

# Stability–Instability Paradox and the Korean Peninsula:

## How Nuclear Deterrence Can Lead to Inter–Korean Limited Conflicts\*

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| Abstract |

Recent events including rapid nuclear modernization of North Korea and China and increasing fear of nuclear escalation in Ukraine have led to renewed attention to nuclear politics in East Asia. In this context, this paper aims to address one of the most distinguished concepts in nuclear politics and its relevance to East Asia’s security environment: the stability–instability paradox. Specifically, this paper seeks to address the two following questions. Is the stability–instability paradox applicable to the inter–Korean security

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environment? If so, by what mechanism will the stability–instability paradox work in the region? Through theoretical analysis and a case study on the bombardment of Yeonpyeong Island in 2010, this paper yields two findings. First, while not yet fully applicable, the logic of the stability–instability paradox is increasingly becoming relevant in the inter–Korean security environment. Second, the stability–instability paradox in the region is likely to work through the mechanism of the ‘red–line model’, which entails relatively little danger of intentional nuclear escalation.

▪ Key words: Stability–Instability Paradox, Nuclear Weapons, North Korea, Nuclear Deterrence, Limited Conflicts

## I . Introduction

South Korea’s security environment today is characterized by increasing presence of nuclear weapons, with most of its neighbors possessing nuclear weapons of their own and seeking to advance their arsenal. For starters, Russia and China have recently begun to modernize their nuclear weapons (Kristensen & Korda 2022b; Montgomery & Yoshihara 2022). North Korea, a relatively newcomer to the nuclear club, has also been developing its nuclear arsenal, advancing not only the range of its delivery system but also its survivability to have second–strike capability against the US. The ongoing war in Ukraine only confirmed the importance of nuclear weapons, with fear of nuclear escalation from the war looming large.<sup>1)</sup>

Such volatile security environment around South Korea have led to

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1) Mearsheimer, J. (2022), “The Causes and Consequences of the Ukraine Crisis”, <https://nationalinterest.org/feature/causes-and-consequences-ukraine-crisis-203182>. (accessed on September 2, 2023)

renewed attention to nuclear politics and its impact in East Asia. In this context, this paper aims to assess one of the most distinguished concepts in nuclear politics and its relevance to East Asia's security environment: the stability-instability paradox. Specifically, this paper seeks to address the two following questions. Is the stability-instability paradox applicable to the inter-Korean security environment? If so, through what mechanism will the security-instability paradox work in the region? In answer, this paper argues that, while not yet fully applicable, the logic of the stability-instability paradox is becoming increasingly relevant in the inter-Korean security environment with North Korea's advancement of nuclear weapons, and there is a chance that the stability-instability paradox in the region will work through the mechanism of the 'red-line model', which entails relatively little danger of intentional nuclear escalation.

The rest of this paper proceeds as follows. First, the definition of the stability-instability paradox and its causal mechanisms are provided. Second, this paper analyzes whether the conditions for the stability-instability paradox to function are present in the inter-Korean security environment today. Third, the mechanism through which it works on the Korean Peninsula is examined through a case study on the bombardment of Yeonpyeong Island in 2010. Lastly, a brief summary of the paper's findings and their implications are laid out.

## II. The Logic of the Stability-Instability Paradox

### 1. Glenn Snyder's Definition

What is stability-instability paradox? Glenn Snyder defined it as a phenomenon in which "the greater the stability of the strategic balance of

terror, the lower the stability of the overall balance at its lower levels of violence” (Snyder 1965). In other words, while nuclear weapons can successfully deter opposing nuclear powers from initiating military conflict in strategic terms, the very existence of such strategic balance of power can itself be a source of sub-strategic military conflict.

The case that Snyder mainly applied the stability-instability paradox was Europe in the 1950s and 60s. The United States and the Soviet Union at the time were about to achieve nuclear deterrence against one another. Snyder argued that such balance of power between the two posed a problem for the US, because it was seeking to deter not only Soviet *nuclear* aggression but also its *conventional* aggression towards Western Europe as well through extended deterrence. However, the Soviets’ nuclear arsenal, which allowed ‘strategic balance of terror’ with the US, meant that if the US sought to use its nuclear weapons to defend Western Europe, it would incur Soviet nuclear retaliation on the US homeland. Snyder pointed out that such a possibility damaged the credibility of US extended deterrence to Western Europe, and the Soviet Union, being conventionally stronger than the US, could be tempted to start a conventional military conflict in Europe, emboldened by the belief that it could prevail over the NATO without starting a nuclear war.

Since then, succeeding works by other scholars further clarified the causal mechanisms of the stability-instability paradox (Cohen 2013; Early & Asal 2018; Krepon 2003). According to more recent studies, the stability-instability paradox is basically constituted of two separate but interconnected mechanisms. First, nuclear weapons create a state of deterrence between nuclear powers on strategic level. Second, the ‘balance of terror’ caused by nuclear weapons can be a cause to sub-strategic military conflict between the nuclear powers. The following section reviews the works of other scholars that show how the two mechanisms of the stability-instability paradox work in theory.

