



Alternative futures for North Korea economy: From the North Korean perspectives

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ABSTRACT

Recent mood of reconciliation between the two Koreas as well as the two historic summits between Donald Trump and Kim Jong-Un over the denuclearization of the Korean Peninsula attracted worldwide attention. Despite growing security concerns in North Korea, studies on North Korea have often neglected the viewpoints of the North Korean regime and most studies analyzed from the viewpoints of South Korea and the United States. In this respect, we explore the alternative futures for North Korea and its economy from the perspective of North Korea and concludes that unification with South Korea may not be the preferred future of the North. To envision alternative futures for North Korea, we utilize the 'four generic alternative futures' of Manoa School at the University of Hawaii. Based on the four alternative futures, we suggest four strategies for the North Korean economy to achieve its preferred future.

1. Introduction

The historic first summit between the United States (U.S.) and North Korea was held in Singapore on June 12, 2018. Since then, major media outlets across the world have been publishing headlines referring to potential denuclearization and new potentials for economic reform in North Korea in the future. Such possible changes in North Korea could have a significant bearing not only on the Korean Peninsula and Northeast Asia, but on the world order as a whole. An important question to answer here is as follows: Why has North Korea suddenly decided to engage in diplomatic dialogue with the U.S.? Many experts say that North Korea's apparent change of tact is mainly due to the collapse of its economy caused in part by the economic sanctions imposed on it by the U.S. and the international community. If North Korea neglects its people's livelihoods and its economy, as has been the case for over the last three decades, it could eventually lead to the collapse of the Kim Jong-Un regime due to internal factors within North Korea or outside pressure like US economic sanctions (Bennett, 2013; Delury, Moon, & Terry, 2014; Friedman, 2018; Stares & Wit, 2009).

Amid these developments, academic research on North Korea has been attracting greater attention. Studies on North Korea so far, however, have mostly focused on geopolitics (Byman & Lind, 2010; Harrison, 2005; Park, 2002; Nanto & Manyin, 2011) and the nuclear issue (Mazarr, 1997; Sigal, 1999; McCormack, 2004; Jiang, 2006). In addition, most discourse related to North Korea has been focused on efforts to predict the timing, process, and form of the collapse, while assuming the imminent collapse of the regime (Smith, 2015). There are a number of studies on the economy of North Korea, but these mostly focus on the effects of economic sanctions, the hardship of the North Korean economy, the cost of unification, and inter-Korean economic cooperation (Lee, 1994; Noland, Robinson, & Wang, 2000; Park, 2004; Schwekendiek, 2008; Smith, 1997). Above all, there have been few studies on the

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diverse futures of the North Korean economy from the perspective of North Korea's regime or its people. In addition, these paradigms have not been of much help to enhance the understanding of North Korea's political economy and recent inter-Korean and U.S.-North Korea relations in a concrete, appropriate, and reliable manner (Smith, 2000).

There have been extensive studies of 'alternative futures' on various topics, but limited studies address alternative futures of North Korea and its economy. Walter Clemens (2009) dealt with alternative futures for North Korea, but his research did not deviate much from previous literatures. The two main pillars of Clemens's seven alternative futures of North Korea are still based on the 'collapse of North Korea' and 'unification of two Koreas, which many previous studies have repeatedly predicted to happen for the past 70 years. More importantly, the study did not take into consideration the views and ideas of North Korea's people, defectors or regime. There are numerous studies on North Korean defectors in the past, but many focus on mental health and psychiatric symptoms after defection or while settling in the South (Jeon, 2000; Jeon, Eom, & Min, 2013; Ko, Chung, & Oh, 2004).

