



# Preparing for the worst: Was North Korea's decision to develop nuclear weapons rational?

An analysis of North Korea's nuclear weapons development

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## ABSTRACT

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North Korea's foreign policy decision-making procedure is highly centralized to a single leader or, at most, a few political/military elites. While democratic governments are restrained both horizontally and vertically, authoritarian regimes are relatively free of constraints from the public. This paper examines the motivations behind North Korea's nuclear weapons development in light of the rational deterrence model, then discusses the strategic implications of a rational, or irrational, North Korea. It concludes that North Korea's decision to develop nuclear weapons was rationally motivated by the deteriorating security environment surrounding the state, but that this will not guarantee deterrence.

**Keywords:** Deterrence, Irrationality, North Korea, Nuclear Weapons, Rationality

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# INTRODUCTION

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North Korea is voluntarily walking down the road of isolation. The question is why? What led to North Korea's obsession with nuclear weapons, despite the heavy economic sanctions and its resulting "axis of evil" reputation? Scott Sagan asked the same question and provided three models of explanation, only to conclude that "different historical cases are best explained by different causal models."<sup>1</sup> The same logic applies to the North Korean case; what happened in other countries cannot explain North Korea's motivations to develop nuclear weapons. Multiple dimensions must be dealt with, looking inside and outside the state, considering the systemic impact, and accounting for misperceptions or miscalculations by a political leader.

First, I will discuss the basic logic of rationality and irrationality under nuclear deterrence theory, then determine whether it may be applied to North Korea in evaluating the motivations of its nuclear program development, and finally will extract implications based on the results. This paper finds that North Korea's decision to acquire nuclear weapons was rational considering the structural pressures of the Cold War and the dissolution of the Soviet Union. However, I argue that rational motivations in acquiring nuclear weapons do not automatically erase the possibility of irrationality in the future, nor ensure deterrence.

## I. Nuclear deterrence theory and rationality

It is widely believed that the ideological competition between the US and the Soviet Union did not end up in a "hot" war because both sides had large amounts of nuclear weapons. In 1956, the number of combined US and Soviet nuclear warheads amounted to approximately 4,000; in 1986, there were more than 60,000 nuclear warheads.<sup>2</sup> Not only did each side have huge stockpiles of nuclear warheads, both had proven the capability to deliver them at will. The US demonstrated the destructive power of atomic bombs in Japan in 1945 and the Soviet Union continuously improved its nuclear technology after its initial test in 1949. Nuclear deterrence theory is based on the principle of mutually assured destruction (MAD)—shared understanding that the first use and a retaliatory use of nuclear weapons will result in the destruction of both sides.<sup>3</sup> In fact, Robert McNamara, former US secretary of state under the Kennedy and Johnson administrations, clearly elaborated on such strategic thinking during the Cold War.

The cornerstone of our strategic policy continues to be to deter nuclear attack upon the United States or its allies ... by maintaining a highly reliable ability to inflict unacceptable damage upon any single aggressor or combination of aggressors at any time during the course of a strategic nuclear exchange, even after absorbing a surprise first attack.<sup>4</sup>

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<sup>1</sup> Scott Sagan, "Why Do States Build Nuclear Weapons?: Three Models in Search of a Bomb," *International Security* 21, no. 3 (Winter 1996/97), 85.

<sup>2</sup> Max Roser and Mohamed Nagdy, "Nuclear Weapons," *Our World in Data* (2019), Accessed: December 6, 2019: <https://ourworldindata.org/nuclear-weapons>

<sup>3</sup> Robert Powell, "The Theoretical Foundations of Strategic Nuclear Deterrence," *Political Science Quarterly* 100, no. 1 (Spring 1985), 79.

<sup>4</sup> Atomicarchive.com, "'Mutual Deterrence' Speech by Sec. of Defense Robert McNamara," *Atomicarchive.com*, Accessed: December 6, 2019: <http://www.atomicarchive.com/Docs/Deterrence/Deterrence.shtml>

Moreover, nuclear deterrence theory assumes a rational decision-making procedure. Because players in the game are rational, it is expected that they will calculate the costs and benefits of potential nuclear use and conclude that the costs far outweigh the benefits.<sup>5</sup> In sum, nuclear deterrence theory predicts that mutually assured expectations of insurmountable damage will discourage the first use of nuclear weapons by either party. At the same time, it implies that states will develop nuclear weapons when they face existential threats; and will dismantle them when other states' nuclear weapons are dismantled.<sup>6</sup>

Then how can we define rationality, or “irrationality?” Intuitively, we judge someone as rational when their behavior abides by norms. Here, I borrow Peter Katzenstein’s definition of a norm: “collective expectations for the proper behavior of actors with a given identity.”<sup>7</sup> Actions deviating from shared understandings of appropriate behavior give an impression that the actor is “irrational.” I define rationality from an economic perspective—calculating the opportunity costs for all possible alternatives and coming up with a decision that maximizes the benefits while minimizing the costs. In fact, nuclear deterrence theory is based on assumptions that actors choose not to use nuclear weapons because the costs are too high.

Presuming “economic” rationality is key to a positivist approach that allows numerical measurement of abstract concepts. For example, “power” is a materialistic concept for neorealists, measured by the number of military units, economic growth rate, GDP, etc.<sup>8</sup> Thus, a state is considered “powerful” when it has more assets in comparison to others. This is why the distribution of relative power determines the polarity of the international system. The Cold War was a bipolar era in which the system consisted of two blocs with relatively equal power. As the “ultimate weapon,” nuclear capabilities make all other conventional weaponry less valuable. In sum, the acknowledgement of “rationality”—an economic calculation to maximize one’s own interests—underlies nuclear deterrence and MAD.