## 2. Nuclear Weapons and Deterrence on Strategic Level

To begin with, there must be a state of nuclear deterrence on strategic level for the stability-instability paradox to function.<sup>2)</sup> In particular, what the scholars emphasize in common is deterrence's *reciprocity*; not one but *both* sides must have nuclear deterrent capability against one another. This is because when only one side has such deterrent capability, there can be no 'balance of terror' between states. In such nuclear imbalance, a nuclear-armed state can freely attack its non-nuclear enemy with little fear of retaliation, hence opening room for strategic military conflict.

However, assessing whether there is indeed a state of mutual nuclear deterrence is no easy task. This is due to diverse views among scholars on whether one's nuclear arsenal is deterrence-capable or not, which is caused by differing opinion on *how much* nuclear arsenal is required for deterrence to work. According to recent eye-catching study by Keir Lieber and Daryl Press, such diverse views can be categorized as follows, with the latter demanding greater nuclear capability than the former: existential deterrence view, minimum deterrence view, assured retaliation view, and assured destruction view (Lieber & Press 2017, 33-40).

First, those with the existential deterrence view contend that simply possessing nuclear weapons is sufficient for one to deter others (Brodie 1946; Bundy 1980). According to such a view, states do not require a large number of nuclear weapons nor survivability for deterrence. Instead, the fear generated by the very existence of nuclear weapons can deter other states from attacking, because even a very small chance of nuclear

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2) Recent studies define strategic conflicts as inter-state violence involving matters of supreme importance to the state, the pursuit of which justifies maximal costs for states. In contrast, sub-strategic conflicts are the ones that entail limited interests and therefore justify only limited costs. For further discussion on distinguishing strategic and sub-strategic conflicts, see Kapur (2005); Watterson (2017).

retaliation can cause destructive consequences to the attacker. As a result, simply joining the nuclear club is sufficient for a state to achieve nuclear deterrence.

Second, advocates of the minimum deterrence view posit that states at least need to have nuclear retaliatory capability to achieve nuclear deterrence. Most prominently, Stephen Waltz argues that possessing nuclear warhead and delivery system alone is sufficient for a state to deter others, pointing out that “at least a part of state’s nuclear forces must appear to be able to survive an attack and launch one of its own”, and “an adversary need only believe that some warheads may survive its attack and be visited on it” (Sagan & Waltz 2013, 20). This means that nuclear deterrence does not require a great number of nuclear warheads nor 100% guarantee to be able to retaliate, but it just needs to be more than a ‘bomb in the basement.’

Third, some argue that mere possession of nuclear retaliatory capability is insufficient for states to deter others, instead emphasizing the ability to *surely* retaliate (Jervis 1985). According to the assured retaliation view, deterrence may fail if one only has nuclear arsenal capable of existential or minimum deterrence, because the opposing state might think that it can neutralize one’s nuclear arsenal with clever preemptive attack. As a result, proponents of the assured retaliation view argue that nuclear deterrence requires *survivable* nuclear arsenal, capable of retaliating against the enemy even with the damage inflicted by enemy’s preemptive strike.

Lastly, several countries such as the United States and Soviet Union during the Cold War adhered to the assured destruction view, putting emphasis on both survivability and destructiveness of their nuclear arsenal (Lieber & Press 2020, 39-40). The advocates of the assured retaliation view like Jervis argued against such an approach, that one only needed to have second-strike capability that could surely retaliate,

even if the retaliatory attack could not destroy the enemy entirely (Jervis 1979). However, the decision-makers in the two countries at the time believed that achieving nuclear deterrence required nuclear arsenal that could not only survive against enemy's preemptive strike but also able to completely destroy the opponent. This was one key reason why the US and the Soviet Union engaged in fierce nuclear arms race during the Cold War, as accomplishing such huge destructive power required significant quantity of nuclear weapons.

Assessing whether one's nuclear arsenal is deterrence-capable or not is essential in studying the stability-instability paradox, as the first requirement for the concept to be applicable is the existence of mutual nuclear deterrence. However, as explained so far, there is no consensus yet to be reached among scholars regarding how much nuclear deterrent capability is sufficient for nuclear deterrence to function. This makes the task of applying the concept somewhat difficult, as judging whether it is applicable or not to a case can differ based on one's perspective. For instance, those with the minimum deterrence view may argue that the stability-instability paradox can be applied to nuclear states without second-strike capability, but their argument may not be agreed by those holding the assured retaliation view. This means that assessing the applicability of the stability-instability paradox first requires clarifying what view of effective nuclear deterrence one will adopt.

