, 2020).

The ongoing nuclear arms race in the region has a three-fold impact. Firstly, it reinforces the logic of any arms race, with both nations increasing their nuclear capabilities through stockpiling and development. Secondly, the possibility of nuclear weapon use is acting as a stabilizing factor in the region, deterring a conventional conflict between the neighbouring countries, as previously discussed. Lastly, the nuclear arms race is compelling both nations to enhance their offset capabilities through non-traditional means of conflict, including means short of war. In response to the existing and perceived asymmetries, Pakistan and India are employing different tactics to bridge the gap and enhance their offset capabilities. Pakistan is focusing on improving its capabilities vis-à-vis India, while India is competing with China in mind (Smith, 2016; Riedel, 2012). The most plausible explanation is that both countries are engaged in a race, but are using different tactics and, thus, operating on different tracks.

The ensuing discussion delves into the various tactics that lie beyond conventional and nuclear weapons and fall under the threshold of full-scale war, commonly known as means short of war, which constitutes the third effect of the arms race. These different tactics are altering the future composition of their arsenals and will ultimately impact their deterrence and nuclear use doctrines. Nonetheless, the preceding sections unequivocally establish that an arms race is transpiring in the region, driven by different actors and goals, but nonetheless, both nations are participating in vertical proliferation and increasing their conventional capabilities.

As previously mentioned, the actors involved in the arms race have different strategic orientations. India is pursuing a global strategy, with a focus on countering China, while Pakistan's nuclear capabilities are geared more towards regional projection (Doshi, 2020; Perkovich, 1999). Consequently, each state is emphasizing the development of a certain type of nuclear capability, which is consistent with their nuclear doctrine and reflects their concerns and strategic outlook. India is prioritizing the modernization of its conventional capabilities (Cohen & Dasgupta, 2013; Ladwig, 2015), while Pakistan is investing in a robust nuclear deterrent against India. Despite the differences in their strategic priorities, both

nations are engaging in vertical proliferation and developing their nuclear capabilities. Nonetheless, they are focusing on different aspects and types of armament, reflecting their unique strategic outlooks. Nevertheless, there are some aspects that resemble a more traditional arms race dynamic, such as the development of missile ranges by both states in response to each other's capabilities from 1998 to the 2000s (SIPRI 2022).

Pakistan is exhibiting a tendency towards the development of tactical nuclear weapons (Doshi, 2020; SIPRI, 2022). This inclination is intricately linked to the composition and magnitude of the fissile stockpiles possessed by the state, as they determine the degree to which a state can enhance its nuclear capabilities. Moreover, the method through which a state develops its fissile stockpiles is a by-product of its strategic forecasts. Given Pakistan's relatively limited scope for future augmentation of its fissile stockpiles, the decision to focus on the development of tactical weapons that require a lower yield appears rational. To this end, Pakistan is concentrating on the production of highly enriched uranium (HEU) which is particularly suited to the production of compact and transportable nuclear weapons.

Pakistan's primary focus is on the development of nuclear capabilities over conventional means to address the existing asymmetries, particularly when compared to India, which places significant emphasis on the modernization of its conventional capabilities to account for its domestic needs (Cohen & Dasgupta, 2013). The Pakistani government has defended this decision to develop nuclear capabilities as a direct response to India's behaviour. However, some scholars have questioned the legitimacy of this rationale and justification, as discussed by Ladwig (2015). Economic constraints in Pakistan also play a significant role in this decision, as it is more cost-effective for Pakistan to prioritize the development of nuclear capabilities rather than resolving all issues related to its conventional forces, as outlined in the analysis by Bracken (2012).