The opposite of rationality would literally be “irrationality,” understood as actions based on impulse, emotion, or anything that does not derive from calculation. Denny Roy put it, more technically, as “failure to behave in accordance with a hierarchy of consistently ranked values.”<sup>9</sup> Oftentimes, US officials worried of Soviet irrationality in nuclear usage. It is also said that the US considered actual use of nuclear weapons; Dwight D. Eisenhower in January 1953 pushed his military advisors to look into using tactical nuclear weapons to end the Korean War.<sup>10</sup> Irrationality was, it turns out, a necessary element “to hang on to rationality,”<sup>11</sup> as John Lewis Gaddis put it.

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<sup>5</sup> Scott Sagan, “The Perils of Proliferation: Organization Theory, Deterrence Theory, and the Spread of Nuclear Weapons,” *International Security* 18, no. 4 (Spring 1994), 67.

<sup>6</sup> George Perkovich and James M. Acton eds., *Abolishing Nuclear Weapons: A Debate* (Washington D.C.: Carnegie Endowment For International Peace, 2009), 102.

<sup>7</sup> Peter J. Katzenstein, “Introduction: Alternative Perspective on National Security,” in *The Culture of National Security: Norms and Identity in World Politics*, ed. Peter J. Katzenstein (New York: Columbia University Press, 1996)

<sup>8</sup> Joseph S. Nye, Jr., “The Changing Nature of World Power,” *Political Science Quarterly* 105, no. 2 (Summer 1990), 178.

<sup>9</sup> Denny Roy, “Misunderstanding North Korea,” *Analysis from the East-West Center*, no. 133 (August 2017), 2.

<sup>10</sup> John Lewis Gaddis, *The Cold War: A New History* (New York: Penguin Books, 2005), 63.

<sup>11</sup> *Ibid.*, 62.

Some scholars focus on the psychological aspect of nuclear deterrence, arguing that rationality and strict calculations of the costs and benefits do not automatically render nuclear non-use between nuclear powers. Henry Kissinger opened up the possibility that motivations for developing a nuclear weapon could have purposes other than deterrence.

The Cold War international order reflected two sets of balances ... The nuclear balance between the Soviet Union and the United States, and the internal balance within the Atlantic Alliance, whose operation was, in important ways, psychological ... France and Britain developed small nuclear forces that were irrelevant to the overall balance of power but created an additional claim to a seat at the table of major-power decisions.<sup>12</sup>

Kissinger's statement acknowledges the existence of two different sets of nuclear deterrence strategies, one being the balance of power, and the other an ideational factor of increasing international prestige; for example France and Britain, who used it to obtain a stronger voice in the power dynamics.

As a matter of fact, there are anomalies in deterrence theory, namely its inability to explain the US' non-use of nuclear weapons when it enjoyed the status of nuclear monopoly.<sup>13</sup> If a state's behavior is simply determined by the distribution of power measured in physical capabilities, the outcome of the US' relative advantage should have resulted in nuclear use, especially in contingencies such as the Korean War. The Soviet Union conducted its first nuclear test only four years after the completion of the Manhattan Project, but it was not until 1957 able to obtain long-range delivery capable of credibly reaching the US mainland.<sup>14</sup> China did not conduct its first nuclear test until 1964.

Clearly, the US had nuclear supremacy over its adversaries and had proven its capability only five years before the outbreak of the Korean War. Instead, the US refrained from nuclear use for many reasons, including the fear that "an atomic bombardment might not produce a decisive victory at all" or out of concern that they'd lose their ability to deter once used.<sup>15</sup> Nina Tannenwald argued that there are three reasons why deterrence theory failed to explain the non-use of nuclear weapons, such as that of the US when it was enjoying the status of nuclear monopoly. First, "there are a significant number of cases of non-use where deterrence simply did not operate." Second, "gaps in the theory leave unclear on what basis deterrence actually operated," such as the question of what constitutes "unacceptable costs," and finally, that "important causal factors appear to lie outside the theory."<sup>16</sup>

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<sup>12</sup> Henry Kissinger, *World Order* (New York: Penguin Books, 2014), 90.

<sup>13</sup> Howard LeRoy Malchow, *History and International Relations: From the Ancient World to the 21<sup>st</sup> Century* (London: Bloomsbury Academic, 2016), 256-257.

<sup>14</sup> Klaus Fuchs, Igor Kurchatov, Yuli B. Khariton, Lavrentiy P. Beria, Andrei D. Sakharov, "Soviet Atomic Program – 1946," *Atomic Heritage Foundation* (June 5, 2014): <https://www.atomicheritage.org/history/soviet-atomic-program-1946>

<sup>15</sup> Carl A. Posey, "How the Korean War Almost Went Nuclear," *Air & Space Magazine* (July 2015): <https://www.airspacemag.com/military-aviation/how-korean-war-almost-went-nuclear-180955324/>

<sup>16</sup> Nina Tannenwald, *The Nuclear Taboo: The United States and the Non-Use of Nuclear Weapons Since 1945* (Cambridge: Cambridge University Press, 2007), 33-36.