### 3. How Nuclear Strategic Balance Leads to Sub-Strategic Conflicts

Once mutual nuclear deterrence begins to exist between states, the second mechanism of the stability-instability paradox enters the zone; the stability at the strategic level made possible by mutual nuclear deterrence becomes a source of sub-strategic conflict. This is due to two mutually

exclusive mechanisms, which is defined adequately by Christopher Watterson as ‘red-line model’ and ‘brinkmanship model’ (Watterson 2017). The key difference between the two is whether states seek to avoid nuclear escalation as much as possible or seek to exploit other’s fear of nuclear escalation.<sup>3)</sup>

First, the red-line model posits that nuclear powers seek to avoid escalation of limited conventional conflicts into full-scale ones. This is because such large-scale wars will surely entail use of nuclear weapons, which will result in destructive damage no matter the conflict’s outcome. Watterson summarizes this clearly, pointing out that states “rationally view strategic conflict and the attendant risk of a strategic nuclear exchange as untenable”, which dissuade them from escalation of sub-strategic conflicts (Watterson 2017, 4).

However, precisely because of such mutual reluctance to face escalation, the likelihood of sub-strategic conflicts increases. As states share belief that the opponent is likely to seek to control the situation to prevent any further escalation of conflict, there appears a mutually shared ‘cap’ that prevent escalation (Watterson 2017, 4). This leads to two unique results. First, states are likely to be assured that sub-strategic conflicts will not lead to strategic conflicts, which allows states to initiate sub-strategic conflicts without fear. Second, sub-strategic conflicts are unlikely to intentionally escalate, as states involved seek to refrain actively from doing so.<sup>4)</sup>

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3) Some scholars contend that there is little difference between the two mechanisms of the stability-instability paradox (Cohen 2013). However, as Watterson argues, there is no consensus yet among scholars regarding the stability-instability paradox’s mechanisms, and this paper builds on the assumption that there is indeed two distinct mechanisms of the stability-instability paradox.

4) One example of sub-strategic conflict in which the actors behaved as the expectations of the red-line model was the Kargil War in 1999, in which the Pakistani decision-makers sought to “tactically exploit” the cap on military escalation made by its nuclear weapons (Watterson 2017). India was unable to punish Pakistan through its superior conventional power, and this emboldened Pakistan to use its military to pursue policy goals in the region with little fear of escalation into a full-scale war.



In contrast, the brinkmanship model posits that nuclear powers are tempted to exploit other's fear of nuclear escalation. While all parties fear escalation to strategic conflicts that entail use of nuclear weapons, they also have motive to exploit the opponent's fear and intentionally escalate the situation to achieve their goals. Once the nuclear rivals begin to think that the other side would not dare to risk nuclear confrontation over a relatively small dispute, then they may "apply a small measure of military force" to alter the status quo (Lavoy 1995, 739).

The outcome that follows is different from the one predicted by the red-line model. According to the brinkmanship model, states are likely to intentionally escalate sub-strategic conflicts, closely resembling the game of chicken (Watterson 2017, 5). This leads to two results. First, the likelihood of sub-strategic conflicts increases under nuclear strategic balance not because states are assured that sub-strategic conflicts will not escalate but because they actively exploit the other's fear of escalation. Second, the possibility of escalation from sub-strategic conflict into strategic confrontation looms high, as states are likely to seek to intentionally escalate the sub-strategic conflicts to achieve their goals.

The problem in applying the stability-instability paradox is that the application of each model may vary from case to case; while some states may actively try to avoid nuclear escalation under nuclear strategic balance and seek to engage only in sub-strategic conflicts, others may aggressively seek to manipulate such balance to their advantage and risk escalation (Kapur 2005; Watterson 2017). This means that to understand what mechanism the stability-instability paradox works in a given case, the specifics of that case must be examined in detail to assess which of the two mechanisms best fits the given scenario.

### III. Paradox's Applicability to the Korean Peninsula

Then, is the stability–instability paradox applicable to the security environment on the Korean Peninsula? As discussed so far, what is necessary for the concept to be applicable is whether there is a state of mutual nuclear deterrence between the parties involved. This means that to apply the stability–instability paradox, both parties on the Korean Peninsula, with North Korea on one side and South Korea and US on the other, must have functioning nuclear deterrent capability against the other. This section examines how much deterrent capability the two sides have against one another and assess whether they meet the requirements for the stability–instability paradox to function.

#### 1. North Korea: At Least Minimum Deterrence

A brief look at North Korea's nuclear arsenal shows that it already reached the level of minimum deterrence and is gradually moving towards the level of assured retaliation. First of all, there is general consensus among scholars and decision–makers alike that North Korea already possesses dozens of nuclear warheads at its arsenal. It is already well–known that the enrichment and reprocessing (ENR) technology such as how to build gas centrifuge is not so difficult to develop in the first place and can be easily acquired even by third–rate developing countries like North Korea (Kemp 2014). Due to such fundamentally low technological barrier and decades of arduous efforts, it is assessed that even according to conservative estimates, North Korea as of 2022 already has sufficient ENR capability to build 45 to 55 nuclear warheads and probably 20 to 30 more (Kristensen & Korda 2022a, 276).