In contrast to Pakistan, India appears to be prioritizing the production of plutonium, as evidenced by its larger reserves, which aligns with its emphasis on high-yield and accurate nuclear weapons, including cruise missiles and ICBMs (Doshi, 2020; Bracken, 2012). This shift towards high-yield weapons is partly motivated by India's need to address the perceived threat from China, for which tactical, low-yield weapons may not be sufficient. India's concern over China is also reflected in its efforts to develop second-strike capabilities, diversify its means of delivery, and build missiles with different ranges

(SIPRI, 2022). This trend towards the ongoing development and diversification of delivery systems may require a shift from a no-deployment posture to a higher state of readiness and a corresponding change from centralized to delegated command and control (Doshi, 2020). In summary, both Pakistan and India appear to be engaged in a nuclear race, utilizing different strategies, with Pakistan placing a greater emphasis on the development of nuclear capabilities.

## **6.8 Offset capabilities: a parallel race**

The previous discussion sheds light on how nuclear weapons are impacting the stability of the region and how each state is pursuing vertical proliferation to achieve its strategic objectives. This section examines the third impact of the arms race in the region, namely the different tactics employed by each state, particularly in terms of means below the threshold of war.

It is worth noting that each of the two countries has adopted a different approach to break the deadlock in conventional and nuclear capabilities. As mentioned earlier, Pakistan is relying more heavily on nuclear weapons, while India places greater emphasis on conventional weapons. Despite taking different paths, both countries are still engaged in a nuclear race, albeit on different tracks. However, it is important to examine the differences between the tactics employed by the two countries when it comes to means below the threshold of war. While pursuing different strategies, it can be argued that both countries are striving for deterrence and are therefore engaging in similar races with parallel objectives.

In conclusion, the arms race in the region has led to different approaches being adopted by Pakistan and India to overcome the imbalance in conventional and nuclear capabilities. While their strategies may differ, they are still pursuing the same goal of achieving deterrence and are running parallel races with similar objectives.

India has adopted tactics that are closely related to developing technological advancements. Rather than directing resources towards addressing the obsolete aspects of its conventional capabilities, India appears to be prioritizing a more IT-focused approach. This is reflected in its efforts to expand and modernize its cyberwar capabilities, import military technology, and enhance its satellite capabilities (Bracken, 2012). Additionally,

India is focusing on developing its intelligence services, as noted by some sources (citation needed). India's tactics in the nuclear arms race in the region are centred around the development of technological advancements and enhancing its capabilities in cyberwar, satellite technology, and intelligence services.

Pakistan has resorted to unconventional and destabilizing tactics, including the use of terrorism, to overcome its military disadvantage vis-à-vis India. Pakistan has been waging a terrorist campaign against India, since 1998 the government has been giving terrorist groups support to engage against India (Bracken, 2012). Means short of war and hybrid warfare have become central to the strategic environment in South Asia, as recognized by the Indian Army’s Land Warfare Doctrine. However, such tactics have also been inadvertently encouraged by India’s punitive strategies. Nuclear terrorism is a potential threat (Kerr, 2010, Ganguly & Kapur, 2010), but it is unlikely to occur given the historical record of terrorist incidents involving WMDs, which have been rare and largely unsuccessful (Rapoport, 2022). Overall, it is crucial to consider the unintended consequences of resorting to disruptive capabilities and to balance the pursuit of deterrence with efforts to enhance regional stability.

## 6.9 Public perception of risk

To gauge public perception of risk associated in the region to the previously proven arms race, google trends is used.