Reflecting the recent dramatic political changes in after the Inter-Korean Summits and the U.S and North Korea Summits, there have been noteworthy research on futures of North Korea and the economic impact of Korean reunification. Under the assumption of peaceful economic cooperation between the two Koreas, Lee and Pyun (2018) quantitatively assessed the growth potential of the North Korean economy, while Kang and Park (2018) estimated that additional 3–5% GDP gain is achievable for North Korea if the North agrees on comprehensive trade pact with the South. In addition, there are studies on North Korean economy using hypothetical scenarios. McKibbin, Lee, Lie, and Song (2018) assessed the economic impact of the unification of the South and the North through four scenarios: status quo, gradual reforms, managed chaos, and chaos & crisis. In a similar vein, Lee and McKibbin (2019) examined the economic analysis and assumed that German-type unification would be an optimal option for the two Koreas. These studies reflected the rapidly changing geo-politics of the Korean peninsula, but they fell short in explaining the logic leading up to deriving their different scenarios. Above all, these studies did not attempt to reflect the views of North Korean regime, which has evolved into the most peculiar communist model (Thae, 2019).

In a plenary session of its ruling Labor Party in April 2018, North Korea made clear its intention to end its 'Byungjin (parallel development) line' of advances simultaneous economic and nuclear-weapons (New York Times, 2018). In the future, the North's economy may have various paths to pursue depending on geopolitical factors such as the nuclear program dispute with the U.S., inter-Korean relations, and relations with neighboring or nearby countries such as China, Japan, and Russia. In particular, it is necessary to view the future from a North Korean perspective on how the North Korean regime will design its future, taking various economic and political factors into consideration. Gaining an understanding of the future of North Korea from its own perspectives could be an important strategic asset for the United States and South Korea when they negotiate and engage with North Korea and prepare their foreign policies and security measures in relation to North Korea.

At the U.S. and North Korea Summit in Singapore, President Trump said, "If you look 25 years into the future, 50 years into the future, Kim Jung-un will be able to look back and be very proud for North Korea" (White House, 2018). The purpose of this study is to envision various alternative futures for the North Korean economy from the perspective of North Korea's regime and its people. To this end, we examine the economic visions and policy priorities under the socialist economic framework that the North Korean government has pursued over the past half-century. In addition, we evaluate the current state of the North Korean economy brought by this vision and economic policy. It then presents alternative futures scenarios of the North Korean economy and identifies the characteristics and key factors of each. To that end, we apply the Four Generic Alternative Futures of the *Manoa* School to various future images and perspectives on the North Korean government and its people (Dator, 2009). To form future scenarios based on future forecasts of North Korea's regime and its people, we conducted an extensive literature review and interviews with inter-Korean relations experts and recent North Korean defectors including Thae Yong Ho, the highest level North Korean official who defected to South Korea in 2016 and Moon Chung-in, Special Advisor to President Moon Jae-in.

2. North Korean economy

Before envisioning alternative futures for the North Korean economy, it is important to understand where its economy currently stands. However, due to the country's isolated nature and the limited information or verifiable economic data available to outsiders, it can be difficult to obtain a clear overall picture of the North Korean economy. North Korea has been one of the most secluded states in the world for more than seven decades and few foreigners have entered the country during this period. The extent of the isolation and lack of openness of North Korea is perhaps best demonstrated by the fact that it remains one of the very few countries not to have joined the International Monetary Fund (IMF). This makes it very difficult to conduct a worthwhile assessment of current and future economic outlooks and policies (Schäfer, 2006). Despite these hindrances, this section tries to ascertain the economic system, economic policy goals, and economic outlook of North Korea with reference to the records and data of the South Korean authorities and relevant think-tanks in charge of inter-Korean relations.

2.1. North Korea's political system

On the issue of North Korea's political system, the uniqueness of its system is often mentioned. Underlying the North's economy is its ability to survive long-standing sanctions imposed by the international community. This is based on a unique political and economic system that only North Korea has (Moon, 2019; Smith, 2015; Cumings, 2011; Eberstadt, 2011; Lee, 1988). For the past three decades after the collapse of the socialist regime which began in 1989, the North Korean regime has maintained a dominant position within its national system. Also, North Korea shows complex economic aspects that cannot be interpreted as reflecting modern capitalist systems or socialist systems (Park, 2016).