In fact, if facing a nuclear threat were sufficient reason for a state to develop nuclear weapons, all neighboring states of nuclear powers should be developing nuclear weapons for themselves. For example, South Korea, Japan, and Taiwan should have gone nuclear against North Korea and China but decided not to after weighing the costs and benefits. They calculated that losing their strongest ally (the United States) was more damaging to their national security and that remaining under the US nuclear umbrella was more beneficial. The decision to acquire nuclear weapons is not determined solely by the adversary's possession of nuclear weapons. The calculations of costs and benefits differ among states, the number of factors considered within the calculation varies, and the definition of what constitutes the costs and benefits is unique. Therefore, a neorealist rational nuclear deterrence theory does not perfectly explain the dynamics in the development and possession of nuclear weapons.

Neorealists would respond to such criticism by focusing on the *outcome* of history. Consequently, nuclear deterrence did work, and states did not engage in a nuclear war because of the strong structural forces of balance of power. Kenneth Waltz mentioned that the stability of a bipolar system is “reinforced by second-strike nuclear weapons.”<sup>17</sup> Even if states considered using small-scale strategic nukes against adversaries, the result would be non-use due to structural influences. Neorealists focus on the “third image” level of analysis; not on the domestic or unit level, in order to sustain theoretical rigor and parsimony.<sup>18</sup>

In addition, Robert Jervis points out that political leaders are at times “irrational” when making foreign policy decisions. First, leaders learn from history and rely on past decisions or prior expectations. Second, policymakers overestimate the superiority of their decisions vis-à-vis their opponents and, third, they tend to rationalize their decisions after making them.<sup>19</sup> Whether or not to employ nuclear weapons and whether or not to develop them in the first place is another foreign policy that leaders have to make, and Jervis' explanation implies that their decision may be based on irrational judgements.

So far, the differences between rationality and irrationality have been compared, showing that nuclear deterrence theory relies on the assumption of the former. Rationality is defined as calculated behavior, whereas irrationality is more emotional and ad hoc based. It is widely believed that the Cold War remained “cold” because rational thinking prevailed on both sides and nuclear weapons deterred all-out war. In the next section, the North Korean nuclear program's development during the Cold War era is evaluated to determine whether it was based on rational calculations or on other ideational reasons.

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<sup>17</sup> Kenneth Waltz, *Theory of International Politics* (Illinois: Waveland Press, 1979), 195.

<sup>18</sup> Paul Schroeder, “Historical Reality vs. Neo-realist Theory,” *International Security* 19, no. 1 (Summer 1994), 426.

<sup>19</sup> Robert Jervis, *Perception and Misperception in International Politics* (Princeton: Princeton University Press, 1976)



## II. Was North Korea's decision to develop nuclear weapons rational?

From a realist perspective, states pursue nuclear weapons when they face existential threats; they give up nuclear weapons programs when those threats no longer exist.<sup>20</sup> Nuclear weapons are the ultimate arsenal a state can possess; the damage they inflict is incomparable to any other weaponry. According to the security model<sup>21</sup>, states pursue nuclear weapons as a means to deter outside aggression. In light of the security model, it is believed that North Korea developed nuclear weapons due to the hostile international environment—surrounded by the US, South Korea, and Japan. To guarantee its own survival, the regime had no choice but to balance against the superior relative power of the liberal democratic bloc. If we hypothesize that the North Korean regime is rational, the decision to develop a nuclear program must have been based on calculations of relative power; nuclear weapons could only be countered by nuclear weapons. In sum, the history of the North Korean nuclear program's development and an examination of the international security environment surrounding North Korea is necessary to see whether North Korea's decision was influenced by structural factors.

### 1. *The early North Korean nuclear program's development*

After the establishment of the DPRK in 1948, approximately 30 North Korean scientists and engineers were sent to Soviet Union's "Joint Institute for Nuclear Research" in 1956.<sup>22</sup> They acquired basic knowledge of the nuclear program and, eventually, more than 300 nuclear specialists, along with 150 advanced specialists were trained in Moscow. In January 1958, the Soviet Union helped North Korea build its Atomic Weapons Training Center, and a year later the USSR and North Korea signed an agreement for the peaceful use of nuclear energy. North Korea was therefore heavily dependent on the Soviet Union at the initial stage of its nuclear program's development. Not only did the USSR provide technological training to North Korean personnel, they also provided facilities such as the IRT-2000 research reactor. As a matter of fact, the construction of the research reactor in the Yongbyon Nuclear Research Complex was directly supervised by the Soviet nuclear scientist Vladislav Kotlov. Throughout the 1960s and '70s, North Korean scientists continued to receive training at the USSR's nuclear facilities and were able to learn plutonium reprocessing techniques. Without Soviet help at the incipient stage of nuclear development, the North would not have acquired a nuclear program.<sup>23</sup>

### 2. *The post-Korean War international security environment surrounding North Korea*

It is hard to determine whether North Korea intended to develop nuclear facilities for peaceful use or for nuclear weapons at its initial phase. Not enough evidence of the North's true intentions is available, and therefore we can only draw conclusions by looking at the international context or statements of the leadership. As Joseph Bermudez Jr. puts it:

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<sup>20</sup> Sagan, "Why Do States Build Nuclear Weapons?" 54; John Deutch, "The New Nuclear Threat," *Foreign Affairs* 71, no. 4 (Fall 1992), 124-5.

<sup>21</sup> *Ibid.*

<sup>22</sup> This history of North Korea's nuclear program is found in Richard Stone's, "North Korea's Nuclear Shell Game," *Science* (January 2004); NTI, "North Korea Nuclear Chronology," (Last update: February 2011); Derek Bolton, "North Korea's Nuclear Program," *American Security Project*; and Padraig Collins, "War games: a timeline of North Korea's nuclear weapons development," *The Guardian* (March 2018) unless cited separately

<sup>23</sup> Victor Cha, *The Impossible State: North Korea, Past and Future* (New York: Ecco, 2012), 249.