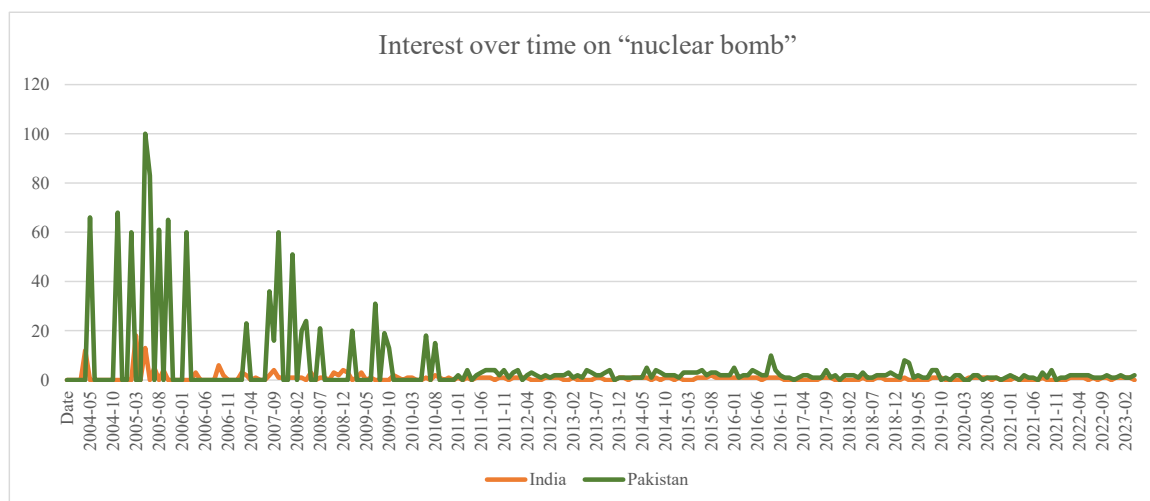


Figure 4: interest over time on “nuclear bomb”, 2004-2023, India and Pakistan

Upon analyzing the search term "nuclear bomb" using Google Trends, it is evident that Pakistan exhibits significantly greater interest than India. India exhibits an average interest of 2 over time, whereas Pakistan exhibits an interest of 8. Thus, as depicted in Figure 4, public opinion during the early 00s indicated a greater concern for nuclear weapons in Pakistan compared to India, where the issue did not garner significant attention. The spike in interest during the early 00s aligns with the regional context, given that the last conflict between the two countries occurred in 1999. Furthermore, the disparity in interest between the two countries is understandable, considering that Pakistan has pursued a more nuclear-focused approach compared to India.

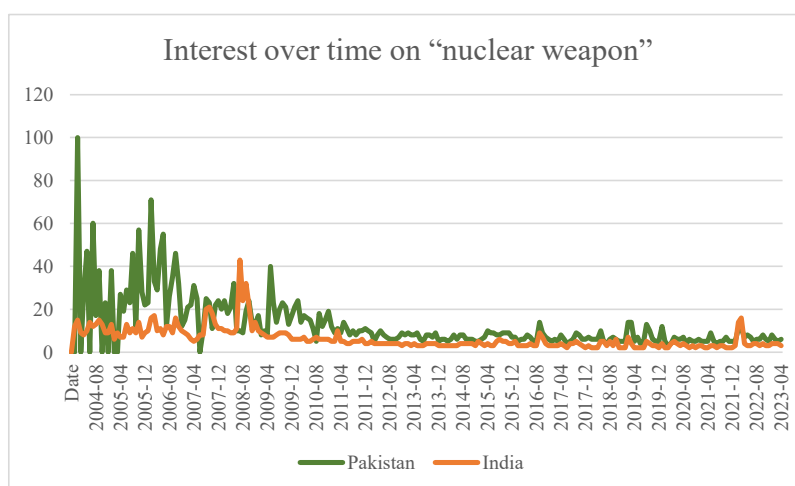


Figure 5: interest over time on "nuclear weapon", 2004-2023, India and Pakistan

Figure 5 demonstrates slight disparities in public interest regarding the topic of "nuclear weapon" in the region. As before, Pakistan exhibits a greater overall interest than India in this topic. Similarly, there was a spike in interest during the early 00s, although the decrease in interest over time is not as rapid as observed in Figure 4. Furthermore, it is noteworthy that India exhibits greater interest in "nuclear weapon" compared to "nuclear bomb."