North Korea's political system can be seen as a form of "religious politics", which is described as the monolithic rule of the supreme leader (Suryong). "Suryong" is sacred enough to claim to give political, economic and social life to the people. Suryong is an error-free, flawless human being whose authority is sacred, and a divine being that no one can stand up against. In particular, "Juche" (self-reliance) is an absolute value system that ideologically supports the Suryong system. After the death of Kim Il-Sung and Kim Jong-Il, the Suryong system has so far been the backbone of the North Korea's political system with the aim of maintaining and perpetuating the legitimacy of the leader's rule through hereditary succession (Park, 1996; Lim, 2008).

With the death of Kim Il-Sung on July 8, 1994, a new political system of the Kim Jong-Il era was formed. At the time, North Korea needed an alternative logic to overcome the crisis caused by the collapse of socialism in the post-Soviet era and to secure the legitimacy of the Kim Jong-Il regime. Kim Jong-Il presented "Sungun" politic¹ rooted in Juche as his governing ideology during the 'March of Hardship' and he reshuffled the national organizations. In 1998, the existing presidential system and the Supreme People's Assembly were abolished and the National Defense Commission, which was a defense organization, became an administrative unit. The National Defense Commission, headed by Kim Jong-Il, undertook a pivotal role in guiding and managing the overall affairs in the administration in a unified manner based on the principle of *Sungun* under the sole leadership of Kim.

Kim Jong-Il has not only continued to follow Kim Il-Sung's lineage but has also established another father-to-son succession system. In the meeting of the Labor Party in September 2009, Kim Jong-Un was appointed as a vice chairperson of the Central Military Commission. When Kim succeeded his father, he was far behind the level of that achieved by his father and grandfather in terms of the position, personal authority, past achievements, and leadership experience and relations within the members of the leadership group. However, Kim Jong-Un was given the status of 'Guiding Leader', which allows him to exercise institutional power. According to Takashi Sakai "by being granted the status of "Guiding Leader" in the North Korean system of Suryong, Kim Jong-Un stood in a position to use the institutional "powers" that accompanied this status" (Sakai, 2016: 10). Thus, despite the weakness of having a lack of experience, Kim Jong-Un was able to exercise considerable leadership shortly after his appointment.

In terms of the solution of people's livelihoods and stability of the regime, the economic problem in North Korea belongs not to the realm of the economy but ultimately to the realm of politics. It was difficult for Kim Jong-Un to fundamentally deny his father and grandfather's policy precedences, as the source of his authority lies in hereditary succession. Thus, the existing economic policies in the Kim Jong-Il era were maintained within the large framework until the succession was settled; however, in recent times, significant changes have been detected in North Korea's economic policy. Kim Jong-Un not only tolerated the market but also actively utilized it. Through reform of the economic management system, the government officially recognized the market economy activities of state-owned enterprises. It is undeniable that these marketization measures have contributed to the recovery of the North Korean economy. According to Moon Jung-in, "although the North Korean economy is recovering, its limits are clearly present. Thus, Kim Jong-Un declared denuclearization to the international community, and is trying to overcome them through the opening of its economy".

In North Korea's political system, the biggest apparent difference that emerged during the Kim Jong-Un era lies with the relationship between the ruling party, the government, and the military. During the Kim Jong-Il era, the military's status and role were strengthened with the introduction of military-first politics. However, after Kim Jong-Un's emergence, the party's functions were restored and relations between the ruling party, the government, and the military began to normalize. Kim, then, was able to build his own leadership along with party-oriented governance, emphasizing the party's unique leadership to gain legitimacy for the third-generation hereditary succession as shown in Fig. 1.

2.2. North Korea's economic system

North Korea operates a planned economy based on a socialist ownership system. Socialist ownership entails a system in which the means of production are all social or collective. The Socialist Constitution of North Korea states, "the means of production are owned by the state and social cooperatives" (Article 20), which specifies that the ownership of the means of production is divided into the state and social cooperative organizations (Article 22) (Yoon, 2014). All economic decision-making powers (including economic planning) and the flow of information are centralized, and the subordinates are subject to the central command of the one and only Central Communist Party.