Any research looking into [the North Korean nuclear weapons program] is faced with numerous imponderables owing in large measure to the closed and highly centralized nature of the North Korean political system; the nation's strategic, operational and tactical efforts at camouflage, concealment and deception; and the resulting absence of specific, reliable unclassified information.<sup>24</sup>

In fact, North Korea rarely publishes governmental documents, does not reveal its economic statistics, and effectively controls the flow of information.<sup>25</sup> For the difficulties above, Bermudez embarks on his studies using “inferential evidence,” and the same approach will be applied here, utilizing mainly secondary sources to enable a contextual understanding of the likely mindset of the North Korean regime.

First, the Korean War began with a North Korean surprise attack on June 1950. Knowing the history of US intervention in the Korean peninsula, Kim Il-sung's decision to initiate a war looks analogous to that of Japan attacking Hawaii. The US had already proven its nuclear capabilities in Hiroshima and Nagasaki only a few years back, and the US enjoyed the status of nuclear monopoly. Although the US did not use strategic nukes on the northern part of the peninsula in the end, it would seem imprudent for Kim to have ignored the possibility. However, Kim Il-sung's first attack on the rest of the peninsula took place under strategic calculations that the US would not intervene in the peninsula. On January 1950, US Secretary of State Dean Acheson declared the so-called “Acheson Line,” excluding South Korea from its defense parameters in the Asia-Pacific, along with Taiwan.<sup>26</sup> Furthermore, according to offensive realists, states constantly vie for relative advantage over the other because this is the best way to guarantee national security.<sup>27</sup> The attack was carefully planned in advance by Kim Il-sung, persuading both Stalin and Mao Zedong to grant consent, which he finally received that March.<sup>28</sup> Although Acheson's declaration of the parameter had a proviso that an attack on South Korea would be a violation of the UN Charter, Kim convinced Stalin that the conquest would be swift (within 22-27 days) and that the US would consider the war an internal Korean matter.<sup>29</sup> North Korea's attack on South Korea in June 1950 cannot be considered irrational, irrelevant of the international security environment; pre-war planning was made under rational calculations, and victory was only narrowly averted.

Second, South Korea's Syngman Rhee administration was more or less assertive of unification by force as well. Not only did he legitimize his presidency by setting the national goal of overthrowing the Northern regime by force, he took advantage of the Korean War and US

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<sup>24</sup> Joseph S. Bermudez Jr., “North Korea's Development of a Nuclear Weapons Strategy,” *US-Korea Institute at SAIS* (2015), 7.

<sup>25</sup> Many studies on North Korea rely on North Korean defectors' testimony and North Korea's economic status can only be estimated via “mirror statistics.” According to UN International Trade Statistics Knowledgebase, “mirror statistics” are reconstructed on the basis of data reported by partner countries. It is the best available solution for measuring trade volume in economies that do not report their own trade data, but it innately has shortcomings.

<sup>26</sup> Kang Sung-hak, *Korea's Foreign Policy Dilemmas: Defining State Security and the Goal of National Unification* (Folkestone: Global Oriental, 2011), 146.

<sup>27</sup> John J. Mearsheimer, “Structural Realism,” *International relations theories: Discipline and diversity* 83 (2007), 77.

<sup>28</sup> Norman Rich, *Great Power Diplomacy Since 1914* (New York: McGraw Hill, 2003), 362.

<sup>29</sup> *Ibid.*

intervention as “an opportunity to fulfill his ambitions of unifying the peninsula.”<sup>30</sup> As a matter of fact, Rhee clarified his resolution on reunification of the Korean peninsula in his statement during the armistice negotiations between the United Nations, North Korea, and China.

We prefer to fight on to any divisive armistice or peace ... we would rather wish to exercise our innate right of self-determination to decide the issue conclusively one way or the other. Anyway, we can no longer survive a stalemate of division.<sup>31</sup>

Considering Rhee’s persistent struggle for reunification under the ROK’s control, it is reasonable to imply that the Korean War was Kim Il-sung’s reaction to Rhee’s assertiveness and an attempt to remove such insecurities by launching a surprise early attack—taking advantage of an unpredicted firsthand initiative and ultimately relieve the security threats from its geographic South.

Finally, understanding the Cold War international system is necessary to explain the early development of North Korea’s nuclear program. As Balazs Szalontai mentioned in his review of uncovered archives, “from the 1950s on, both superpowers [the US and the Soviet Union] found it politically useful to give nuclear technology to their Third World allies in order to demonstrate their technological superiority and political generosity.”<sup>32</sup> South Korea had also signed a “Nuclear Cooperation Agreement on the Non-Military Uses of Nuclear Energy” in 1956 with the US and imported a research reactor in 1962.<sup>33</sup> Defining “rationality” in economic terms—calculating the costs and benefits of the outcome following a certain behavior—disallows determinate judgement upon North Korea’s desires for attaining a nuclear weapons program at its initial phase.

### *3. North Korean nuclear development before and after the end of the Cold War*

Although North Korea had been provided education and technological assistance from the Soviet Union over a long period of time, their nuclear capabilities were limited throughout the ‘60s and ‘70s. It was not until the late ‘70s that the “DPRK interest in nuclear weapons development, as distinct from nuclear energy” began to appear.<sup>34</sup> It is reported that in the late 1970s, North Korea conducted geological surveys in search of resources critical to nuclear weapons development, such as uranium ore, and asked the Soviet Union and China for know-how on developing nuclear weapons, but was turned down by both.<sup>35</sup> In 1986, the 5MWe

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<sup>30</sup> Victor Cha, *Powerplay: The Origins of the American Alliance System in Asia* (Princeton and Oxford: Princeton University Press, 2016), 97.