In addition, North Korea has been making great leaps in developing delivery systems that can strike not only South Korea and the US territories in the Western Pacific but also the US mainland as well. For instance, its short-range and medium-range missiles have already proven to be capable of striking entire South Korea and US territories such as Guam and Saipan (Kim 2016; Kwon 2013). Moreover, some point out that North Korea may already have developed delivery system that can reach US mainland as well, as can be seen in the liquid-fueled KN-20 missile that many expect to be capable of reaching the US East Coast.<sup>5)</sup> An even more advanced KN-22 missile is officially acknowledged by the US military to be capable of reaching anywhere on the US mainland (*Cheoson Ilbo* 2019/07/12). The recent tests of KN-28 ICBMs in 2022 further raised alarms in the US, with a US Air Force general commenting that the tests highlight that “the security challenges [to the US] continues to grow.”<sup>6)</sup>

North Korean has also been making considerable efforts to build meaningful second-strike capability for assured retaliation (Lee & Alexandrova 2021). In particular, North Korea has been focusing on developing submarine-launched ballistic missiles (SLBMs) with nuclear submarine platforms (Ha 2017; Park 2016; Park 2017). While not yet able to reach the US mainland, the North Koreans successfully tested the KN-26 missile in 2019 that is estimated to have the range of 1,900km.<sup>7)</sup> The new SLBMs such as Pukguksong-4 and Pukguksong-5 made public in 2020 and 2021 respectively are expected to be more technologically advanced than the KN-26 and have longer range.<sup>8)</sup> North Korea even

5) Schilling, J. (2017), “What Next for North Korea’s ICBM?”, <https://www.38north.org/2017/08/jschilling080117/>. (accessed on April 10, 2023)

6) Byun, D. (2023), “U.S. Intensifying ‘Every Leg of Nuclear Triad’ to Ensure Deterrence: Gen. Cotton”, <https://en.yna.co.kr/view/AEN20230310000200325>. (accessed on April 12, 2023)

7) Center for Strategic and International Studies (2021), “Pukguksong-3 (KN-26)”, <https://missilethreat.csis.org/missile/pukguksong-3/>. (accessed on April 12, 2023)

boasted in media openly that its ultimate goal is to develop nuclear-powered subs that is capable of carrying SLBMs that can strike the US mainland (*Dong-a Ilbo* 2021/01/11).

However, all of this does not necessarily mean that the North Korean nuclear arsenal is without flaws. The key remaining problem for Pyongyang is its arsenal's survivability, as it is unclear whether its nuclear weapons can withstand US preemptive strike.<sup>9)</sup> According to recent studies, it is estimated that the US counterforce capability can neutralize much of North Korea's nuclear arsenal even without causing high number of civilian casualties (Lieber & Press 2017). Moreover, the US has not been sitting idly by, continuously improving its counterforce capability to better handle North Korea's growing nuclear threat (Lieber & Press 2020, 66-93). While North Korea has been making efforts to ensure the survivability of nuclear weapons and acquire second-strike capability, it will take time for its efforts to come to fruition.

Then, what does all this say about the level of North Korea's deterrent capability in general? In short, North Korea already passed the level of existential deterrence and reached the stage of minimum deterrence, as Pyongyang today not only has enough nuclear warheads but also real capability to project them towards South Korea and the US mainland. Pyongyang also continues to advance its nuclear arsenal today, aimed at

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8) Oh, S. (2021), "N. Korea Displays New Submarine-Launched Ballistic Missile During Parade", <https://en.yna.co.kr/view/AEN20210115001153325?section=nk/nk>. (accessed on April 12, 2023)

9) While the US missile defense capability can also be a potential obstacle for North Korea's nuclear weapons, it is excluded in this paper's analysis as its ability still remains unproven against North Korean ICBMs. For discussion on American MD capability against North Korea, see Lee, C. (2022), "Experts: North Korea's New ICBM Poses Challenges to US Missile Defense", <https://www.voanews.com/a/experts-north-korea-s-new-icbm-poses-challenges-to-us-missile-defense-/6487640.html>. (accessed on April 18, 2023); Panda, A. (2021), "North Korea and US Missile Defense Capabilities", <https://www.nbr.org/publication/north-korea-and-u-s-missile-defense-capabilities/>. (accessed on April 18, 2023); Sankaran, J. and S. Fetter (2021).

achieving the level of nuclear retaliation. However, its arsenal's lack of survivability implies that North Korea has not yet reached the stage of assured retaliation, let alone assured destruction.