However, North Korea's planned economy has run into economic difficulties and even famine in the 1990s. In response, North Korea introduced a management system based on an independent accounting system for factories and enterprises, and its residents rely heavily on the *Jangmadang* (state-regulated local marketplace)" (Lee, 2018). Kim Jong-Un regime introduced the "Socialist Corporate Responsibility Management System" through the so-called "5.30 Measures" in 2014 and revised the "Socialist Enterprise Law" twice in 2014 and 2015. In particular, the regime has taken decentralization measures to expand the self-management authority of managers and partially recognize the plan of one company that utilizes the *Jangmadang*.

According to the testimonies of recent North Korean defectors, after the proliferation of marketization phenomena, factories and enterprises in North Korea have a formal and legitimate reason to carry out national plans and conduct market economy activities (Thae, 2019). Therefore, although the current socialist economic system in North Korea maintains socialist ownership and a planned economy, the phenomenon of marketization is spreading. The South Korean Ministry of National Unification also reported that North Korea's economy could be roughly broken down as follows: planned economy (70%) and market economy (30%). This implies that the market economy is growing in North Korea to a level that threatens its formal planned economy (Jung, 2018).

¹ *Sungun* politic is the "military first" policy of North Korea. It is the logic of leading revolution and construction with the military as the main principles guides political and economic life in North Korea. It prioritizes the military to allocate political resources and identifies the military as the most important actor in state governance.

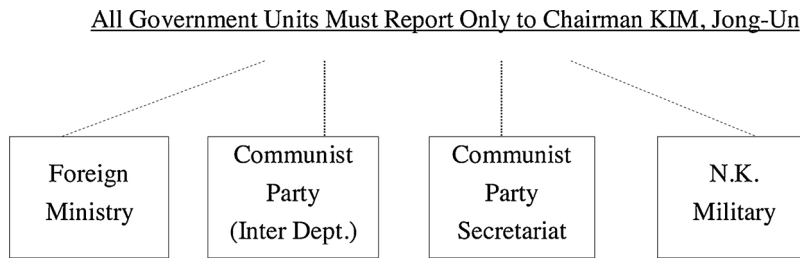


Fig. 1. Decision Making Process and Political Systems of North Korea (Thae, 2019).

2.3. North Korea's economic policy goals

North Korea has openly revealed its grand economic policy vision. It identified and declared the year 2012 - the 100th anniversary of the birth of its first Supreme Leader Kim Il-Sung - to be the year in which it would achieve its plan of becoming a 'strong and prosperous state' (Yang, 2018). Looking at the process of economic policy changes in North Korea, there have been some differences among the leaders from Kim Il-Sung, to Kim Jong-Il and now Kim Jong-Un. However, one common feature between all three leaders has been the emphasis on a self-sustaining economy and heavy industrial development as the core of its economic policy.

Meanwhile, an interesting and important change in North Korean policy has arisen in the current Kim Jong-Un regime. For decades, North Korea, under Kim Il-Sung and then Kim Jong-Il, pursued economic and military development simultaneously. In fact, Kim Jong-Il prioritized the military over the economy. A side effect was that North Korea faced severe economic hardship and many North Koreans suffered from poverty and famine. Kim Jong-Un inherited the economic policy of his father and grandfather, but on April 20, 2018, he held a plenary session of the Central Committee of the North Korean Workers' Party to announce the suspension of its nuclear weapons program and expressed an intention to concentrate on economic development. This represented a historic shift in the country's policy orientation away from its prioritization of the military as shown in Table 1.

Considering the changing economic policies of North Korea, both 'economic development' and 'nuclear weapons and long-range missiles development' are significant factors in this study. This is because it is important to ascertain how North Korea sets its economic policy priorities and how foreign countries such as the U.S., South Korea, China, and Japan would react to North Korea's policy shift.