<sup>31</sup> “Statement by President Syngman Rhee,” June 06, 1953, History and Public Policy Program Digital Archive, B-379-014, Papers Related to the Korean American Mutual Defense Treaty, Papers Related to Treaty-Making and International Conferences, Syngman Rhee Institute, Yonsei University <http://digitalarchive.wilsoncenter.org/document/119372>

<sup>32</sup> Balazs Szalontai and Sergey Radchenko, “North Korea’s Efforts to Acquire Nuclear Technology and Nuclear Weapons: Evidence from Russian and Hungarian Archives,” *Woodrow Wilson International Center for Scholars*, Cold War International History Project, Working Paper #53 (August 2006), 2.

<sup>33</sup> Jeffrey C. Crater and George David Banks, “The US-Republic of Korea Nuclear Relationship – An Indispensable Alliance,” *American Council for Capital Formation* (December 2016), 2.

<sup>34</sup> Victor Cha, *The Impossible State: North Korea, Past and Future* (New York: Ecco, 2012), 249.

<sup>35</sup> NTI, “North Korea Nuclear Chronology,” (Last update: February 2011); William J. Perry, “Proliferation on the Peninsula: Five North Korean Nuclear Crisis,” *The Annals of the American Academy* 607 (September 2006), 81.

nuclear reactor for plutonium production—which had the capacity to produce 7.5kg of weapon-level plutonium when fully operated—was complete. Three years later, North Korea had already created a groundbreaking 200-MWe reactor, this time capable of producing 44 weapons per year.<sup>36</sup> The breakthrough came in late 1993, when Benazir Bhutto, the former Pakistani prime minister, carried key nuclear information to North Korea in exchange for missile information.<sup>37</sup> After Bhutto's initial visit, regular exchanges between Islamabad and Pyongyang were carried out in the exchange of nuclear and missile technology, led by the tangled network of A. Q. Khan.<sup>38</sup> In 1990, satellite photos revealed the existence of plutonium reprocessing facilities and, in 2002, US Assistant Secretary of State James Kelly confirmed North Korea's uranium enrichment program.<sup>39</sup> In 2006, North Korea conducted its first nuclear test. Five more would follow.

#### 4. *The international security environment during and after the Cold War*

From a realist perspective emphasizing the distribution of relative power, it can be understood that North Korea's resolve to develop nuclear weapons was motivated by the increasing gap in terms of hard power. When we compare the military expenditures of North and South Korea, the gap starts to rapidly widen in the mid-1970s.<sup>40</sup> Economically, it is not until the 1970s that the gap widens as well.<sup>41</sup> Today, South Korea's gross national income (GNI) per capita is 146 times bigger than North Korea.<sup>42</sup> As we have seen from the discussions on the first phase of the North Korean nuclear program's development, it is not clear whether or not their purpose was to ultimately obtain nuclear weapons. However, since 1985, numerous satellite pictures reveal hard evidence of North Korea's genuine objectives.

The two robust pillars of the communist bloc—the Soviet Union and China—began to divide in the late 1950s after the death of Stalin, and his subsequent denunciation by his successor Khrushchev.<sup>43</sup> Eventually North Korea would found a new ideology of *juche*, breaking away from the Marxism-Leninism that had tied the three states together. North Korea's central authority, based on the personality cult, could not withstand such self-denouncement by the Soviet Union and had to find an alternative ideology to maintain its legitimacy. Gaddis writes:

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<sup>36</sup> Richard Stone, "North Korea's Nuclear Shell Game," *Science* 303 (January 2004), 453.

<sup>37</sup> Richard P. Cronin, K. Alan Kronstadt, and Sharon Squassoni, "Pakistan's Nuclear Proliferation Activities and the Recommendations of the 9/11 Commission: US Policy Constraints and Options," *CRS Report for Congress* (May 24, 2005): 21-22; David Isenberg, "Atomic Market: What Benazir Knew," *Cato Institute*, May 30, 2008

<sup>38</sup> Karen A. Mingst and Ivan M. Arreguin-Toft, *Essentials of International Relations* (Norton & Company, New York, 2014)

<sup>39</sup> Victor Cha, *The Impossible State: North Korea, Past and Future* (New York: Ecco, 2012), 253, 255.

<sup>40</sup> R.J. Rummel, "The Conflict Helix and the Probability of a Korean War,"

<https://www.hawaii.edu/powerkills/HELIX.HTM>

<sup>41</sup> Motoko Rich, Choe Sang-hun, Audrey Carlsen, and Megan Specia, "How South Korea Left the North Behind," *The New York Times* (February 6, 2018):

<https://www.nytimes.com/interactive/2018/02/06/world/asia/korea-history.html>

<sup>42</sup> Ministry of National Defense, *2018 Defense White Paper*, Ministry of National Defense (March 2019), 245.

<sup>43</sup> Kang, *Korea's Foreign Policy Dilemmas*, 171.

He [Kim Il-sung] was allowed to build a Stalinist state, with its own cult of personality centered on himself, at just the time when Khrushchev was condemning such perversions of Marxism-Leninism elsewhere...<sup>44</sup>

Moreover, US President Richard Nixon's series of visits to the Soviet Union and China in 1972 increased North Korea's unease.<sup>45</sup> In sum, early conclusions could be made, judging from the widening relative power between North and South Korea and the increasing international isolation that the Kim regime's motivations for attaining nuclear weapons began around the late 1970s to early 1980s.