## 2. South Korea and the US: Assured Destruction Through Extended Deterrence

This paper posits that there is functioning nuclear deterrence against North Korea by the ROK-US alliance through US extended deterrence capable of assured destruction. First, even though South Korea does not have any nuclear weapons of its own, this does not necessarily mean that the stability-instability paradox is inapplicable to South Korea. What is important for the paradox to function is not whether a state has nuclear weapons of its own or not, but whether there is working nuclear deterrence that protects the state against the enemy. This can be achieved not only by having one's own nuclear weapons but also by being provided extended deterrence from a nuclear patron. In fact, it was such a scenario in which Glenn Snyder first envisaged the concept of the stability-instability paradox: Europe in the 1950s and 60s. Except for the United Kingdom, most Western European states at the time did not have nuclear arsenal of their own to deter Soviet nuclear attack. However, they were protected by strong US extended deterrence, which allowed a state of mutual nuclear deterrence between the East and the West. It was to such state of extended deterrence that Snyder mainly applied the stability-instability paradox, and such logic has been widely accepted in academia in general (Cohen 2013; Kapur 2005).<sup>10)</sup>

If there is indeed functioning extended deterrence provided to South

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10) This means that one can apply the stability-instability paradox in either of following two inter-state relations: 1) US - North Korea relations, 2) South Korea/US - North Korea relations. This paper mainly focuses on how the stability-instability paradox will work in the latter.

Korea by the US, it can be said that there is nuclear deterrent capability with the level of assured destruction against North Korea, given the extent and magnitude of US nuclear arsenal. Then, is there strong US extended deterrence to South Korea against North Korea, as the one in Western Europe in the 1950s and 60s? Some might argue that this is not the case, pointing out several differences between Western Europe during the Cold War and South Korea today. For starters, Washington stationed thousands of nuclear weapons in Western Europe during the Cold War, which was estimated to be nearly 8,000 by the late 1960s.<sup>11)</sup> Moreover, the famous Military Committee 48 made nuclear weapons crucial to defense and deterrence in NATO, which opened the path for the so-called ‘nuclear sharing’ to non-nuclear European allies such as West Germany, Belgium, and the Netherlands (Trachtenberg 1999, 176–178). The case is rather different in case of South Korea; there have been no US nuclear weapons stationed on the South Korean soil since 1991, and Washington has repeatedly denied Seoul’s requests for ‘nuclear sharing’ in any form.

However, a closer look reveals that the US extended deterrence to South Korea is just as strong as it had been towards Western Europe. To begin with, one of the reasons behind the US withdrawal of nuclear weapons from South Korea in 1991 was South Korea’s own decision to denuclearize Korean Peninsula. Accordingly, president Bush at the time was reluctant to remove US nuclear weapons out of concern for weakened US credibility, until he was confident that the South Koreans would not interpret this as weakened US commitment to South Korea (*Washington Post* 1991/10/19). In addition, the so-called ‘nuclear sharing’ with Western Europe did not last long as Washington tightened control mechanisms on its nuclear weapons in Europe since 1960s, which allowed them to be used only when authorized by the US (Trachtenberg 1999,

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11) Burr, W. (2020), “The U.S. Nuclear Presence in Western Europe, 1954–1962, Part I”, <https://nsarchive.gwu.edu/briefing-book/nuclear-vault/2020-07-21/us-nuclear-presence-western-europe-1954-1962>. (accessed on April 12, 2023)

304-309).

Most importantly, the US has repeatedly announced its commitment to South Korea, the wording of which has been getting stronger than before every time. From as early in 1978, Washington first officially declared that it will provide nuclear umbrella to Seoul in the joint communique during the 11<sup>th</sup> ROK-US Security Consultative Meeting (SCM), stating that “Korea is and will continue to be under the US nuclear umbrella” (cited in Roehrig 2018, 126). The phrase remained little changed for the next three decades until North Korea’s nuclear test in 2006, when Washington and Seoul began to explicitly include the term ‘extended deterrence’ in the joint communique as follows: “Secretary Rumsfeld offered assurances of firm US commitment and immediate support to the ROK, including continuation of the extended deterrence offered by the US nuclear umbrella, consistent with the Mutual Defense Treaty” (cited in Roehrig 2018, 127).

The US commitment was reiterated in 2016 when Washington emphasized “the long-standing US policy that any attack on the United States or its allies will be defeated, and any use of nuclear weapons will be met with an effective and overwhelming response” (cited in Roehrig 2018, 127-128). While much strengthened than before, one shortcoming of the 2016 communique was that it implied the US could respond not with *nuclear* weapons but with *conventional* capabilities in the face of Pyongyang’s nuclear attack towards Seoul. However, such a gap was filled quickly in 2021 when Washington reiterated its commitment by outlining “firm US commitment to providing extended deterrence to the ROK utilizing the full range of US defense capabilities, including nuclear, conventional, and missile defense capabilities and advanced non-nuclear capabilities” in the new communique.<sup>12)</sup>

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12) U.S. Department of Defense (2022), “54th Security Consultative Meeting Joint Communique”, <https://www.defense.gov/News/Releases/Release/Article/3209105/54th-security-consultative-meeting-joint-communique/>. (accessed on 13 April, 2023)

### 3. Can the Paradox be Applied to the Korean Peninsula?

The discussion so far shows that both sides on the Korean Peninsula have some type of deterrent capability against one another, with North Korea on one side and South Korea and the US on the other. As a state of mutual deterrence is essential for the stability–instability paradox to function, some might argue that the concept can easily be applied to the security environment on the Korean Peninsula.