2.4. North Korea's productivity and economic growth rate

In the 1990s, as economic cooperation with former socialist economies deteriorated, the North Korean economy began to endure a crisis. In particular, its economy was significantly shaken when oil imports from Russia completely stopped. All industrial sectors suffered heavily as oil and other raw materials were imported, and the input of production factors declined domestically. As a result, the North Korean economy suffered both an unprecedented decrease in production and economic contraction in the 1990s.

According to Figure 2, North Korea showed an average growth rate of -3.8% per annum between 1990 and 1998, after the collapse of the socialist economic system in 1990. The total productivity level dropped to less than 50% by the end of the 1980s. North Korea refers to this period as the 'March of Hardship,' when North Korea's industry reached its worst ever state in terms of productivity levels. Since 1999, North Korea's economy has emerged from recession but has yet to show a virtuous cycle of economic recovery. Its annual growth rate was about 2.2% over the period of 1999 to 2005, but the annual growth rate was -0.1% for the period of 2006 to 2010. During the first six years of Kim Jong-Un, North Korea recorded an average of 1.2% growth from 2011 to 2016, but the growth rate has dropped to a shocking -3.5% in 2017 and -4.1% in 2018 as China began to join the UN and the U.S. in enforcing sanctions on North Korea (Bank of Korea, 2019). According to a North Korean expert, Kim Byung-Yeon, the sharp decline in North Korea's economic growth in the last two years is a direct effect of the sanctions (Washington Post, 2018).

Since the coming to power of Kim Jong-Un in 2011, the North Korean economy has been showing steady growth overall. This is attributable to a gradual policy shift towards a market economy. The Kim Jong-Un regime used the market to boost its finances and

Table 1

Changes in North Korea's Economic Policy Priorities (Korea Ministry of Unification, 2018).

	Priority	Key Industry	Policy Focus
Kim Il-Sung (1948–1994)	- Economy and Military	Self-supporting economy Heavy industry	Light industry, agriculture, trade
Kim Jong-Il (1994–2011)	- Military First	Self-supporting economy Heavy industry	Science and technology
Kim Jong-Un (2011–2018)	- Economy and Nuclear Weapons	Self-supporting economy	Living Standard of people
Kim Jong-Un (2018.4.20-)	- Economy Only - Abandon Nuclear Weapon	Heavy industry	

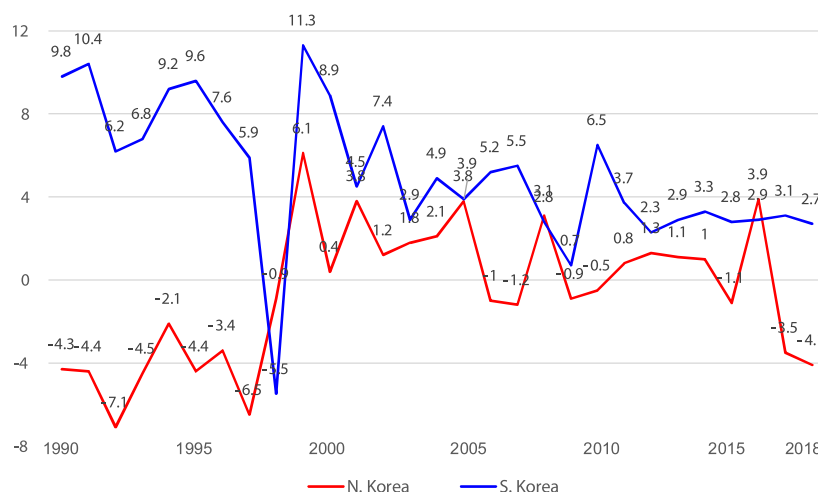


Fig. 2. Economic Growth Rate of South and North Korea (1990–2018) (Bank of Korea, 2019).

maintain itself, which contributed to the revitalization of the informal economic sector. However, the partial activation of the market-based economic policy is only limited to service, distribution, and construction. With much of the focus on Pyongyang, the country's capital city, most of North Korea's regional economy and its overall infrastructure are still considered poor and destitute.