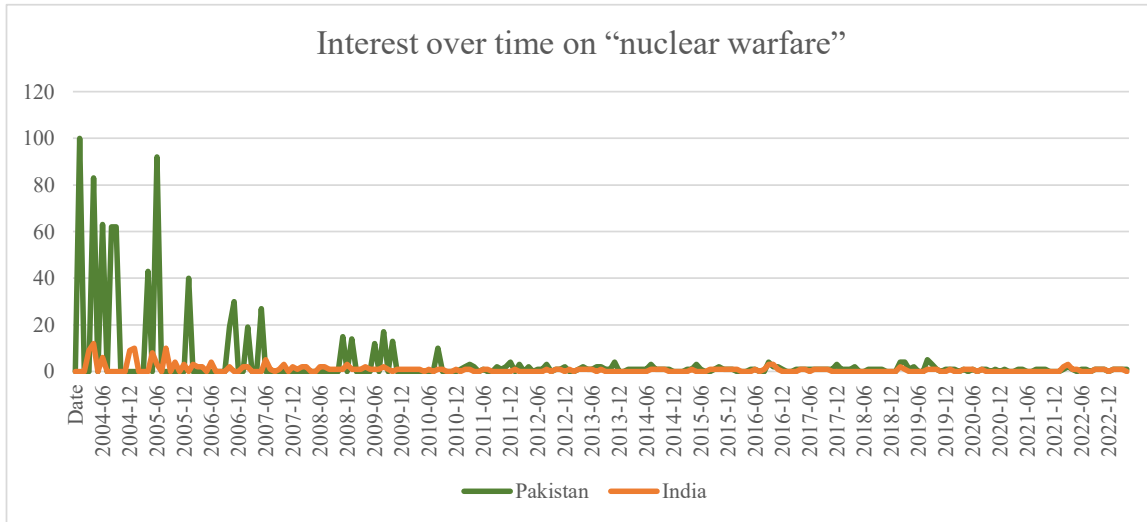


Figure 6: interest over time on “nuclear warfare”, 2004-2023, India and Pakistan

Figure 6 reveals additional insights into Pakistan's interest and concern regarding nuclear warfare. Firstly, there has been a significant decrease in interest over time, with minimal current interest in the topic. Secondly, India exhibits a complete lack of interest in the topic, which is consistent with the nuclear doctrines of each state. India prioritizes conventional capabilities and technological modernization over nuclear warfare, whereas Pakistan views nuclear deterrence as the primary route for strategic deterrence. This disparity in priorities further highlights the differences in each country's strategic outlook and defense posture.

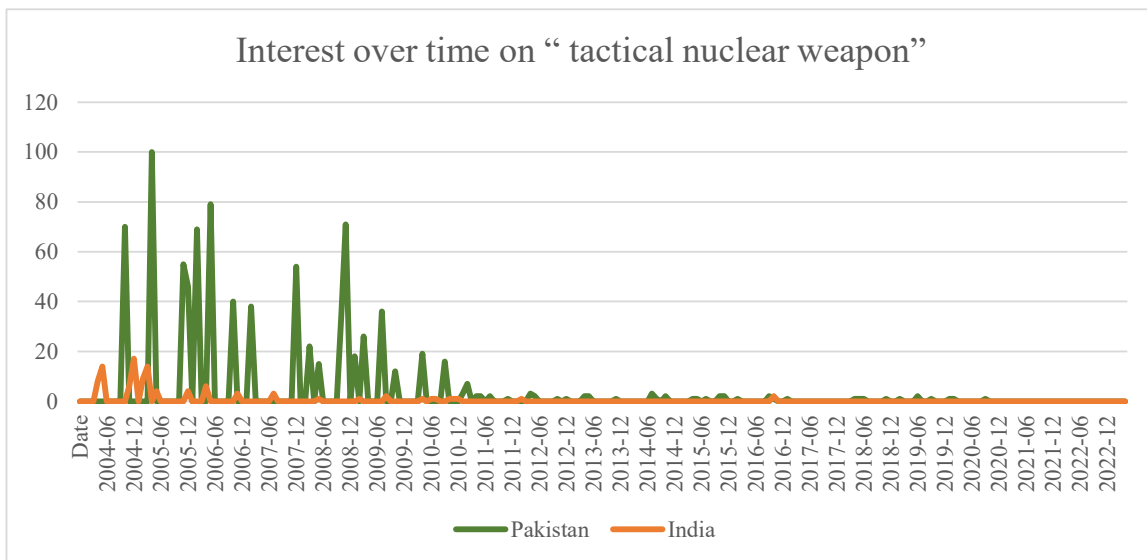


Figure 7: interest over time on “tactical nuclear weapon”, 2004-2023, India and Pakistan