However, one potential problem in such an approach is that in contrast to the powerful American nuclear arsenal against North Korea capable of assured destruction, the latter’s capability may not yet have reached fully deterrence–capable level, based on one’s perspective on the requirements of effective nuclear deterrence. While some may argue that nuclear deterrence can be achieved either in the form of existential deterrence or minimum deterrence, others may point out that it requires more and can only be achieved through assured retaliation or assured destruction. As observed so far, it is without doubt that North Korea has already reached the stage of minimum deterrence, allowing it to project nuclear weapons into South Korea and nearly all of American territories. However, its arsenal’s lack of survivability from US preemptive strikes implies that, seen from the assured retaliation and assured destruction views of nuclear deterrence, there is not *mutual* deterrence but only *one-sided* deterrence on the Korean Peninsula, with only the ROK–US alliance having deterrent capability against Pyongyang.

In sum, the stability–instability paradox can be said to be applicable to the inter–Korean security environment, but *only if* one adopts the existential deterrence or minimum deterrence views of nuclear deterrence. However, what is important is that such a state may not last long, as North Korea advances nuclear arsenal and continues its pace towards the level of assured retaliation. As a result, the emergence of mutual deterrence



on the Korean Peninsula looms large on the horizon, and the stability-instability paradox will increasingly become relevant in the inter-Korean security environment.

## IV. How Does the Paradox Work?: The Case of Bombardment of Yeonpyeong Island

### 1. Applying the Paradox to the Korean Peninsula

If one assumes that the stability-instability paradox can be applied to the inter-Korean security environment, how will it function in the region? As discussed earlier, the paradox can work either through the 'red-line model' or 'brinkmanship model', two mutually exclusive mechanisms distinct from each other in terms of one's willingness to risk strategic confrontation or not. This section seeks to assess which mechanism can explain how the stability-instability paradox will function in the inter-Korean security environment by conducting a descriptive case study on the bombardment of Yeonpyeong Island in 2010.<sup>13)</sup> The case was chosen for two reasons. First, it was the most heated sub-strategic conflict in the region since North Korea's nuclearization in 2006, with not only military but also civilian casualties for the first time in decades. Second, there is relatively abundant data available to be examined, which is a factor that cannot be neglected in conducting a case study.

To note, it must be acknowledged that the results of the case study in

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13) There are three types of cases studies in social science: exploratory, descriptive, and explanatory case studies. The descriptive case study is mainly used for illustrative purposes, providing a clear picture of the case and opening room for in-depth explanatory case study in the future. For further discussion on case studies in social science, see Yin (2013).

this section are only preliminary, as there are two remaining gaps that need to be filled. First, North Korea in 2010 was only at the level of existential deterrence and partially in the stage of minimum deterrence, so those with the assured retaliation or assured destruction views can rightly contend that the stability–instability paradox might not be applicable to the region at the time. Second, in contrast to the South Korean and American decision–makers during the conflict, how Pyongyang acted at the time remains largely unknown even today.

This paper seeks to address the gaps in two ways. First, this paper does not argue that the findings in this section are generalizable or absolute. Instead, the main goal here is to conduct preliminary analysis based on specific assumptions. Second, albeit with limited materials available, this paper attempts to provide a balanced view by examining not only South Korea and the US but also how North Korea acted during the conflict as well.

## 2. How the Two Sides Acted During the Conflict

A close look reveals that the overall result of the bombardment of Yeonpyeong Island in 2010 was largely as the prediction of red–line model, with both parties avoiding escalation into strategic conflict. On one side, Seoul and Washington forgo disproportionate retaliatory option against the North during the conflict.<sup>14)</sup> When the North Koreans bombarded the island on November 23, 2010, the South Korean marines stationed on the island responded by firing about 80 rounds in response to 170 rounds fired by the North. The South Korean air force did deploy its F–15Ks and KF–16s to the area, but they were ordered to retaliate only if North Korea recommenced artillery barrage for the third time.<sup>15)</sup> Instead of a military

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14) Bermudez Jr., J. S. (2011), “The Yonp’yong–Do Incident, November 23, 2010”, [https://www.38north.org/wp-content/uploads/2011/01/38North\\_SR11-1\\_Bermudez\\_Yeonpyeong-do.pdf](https://www.38north.org/wp-content/uploads/2011/01/38North_SR11-1_Bermudez_Yeonpyeong-do.pdf). (accessed on April 29, 2023)

response, South Korea sent nearly 400,000 leaflets north over the border using balloons that evening. In the same week, South Korea deployed additional marines and military assets such as K-9 batteries, Kooryong 130mm MLRS, a battery of Chonma surface-to-air missiles and an Army ARTHUR counter-battery unit to the area. However, Seoul's actions did not include actual military retaliation against Pyongyang.