North Korea joined the IAEA in 1974; in 1985, they signed the Nuclear Non-proliferation Treaty (NPT), pre-conditions by the Soviet Union for providing four light water nuclear reactors.<sup>46</sup> Meanwhile, Kim Il-sung refused to sign the safeguards agreement, which was mandatory for all NPT signatories. In 1992, North Korea acceded to the safeguards agreement, allowing IAEA inspections in the summer the same year.<sup>47</sup> The first North Korean nuclear crisis occurred when North Korea refused to accept additional IAEA inspections to some of their key facilities and threatened to withdraw from the NPT.<sup>48</sup>

The US understood North Korea's security concerns, especially after the collapse of the Communist Bloc and South Korea's rapprochement with China and the Soviet Union in the early 1990s. After the former US President Jimmy Carter visited North Korea on June 1994, the Agreed Framework was signed on October 1994, to "freeze its graphite-moderated reactors and related facilities and ... eventually dismantle these reactors and related facilities." In exchange, the US and North Korea would "move toward full normalization of political and economic relations," and the US would provide the DPRK with an "LWR (light-water reactor) project with a total generating capacity of approximately 2,000 MW(E) by a target date of 2003." Most importantly, the US agreed to "provide formal assurances to the DPRK against the threat or use of nuclear weapons by the US."<sup>49</sup> In sum, the purpose of the Geneva Framework was to alleviate North Korea's concern over the imbalances of relative power.

However, speculation over North Korea's clandestine development of nuclear weapons continued, powered by satellite imagery of related activities. In 2002, North Korea's uranium enrichment operation was officially confirmed by a North Korean official during James Kelly's visit. The 1994 Agreed Framework broke down and North Korea eventually withdrew from the NPT in 2003. Six-party talks between Russia, China, the US, Japan, South Korea, and North Korea took place starting in August 2003 and a similar statement came out in 2005, affirming that the United States had "no intention to attack or invade the DPRK with nuclear or

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<sup>44</sup> Gaddis, *The Cold War*, 130.

<sup>45</sup> History.com Editors, "Détente," *History.com*, Last Modified: June 7, 2019: <https://www.history.com/topics/cold-war/detente>

<sup>46</sup> Simon Mundy, "Timeline: North Korea's nuclear history," *Financial Times* (February 12, 2013): <https://www.ft.com/content/17d64600-74c8-11e2-b323-00144feabdc0>

<sup>47</sup> Victor Cha, *The Impossible State: North Korea, Past and Future* (New York: Ecco, 2012), 251.

<sup>48</sup> Ministry of National Defense, *2018 Defense White Paper*, Ministry of National Defense (March 2019), 227.

<sup>49</sup> Agreed Framework of 21 October 1994 Between the United States of America and the Democratic People's Republic of Korea <https://www.iaea.org/sites/default/files/publications/documents/infcircs/1994/infcirc457.pdf>

conventional weapons.”<sup>50</sup> The same logic from 1994 had been applied in 2005 to guarantee North Korea’s security from external threats, but had once again failed, leading to repeated nuclear tests from 2006. On the surface, North Korea’s adherence to nuclear weapons seems irrational because it isolates it from the rest of the world despite efforts by neighboring states to assure its regime security and provide economic aid. Some say it is too late to reverse the tide because North Korea learned from the lessons of Libya and Iraq. In fact, the KCNA has stated that:

The bloody lesson of the war in Iraq for the world is that only when a country has physical deterrent forces and massive military deterrent forces that are capable of overwhelmingly defeating any attack by state-of-the-art weapons, can it prevent war and defend its independence and national security.<sup>51</sup>

Security assurances by the US were no longer credible for North Korea and the only way to survive was to refine nuclear weapons technology. This argument well explains North Korea’s continuous technological advancements. In 2017, North Korea test fired a Hwasung-15 ICBM that can reach the West coast of US mainland, and it is developing submarines to launch SLBMs which would grant North Korea deterrence power.

### III. Possibly irrational?

After examining the international security environment surrounding North Korea during the Cold War, strong correlation between increasing North Korean isolation from the international community and evidence indicating its redirection of nuclear energy into weaponry can be found. The Sino-Soviet split of the late 1950s and the US-led détente with China in 1972 supported North Korea’s aspirations for developing nuclear weapons. Kim Il-sung stated that “nuclear weapons are a must for the unification of the motherland [the Korean Peninsula]”<sup>52</sup> and argued that “the state that has no defense power of its own to protect its sovereignty against the internal and external enemies is, in fact, not a fully independent and sovereign state.”<sup>53</sup> Hard evidence of North Korean nuclear weapons facilities appears as early as 1985,<sup>54</sup> implying that their objectives arose several years before its construction.