Figure 7 provides significant insights into public interest regarding the specific route taken by Pakistan. Notably, the Pakistani public exhibits substantial concern over tactical nuclear weapons, which is a highly specific topic. Conversely, India demonstrates minimal interest in this topic, indicating that Pakistan is not the primary strategic concern for India, given that tactical nuclear weapons are a crucial aspect of Pakistan's nuclear arsenal.

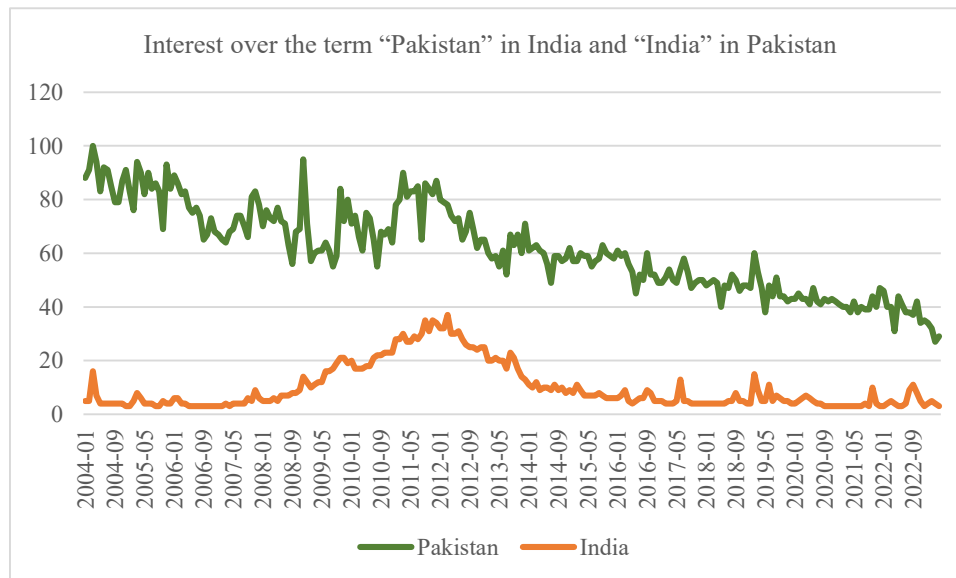


Figure 8: interest over the term “Pakistan” in India and “India” in Pakistan, 2004-2023

The analysis highlights that the overall public interest in each country regarding the other is a clear reflection of their relationship. India demonstrates some interest in Pakistan, but Pakistan exhibits much greater concern and interest in India. Although the interest in India has gradually decreased over the past few decades, the difference between the two countries is still significant. India is viewed as Pakistan's primary strategic rival, but India has other concerns, and the difference in public interest further underscores this fact. Overall, the public interest provides further insights into the strategic outlook of each country and the dynamics of their relationship.

In conclusion, it is noteworthy that despite both India and Pakistan investing heavily in improving their nuclear arsenals and capabilities, the public interest in the region regarding their nuclear capabilities and rivalry is decreasing. This trend is intriguing, given that the arms race in the region is still ongoing. However, this may reflect a shift in public priorities and interests, with a greater focus on other issues, such as economic development,

social welfare, and regional stability. Nevertheless, the arms race and strategic rivalry between India and Pakistan remain significant challenges for the region, and it is important to continue monitoring and analyzing the dynamics of their relationship (Saalman & Topychkanov, 2021).