The American actions resembled those of South Korea, avoiding further escalation of conflict with the North. The US did deploy its F-22s and other support aircrafts to the region, but they were strictly ordered to remain outside the combat zone and not retaliate.<sup>16)</sup> While Washington strongly condemned Pyongyang and supported Seoul in words, its military actions that followed were confined to conducting joint military naval exercise with South Korea in the Yellow Sea on November 28, 2010.

On the other side, the North Koreans similarly did not choose to escalate the conflict further. Although they were the ones that started the conflict, Pyongyang did not choose to commence artillery barrage for the third time after two series of volleys with nearly 170 shells, ceasing to fire after the South Korean aircrafts entered the combat zone. Moreover, North Korea's five Mig-23MLs from the 60th Air Regiment chose to withdraw to their base after an hour of stand-off with the South Korean air force. In the week that followed, Pyongyang conducted additional military exercises in the region and moved its assets such as 120mm and 130mm guns and SA-2 batteries closer to the shore, but there was no actual military strike since the first day.<sup>17)</sup>

However, one noticeable feature of the conflict is that while its overall result was as the assessment of the red-line model, this did not mean that all actors chose to avoid escalation throughout the entire course of conflict. At first, Seoul did not stand down but instead sought to escalate

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15) Ibid.

16) Ibid.

17) Ibid.

the conflict, threatening to retaliate disproportionately.<sup>18)</sup> Jeffrey A. Bader, the former senior director for Asian affairs on the National Security Council (NSC) in the Obama Administration, wrote later that the South Koreans were considering retaliation “well beyond a local response”, and that they seemed prepared to “delegate authority to local commanders for a disproportionate response”, which might have triggered North Korean retaliation to populated areas (Bader 2012, 90). Robert M. Gates, the former secretary of defense in the Obama Administration, also pointed out that South Korea’s original plans for retaliation were “disproportionately aggressive”, and that Washington was “worried the exchanges could escalate dangerously” (Gates 2015, 497).

It was only through the intervention by Washington that Seoul stood down reluctantly. According to Gates, US decision-makers such as president Obama, secretary of state Clinton and others were “all on the phone” with their South Korean counterparts over several days (Gates 2015, 497). Washington also had to promise Seoul extensive security assistance including logistical and intelligence support, in exchange for Seoul standing down (Bader 2012, 90–92). In the end, Seoul agreed to cancel its “more aggressive plans for retaliation” and start talks with the North to ease tensions (Bader 2012, 92). It also agreed with Washington to carry out a naval exercise in the Yellow Sea without further military retaliation against North Korea.

Similarly, while the general course of North Korea’s actions followed the logic of the red-line model, Pyongyang’s early actions were in fact contrary to its mechanism. Although specific details are unknown to this date, the evidence shows that Pyongyang was willing to risk further escalation into strategic conflict at the time, just like their South Korean counterparts, and that it was only after Beijing’s pressure that the North

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18) The CNN Wire Staff (2010), “After North Korean Strike, South Korean Leader Threatens ‘Retaliation’”, <http://edition.cnn.com/2010/WORLD/asiapcf/11/23/nkorea.skorea.military.fire/index.html>. (accessed on April 19, 2023)

chose to stand down. Gates wrote that there was “evidence that Chinese were also weighing in with the North’s leaders to wind down the situation” (Gates 2015, 497). Bader also said later that Beijing “weighed heavily with the North to counsel restraint”, which resulted in its turn towards a resumption of talks with the South (Bader 2012, 92).

### 3. What Can be Learned from the Case of Yeonpyeong Island

The case of the bombardment of Yeonpyeong Island in 2010 showed that the actors at the time did not choose to escalate the conflict any further but instead tried to control the situation, acting as if there was an invisible ‘cap’ that prevented them from any further escalation. Due to such perceived ‘cap’ on their behaviors, the actors chose to restrain their actions during the conflict and stand down. However, while the general course of actions on the two sides went along with the assessment of red-line model, some actors such as South and North Korea sought to escalate the conflict, suggesting that the logic of brinkmanship model may have been in play at the time in the early stage of the conflict.

Two preliminary lessons can be drawn from the case. First, there is a possibility that future sub-strategic conflicts on the Korean Peninsula will be as the prediction of red-line model. *Ceteris paribus*, future sub-strategic conflicts in the region may turn out similarly as the case of bombardment of Yeonpyeong Island, with both sides actively trying to avoid any further escalation. This means that while there can still be *inadvertent* escalation from a sub-strategic conflict between two sides, there may be little likelihood of *intentional* escalation in the region in general.

Second, the case demonstrates the difficulty of explaining the behaviors of actors involved with only a single model of the stability-instability paradox. While the overall result of the bombardment of Yeonpyeong

Island was as the prediction of red-line model, not all actors behaved accordingly, and their actions may be difficult to account for without the alternative logic of brinkmanship model. This implies that both explanations may be necessary to fully understand a sub-strategic conflict under mutual nuclear deterrence through the lens of the stability-instability paradox.