However, several peculiarities of the North Korean regime render it difficult to apply the nuclear deterrence theory in this case. First, the “rationality” that underlines the operation of deterrence is based on the assumption that states are unitary actors. For neorealists, all states are pursuing survival in an anarchic international system—a view that ignores domestic functional differentiation. Since survival is universal regardless of the type of government, the outcome of state behavior will always be balancing against power or threats. Applying this logic on North Korea legitimizes its behavior as an effort to balance against US nuclear weapons by its own nuclear weapons. But an individualistic decision-making procedure is clearly different from bureaucratic decision-making and therefore deterrence theory based on state rationality

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<sup>50</sup> <https://edition.cnn.com/2005/WORLD/asiapcf/09/19/korea.north.text/>

<sup>51</sup> “US “Ruptured” Denuclearization Process,” *KCNA* (May 12, 2003)

<sup>52</sup> Jong Kyo Jin, “The nuclear legacies of Kim Il Sung and Kim Jong Il,” *Daily NK* (October 17, 2018), Accessed: December 9, 2019: <https://www.dailynk.com/english/the-nuclear-legacies-of-kim-il-sung-and-kim-jong-il/>

<sup>53</sup> Citatis, “Kim Il-sung Quotes,” *izQuotes*, Accessed: April 5, 2020: <https://citatis.com/a9202/27880/>

<sup>54</sup> Cha, *Impossible State*, 250.

cannot be comprehensively applied. On the other hand, despite the US and the Soviet Union's differences in governance (liberal democracy and one-party state communism), their foreign policies during the Cold War were both rational, with each side refraining from nuclear war. History provides strong evidence for future implications, but the same outcome cannot be guaranteed under different circumstances and anomalies.

Graham Allison categorizes three models of decision-making (the rational actor model, organizational process model, and governmental politics model) and discusses each model in light of the Cuban missile crisis.<sup>55</sup> North Korea does not perfectly fit into any of these models because their behavior is neither an organizational output nor a political resultant. This leads to North Korea's second peculiarity: that the decision-making process is centralized to a few while all other institutions under the leadership are at best minimally influential. There are numerous classifications describing the North Korean regime: totalitarian, military dictatorship, authoritarian, single-party, socialist, communist, hermetic police state, and so on. Furthermore, North Korea's official name, the "Democratic People's Republic of Korea," suggests an unconventional definition of "democracy" and a "republic." Freedom House has designated North Korea "not free" in its Freedom in the World 2018 report and ranked North Korea the fourth worst state out of 49 countries that had been designated as "not free."<sup>56</sup> The Heritage Foundation ranked North Korea 180<sup>th</sup> in terms of economic freedom, comprised of elements including the rule of law, government size, regulatory efficiency, and open markets.<sup>57</sup> Two things are clear about North Korea: first, it is controlled by a few; and second, the public has no influence over political decision-making. Daniel Byman and Jennifer Lynd argued that the North Korean regime employs several authoritarian control measures, such as restrictive social policies and use of force to prevent a civilian uprising from below.<sup>58</sup>

However, with regard to North Korea's nuclear program, they argue that the logic of its nuclear possession is internal, using it as a tool to promote support from key domestic constituents. Although they were correct in assessing that "security guarantees or other inducements that try to reduce Pyongyang's external threat environment will be of only limited effectiveness,"<sup>59</sup> the motivations for nuclear weapons is not directed inwards. There is a possibility that the weapons may have been used as a tool of domestic power consolidation, but as Shen mentions: "demonstrating military might through a nuclear blast, however, could at most produce some marginal 'positive' effect on the political power shift."<sup>60</sup> It is almost certain that North Korean nuclear weapons development began during Kim Il-sung's reign and therefore it was unnecessary for Kim to stabilize domestic power transition using nuclear weapons.

This leads to a third peculiarity, in which the state's preference derive from an individual's perception of their surroundings. Neoclassical realism is a complementary form of neorealism, adding an intervening variable to overcome the limitations of neorealism, and at the same time

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<sup>55</sup> Graham T. Allison, *Essence of Decision: Explaining the Cuban Missile Crisis* (Boston: Harper Collins Publishers, 1971), 256.

<sup>56</sup> Freedom House, Freedom in the World 2018 <https://freedomhouse.org/report/freedom-world/2018/north-korea>

<sup>57</sup> <https://www.heritage.org/index/country/northkorea>

<sup>58</sup> Daniel Byman and Jennifer Lynd, "Pyongyang's Survival Strategy," *International Security* 45

<sup>59</sup> Byman and Lynd, 45-46.

<sup>60</sup> Dingli Shen, "Cooperative Denuclearization toward North Korea," *The Washington Quarterly* 32, no. 4 (October 2009), 177.

point out the significance of an individual's perception of the system. According to Gideon Rose, the neoclassical realist approach accepts the basic assumptions of neorealism set forth by Waltz, but differs in that the translation of the systemic factor by political leaders acts as an intervening variable between the independent and dependent variable.<sup>61</sup>

Neoclassical realists agree that systemic pressure is the dominant factor that determines a state's foreign policy, but the scope and the degree of such pressure could be divergent according to the perception of the distribution of power (system) by political decision-makers. In sum, neoclassical realism "does not reject systemic theory but instead combines it with domestic-level theorizing, exploring the internal processes by which states arrive at policies and decide on actions in response to pressures and opportunities in their external environment."<sup>62</sup> In a neoclassical argument, North Korea did pursue nuclear weapons because of unfavorable distribution of power in Northeast Asia, but the key was Kim Il-sung's perception of it; not given exogenously. Perception is definitely an ideational factor, malleable for incessant change. Thus, the theory implies that decision-making may not always be rational; misperception or misunderstandings could at times lead to an irrational evaluation of the situation. Moreover, an individual does not always make rational decisions, it is influenced by numerous factors other than the system such as religion, culture, tradition, social circumstances, health, etc.