## 7. Conclusion

In summary, the comparison of conventional capabilities between India and Pakistan is a complex issue, and both countries possess strengths and weaknesses in this regard. While India has more resources and technical advantages, Pakistan's natural enclave and terrain provide it with a defensive advantage. Moreover, Pakistan has significant operational experience that balances out India's technical edge. The situation can be described as conditional symmetry, as the balance of power could shift in either direction depending on various factors. Overall, both countries need to continue to invest in their conventional capabilities while also pursuing diplomatic efforts to reduce tensions and avoid conflict.

The article discusses the role of conventional deterrence in preventing full-scale conflicts between India and Pakistan, citing historical conflicts and the cost and lack of agility in potential conflicts as deterrent factors. However, there is still the possibility of a war of attrition. The analysis also focuses on the nuclear capabilities of both countries, examining their fissile material stockpiles and compliance with international safeguards. While India and Pakistan have similar levels of highly enriched uranium, they differ in weapon-grade plutonium stockpiles, and there are uncertainties regarding Pakistan's uranium reserves and enrichment capacity. The lack of compliance with IAEA safeguards and Pakistan's obstruction of the Fissile Material Cutoff Treaty suggests a willingness to engage in vertical proliferation.

A key aspect of the analysis is India and Pakistan's nuclear doctrine and the complexities of nuclear deterrence between the two countries. India's "cold start strategy" aims to retaliate against Pakistan without using nuclear weapons, but recent actions suggest a transition towards a counterforce nuclear posture. Pakistan maintains the right to use nuclear weapons as a first-strike option but has historically adhered to a doctrine of strategic ambiguity. Despite India's superior nuclear capabilities, Pakistan's adoption of a more credible deterrence strategy gives it an advantage, in part due to India's no-first-use policy. However, the recent change in India's policy raises questions about the credibility of its deterrence strategy, while Pakistan's diversification of means of delivery has made its deterrence even more sophisticated.

The analysis highlights the importance of considering the interconnectivity between conventional and nuclear capabilities, as well as the two forms of deterrence, in evaluating the India-Pakistan relationship. While both countries have conventional deterrence as a crucial element of their strategic deterrent, the role of nuclear deterrence significantly impacts the conditionality of deterrence. Pakistan currently holds an advantageous position due to its lead in nuclear deterrence and slightly weaker conventional deterrence, but India's nuclear and conventional capabilities are expected to grow rapidly over the next few decades. The linkage of nuclear deterrence to India's No-First-Use (NFU) policy is seen as undermining its overall deterrence capability, as Pakistan is more likely to resort to conventional warfare, given the option of breaking any emerging asymmetry with the first use of nuclear weapons.

The presence of nuclear weapons in South Asia has prevented conflicts from escalating to nuclear war while also fueling an arms race between India and Pakistan. The rise of China has further intensified this arms race. The stability brought about by nuclear deterrence is based on both states' fear of escalation that might trigger nuclear use. However, nuclear escalation represents both a risk and a calming deterrent, with risks related primarily to nuclear deterrence, particularly the danger of accidental escalation or unforeseen outcomes, which is aggravated by the arms race and armament strategies of both nations. Therefore, it can be determined that a nuclear arms race is indeed underway in the region proving the primary hypothesis of the study.

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# Appendices

## Appendix 1: Nuclear capabilities overview

**Table 10.1.** World nuclear forces, January 2022

All figures are approximate and are estimates based on assessments by the authors. The estimates presented here are based on publicly available information and contain some uncertainties, as reflected in the notes to tables 10.1-10.10.

State	Year of first nuclear test	Deployed warheads <sup>d</sup>	Stored warheads <sup>b</sup>	Total stockpile <sup>c</sup>	Retired warheads	Total inventory
United States	1945	1 744 <sup>d</sup>	1 964 <sup>e</sup>	3 708	1 720 <sup>f</sup>	5 428
Russia	1949	1 588 <sup>g</sup>	2 889 <sup>h</sup>	4 477	1 500 <sup>f</sup>	5 977
United Kingdom	1952	120	60	180	45 <sup>i</sup>	225 <sup>j</sup>
France	1960	280	10 <sup>k</sup>	290	..	290
China	1964	–	350	350	–	350
India	1974	–	160	160	..	160
Pakistan	1998	–	165	165	..	165
Israel	..	–	90	90	..	90
North Korea	2006	–	20	20	..	20 <sup>i</sup>
<b>Total</b>		<b>3 732</b>	<b>5 708</b>	<b>9 440</b>	<b>3 265</b>	<b>12 705</b>