## V. Conclusion

This paper assessed the applicability of the stability-instability paradox to the Korean Peninsula, as well as how it would function if it were applicable to the region. The findings show that the stability-instability paradox may be applicable to the inter-Korean security environment, but only when one accepts a specific view of nuclear deterrence; it must be assumed that nuclear weapons can have effective deterrent capability even with the level of minimum deterrence. This paper also attempted to apply the stability-instability paradox to the Korean Peninsula through a case study on the bombardment of Yeonpyeong Island in 2010, based on the assumption that nuclear arsenal with the level of minimum deterrence can be sufficient to deter other states. The conflict turned out to be as predicted by the 'red-line model' of the stability-instability paradox, with relatively little danger of intentional escalation.

The findings of this paper have both academic and real-life policy implications. Academically, this paper can contribute to enriching the study of the stability-instability paradox. Despite its popularity among international relations scholars, the stability-instability paradox has rarely been applied to regions other than Europe and South Asia. This paper explores the concept's applicability to East Asia, thus opening new possibilities for future studies on the applicability of the stability-instability

paradox.

Second, this study shows that when a series of actors are on the same side during a sub-strategic conflict under mutual nuclear deterrence, their general course of action may be affected by factors outside the logic of the stability-instability paradox. South Korea and the US were on the same side during the bombardment of Yeonpyeong Island in 2010, and each acted differently from one another in the beginning; South Korea followed the logic of the brinkmanship model, while the US went along with the predictions of the red-line model. What ultimately decided the general course of action for the ROK-US alliance was the alliance politics, as the US persuaded the South Koreans to change their behavior during the crisis. This implies that factors such as alliance politics may need to be incorporated into the study of the stability-instability paradox in the future.

Third, the findings of this paper imply that the roles of China and the US are inseparable from a potential sub-strategic conflict on the Korean Peninsula. In particular, while not directly involved in the state of mutual nuclear deterrence in the region, China has the ability to influence the North Korean decision-makers during a sub-strategic conflict, as was seen in the bombardment of Yeonpyeong Island. This was also apparent in the case of the US, who successfully changed the South Korea's behavior. The role of two great powers and how they would affect their Korean allies during a sub-strategic conflict opens venue for further studies.

This paper has two real-life policy implications as well. First, the findings show that South Korea's decision-makers need to be prepared for potential sub-strategic conflicts with the North. While Pyongyang currently possesses somewhat limited degree of nuclear arsenal, which makes the stability-instability paradox less relevant to the region, such a situation may soon change as it advances towards the level of assured

retaliation. This would make the logic of the stability–instability paradox to become more applicable to the area, with mutual nuclear deterrence between the two sides increasing the likelihood of sub–strategic conflicts.

Second, the findings of this paper support the necessity for close cooperation between Seoul and Washington to avoid miscommunication in the case of sub–strategic conflict with the North. The case of the bombardment of Yeonpyeong Island in 2010 showed that even those on the same side can have starkly different degree of willingness to risk escalation. This may become a new source of regional instability because risk–taking tendency by one ally can increase the likelihood of escalation into a full–scale strategic conflict for the entire alliance and cause internal frictions. To avoid such a possibility, the two states need to establish a clear line of communication and command structure during the peacetime, so that the two can coordinate their actions once the real action begins in the region.



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| 국문초록 |

## 안정-불안정 역설과 한반도:

상호 핵 억제에 따른 남북한 국지전 가능성 및 원리 연구

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북한과 중국의 급속한 핵무장과 우크라이나 전쟁에서의 핵무기 사용에 대한 두려움은 동아시아에서 핵무기에 대한 새로운 관심을 불러일으키고 있다. 이러한 배경 속에서 본 연구는 핵무기와 관련된 가장 대표적인 개념 가운데 하나인 안정-불안정 역설과 동아시아에 대한 함의를 살펴보고자 한다. 구체적으로, 본 연구에서 다루고자 하는 연구 질문은 다음과 같다. 안정-불안정 역설이 한반도의 안보 환경에 적용 가능한가? 만약 그렇다면, 안정-불안정 역설은 구체적으로 어떻게 작동할 것인가? 이에 대해 본 연구는 이론적 연구와 2010년 연평도 포격전 사례 연구를 통해 다음과 같은 연구 결과를 도출하였다. 첫째, 안정-불안정 역설은 비록 한반도의 안보 환경에 완전히 부합하는 개념은 아니지만 시간이 지날수록 점점 더 유의미한 요인으로 작용하고 있다. 둘째, 한반도에서 안정-불안정 역설은 의도적인 핵 고조의 위협이 상대적으로 낮은 '레드 라인 모델'을 통해 작동할 가능성이 높다.

▪ 주제어: 안정-불안정 역설, 핵무기, 북한, 핵억제, 국지전