In conclusion, nuclear deterrence theory is based on the rationality of a *state*; not of an *individual*. Neorealists tend to focus on the systemic factor influencing the state, but in order to understand the motivations of North Korean nuclear development, opening up the black box of domestic dynamics is crucial. Of course, an individualistic decision-making structure does not automatically involve irrationality. The Soviet Union had a centralized party command system, but was rational in its foreign policy outcome, calculating the costs and benefits of a nuclear war. But in the case of North Korea, rationality becomes more questionable due to its degree of centralization: dictatorship of the "supreme leader" rather than a dictatorship of the communist party. Stalin's rule was more individualistic and closer to what we see from North Korea now, but the Soviet Union's credible nuclear capability came only after his death. Allison went further to generalize rationality consistent with individual behavior:

For explaining and predicting the behavior of individual men, this general orientation toward purpose and rational choice seems to be the best available. The rationality of man's choices is, of course, "bounded" by things such as the availability of information and the difficulty of calculation. But as a baseline, if one knows how an individual has defined his problem and what resources he has available, his objectives provide a good clue to his behavior.<sup>63</sup>

As mentioned earlier, "rationality" itself is strongly linked to economic calculations of costs and benefits. After examining the history of North Korean nuclear development and relating it with North Korea's motivations for nuclear weapons development, it was understandable that their motivation came from outside threats and an attempt to balance the imbalance. However, rationality for motivation should not be treated the same with rationality for purpose. In other words, rational motivation may coexist with irrational objectives. Once North Korea

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<sup>61</sup> Gideon Rose, "Neoclassical Realism and Theories of Foreign Policy," *World Politics* 51, no. 1 (October 1998), 144-172.

<sup>62</sup> Randall Schweller, "Opposite but Compatible Nationalisms: A Neoclassical Realist approach to the Future of US-China Relations," *The Chinese Journal of International Politics* 11, no. 1 (Spring 2018), 27.

<sup>63</sup> Graham Allison, *Essence of Decision*, 253.



attains nuclear weapons in the name of rational deterrence, its use and objectives may turn out to be irrational. Moreover, rational motivation itself could be a façade or a propaganda. Once again, lack of information and hard evidence brings such statement closer to conspiracy but opening up the possibility opens up debate for preparing for the worst-case scenario. North Korea does not abide by international laws, disregards traditional diplomacy, continuously engages in deception, provokes neighboring countries despite their relative weakness, and kills family members (e.g. Jang Seong-taek, Kim Jong-nam), for example. These are ideational factors that deviate from materialism but are important aspects to consider when analyzing North Korea's behavior.

#### **IV. Implications and Conclusion**

The ultimate purpose of understanding North Korean nuclear weapons development is to prevent North Korea from using it. Nuclear deterrence kept the Cold War “cold” because rationality prevailed on both sides. When applying the same theory on North Korea, a strong correlation exists between the hostile international security environment and nuclear weapons development. However, structural analysis is insufficient not only because it only assumes the “rational” part of decision-making, but also because the North Korean regime itself is an unprecedented form of rule—looking at different levels of analysis is imperative. System-level analysis requires minimal knowledge of the state itself since the determinant factor on state behavior is the distribution of power in the international system and states are considered rational unitary actors. Domestic and unit-level analysis on North Korea is challenging because evidence relies on inference rather than hard data. Considering North Korea's highly personalized type of rule, understanding the mindset of the individual is essential.

Several implications can be extracted from the findings of the study. First, North Korea's rationally motivated nuclear weapons development should be met with equivalent measures of nuclear deterrence. What kept North Korea at bay from further provocations in the Korean peninsula were clear US security assurances and the nuclear umbrella provided to its allies. Mutual understanding of excessive costs associated with the use of nuclear weapons led North Korea to refrain from further escalation. This was the purpose of US extended deterrence—to contain massive escalation from developing in the region. However, North Korea's strenuous efforts to acquire more sophisticated nuclear technology and delivery capabilities are targeted on driving a wedge between US allies. North Korea's continuous approach for bilateral negotiations with the US, peaceful gestures of dedication to engagement, are all understood to achieve the goal of weakening solidarity among US allies. Therefore, maintaining solid partnerships with the US and Japan is crucial to keep North Korea's evaluation of the costs insurmountable.

Second, denuclearization efforts should be focused on imposing actual costs upon North Korea rather than appealing to good will. It has been historically proven that North Korea's intention of socialist reunification will not subside along with the changes in the top leadership. Maintaining powerful sanctions and eventually transforming North Korea's calculations of the costs and benefits of possessing nuclear weapons should be the main cause of denuclearization. Over the decades of continued denuclearization negotiations warranting North Korea's security and economic assistance, the same old pattern of brinkmanship and engagement has only led to strengthening its nuclear programs.

Finally, policymakers should always be skeptical of North Korea's true intentions. When North Korean behavior is understood in light of nuclear deterrence theory, the possibility of North Korean first-use of nuclear weapons appears low because its objectives would be purely defensive. Nevertheless, nuclear deterrence theory, based on rationality, does not perfectly explain North Korean behavior. Therefore, coping against both "rational" and "irrational" North Korea is necessary. For example, on the rational aspect, the answer is clear-cut: to enhance deterrence measures against North Korea. Deployment of effective missile defense systems, maintaining USFK forces in the southern half of the peninsula, conducting combined military exercises, and sending clear signals of preparedness are all methods of countering a "rational" North Korea.

In terms of irrationality, strategies become complex and vague. There are no straightforward measures to prevent an irrational leader from using the weapon because whatever the message may be, it is susceptible to arbitrary interpretation. Therefore, bearing in mind the worst-case scenario is imperative, and all possible alternatives should be thought of in advance to swiftly act upon the contingency. If we believe that the North is in fact rational and leave out the possibility of actual use from North Koreans, we might anticipate another unexpected "sudden collapse of the Cold War"—when this time, a "sudden annihilation" should instead be anticipated.

## ABOUT THE AUTHOR

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