Figure 1.1: World nuclear forces January 2022 (SIPRI, 2022)

Country	Total HEU, MT	Of this, HEU available for weapons, MT	Total Pu, MT	Of this, Pu available for weapons, MT
Russia	678	672	191	88
United States	495	361	87.8	38.4
United Kingdom	23	22	119.3	3.2
France	29	25	85.4	6
China	14	14	2.9	2.9
Pakistan	4	4	0.5	0.5
India	5		9.2	0.7
Israel	0.3	0.3	0.8	0.8
DPRK	0.7	0.7	0.04	0.04
Others	4		46.1	
<b>TOTAL</b>	<b>1255</b>	<b>1100</b>	<b>545</b>	<b>140</b>

Figure 1.2: World fissile material reserves, 2022 (IPFM, 2022)



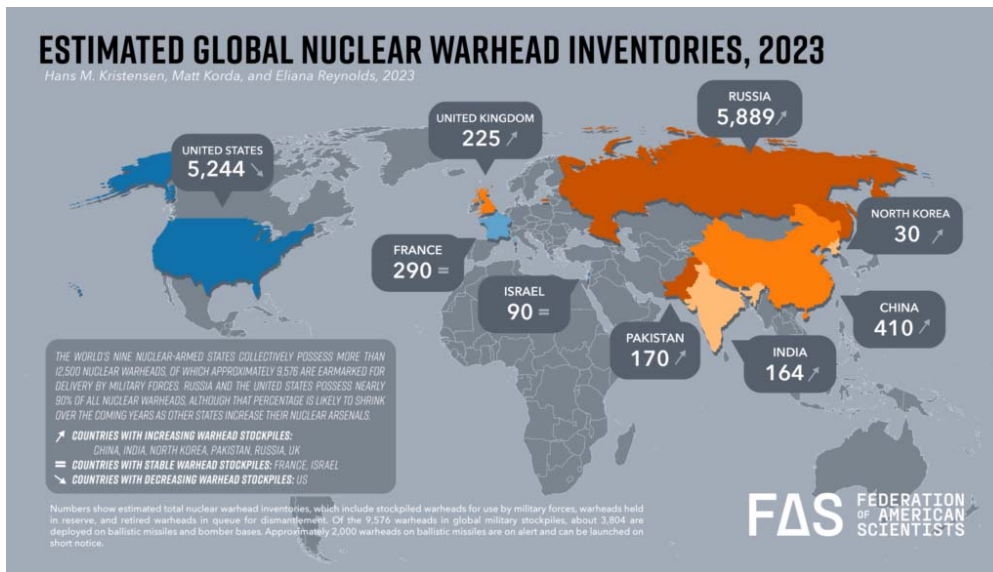


Figure 1.3: Nuclear wahead inventories, 2023 (FAS, 2023)

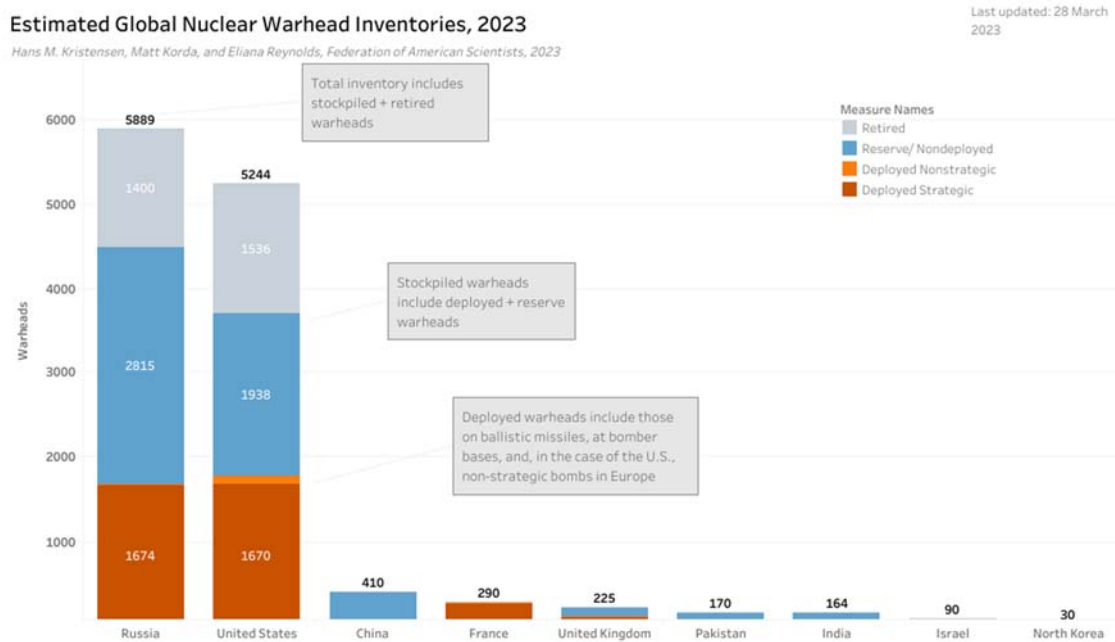


Figure 1.4: Estimated Global Nuclear Warhead Inventories, 2023 (FAS, 2023)

Table 1.1: Operational power reactors and power reactors under construction in India and Pakistan and IAEA safeguard status

Country	Power Reactors	Under IAEA Safeguards
China	63	1
France	57	0
India	29	19
Israel		0
North Korea		0
Pakistan	7	7
Russia	41	0
United Kingdom	17	0
United States	96	0

Table 5 Operational power reactors and power reactors under construction and their IAEA safeguards status in nuclear-armed states. Here, operational reactors are counted according to the IAEA's definition, which includes reactors in long-term outage.<sup>72</sup>

(IPFM, 2022)

## Appendix 2: Conventional capabilities

Indian Rupee INR		2021	2022	2023
<b>GDP</b>	INR	237tr	273tr	
	USD	3.18tr	3.47tr	
<i>per capita</i>	USD	2,280	2,466	
<b>Growth</b>	%	8.7	6.8	
<b>Inflation</b>	%	5.5	6.9	
<b>Def bdgt [a]</b>	INR	5.03tr	5.25tr	
	USD	67.5bn	66.6bn	
<b>USD1=INR</b>		74.50	78.80	

[a] Includes defence civil estimates, which include military pensions

Figure 2.1: Indian Conventional Military Spending, 2021-2022 (Hackett, 2023)

Pakistani Rupee PKR		2021	2022	2023
GDP	PKR	55.8tr	66.9tr	
	USD	348bn	376bn	
<i>per capita</i>	USD	1,462	1,658	
Growth	%	5.7	6.0	
Inflation	%	8.9	12.1	
Def bdgt [a]	PKR	1.65tr	1.74tr	1.97tr
	USD	10.3bn	9.8bn	
USD1=PKR		160.23	177.83	

[a] Includes defence allocations to the Public Sector Development Programme (PSDP), including funding to the Defence Division and the Defence Production Division

Figure 2.2: Pakistani Conventional Military Spending, 2021-2022 (Hackett, 2023)

### Appendix 3: Abbreviations

- HEU: Highly Enriched Uranium
- FMCT: Fissile Material Cut-off Treaty
- ITCM: Indigenous Technology Cruise Missile
- NFU: No First Use
- MAD: Mutually Assured Destruction
- WMD: Weapons of Mass Destruction
- IAEA: International Atomic Energy Agency
- LoC: Line of Control
- CDS: Chief of Defence Staff