2.5. Overall assessment of North Korea's economy

The Kim Jong-Un regime faces a challenging task. The regime needs to recover from the economic hardship that the country has been suffering for more than 20 years. To do so, North Korea needs to actively integrate with the global market and establish an economic development strategy that encourages foreign capital. However, Kim Jong-Un is still promoting the “*Woori* (in Korean, ‘self’, ‘independent’ or ‘on our own’)” economic management method on the premise of the dual development of its economy and its nuclear-armed forces. Although Kim Jong-Un seems to put more weight on economic recovery, he still seems reluctant to pursue a full-scale economic reform campaign as that of China and Vietnam where the two countries attracted more foreign direct investment (FDI) and freer trade. The current leader does not pursue fully-fledged economic development policies but rather implements economic policies that prioritize the allocation of resources to maintain the regime.

Since the fall of the Soviet Union and other former communist states in the 1990s, North Korea repeatedly pursued a so-called ‘North Korean style reform’. Since the 1990s, the phenomenon of marketization has evolved from the bottom-up, and has repeatedly implemented with a two-pronged policy of limited openness and the limited ‘marketization-suspension-retry’ cycle. As a result, North Korea's reform measures have only taken on a limited scale prompted by growing pressure from its populace.

3. Four futures of the North Korean economy

This section discusses alternative futures for the North Korean economy from the perspective of North Korea. According to a recent survey conducted by the Institute for Peace and Unification Studies (IPUS) of the Seoul National University in 2018 and ASAN Institute for Policy Studies in 2019 on the future of the Korean Peninsula, South Korean citizens predicted that the unification would need more than 30 years or even be impossible to realize as shown in Table 2. In terms of the most preferred political system after unification, 51.1% of South Korean citizens preferred either the South-North mixed or dual systems, while 46.7% preferred the current South Korean political system. Very few wanted to respect and accept the political system of North Korea. Most importantly, on the prospect of the denuclearization of North Korea, more than half of South Korean citizens answered that the North will not give up its nuclear program. Two surveys provide a good reference for future research and policy design on the Korean Peninsula. However, both have significant constraints in that they do not include the position of North Korea. Unless we consider the viewpoints of both Koreas at the same time, one would argue that such a study on the future of North Korea is only one side of a coin.

Only a few studies have considered the alternative futures of the North Korean economy. From these studies, the optimistic outlook entailed peaceful unification between the two Koreas, while the pessimistic outlook involved the refusal to abandon the nuclear program and the eventual collapse of North Korea. However, there is a considerable gap in terms of public perception and academic research between these two extreme scenarios. In fact, both cases would be extreme or so-called ‘wild card’ or ‘black swan’ events. It would not be easy for North Korea, having practiced a socialist ideology for more than seven decades, to successfully transform its political system in five, 10 or even 20 years. There are also potential problems in how North Korea and its economy are approached from the outside. Looking at North Korea from the standpoint of the U.S., Japan, and South Korea, it appears that North

Table 2

Future of North Korea and Unification (Public Opinion Survey).

Source: (SNU 2019) Seoul National University, Institute for Peace and Unification Studies (IPUS), “Unification Perception Survey 2018” & (ASAN 2019) ASAN Institute for Policy Studies, “South Koreans and Their Neighbors 2019”.

	Topic	Survey Results (Unit: %)	Institute
1	Support for Unification	Necessary(59.8), Unnecessary(16.1)	SNU
2	Method of Unification	Wait for right time for Unification(67.7) Prefer Status-Quo(16.7), ASAP(9.9)	
3	Expected time to reach Unification	Impossible(20.7), more than 30 years(18.7), 6–10 years(16.7), 11–20 years(15.6)	
4	Preferred Political System After Unification	South system(46.7), South-North Mixed(27.3), South-North Dual systems(23.8)	ASAN
5	Prospect for Denuclearization of N. Korea	Will not denuke(54.5), Denuke in 4–5 year(14.5), In 6–10 year(11.1), In 1–3 year(8.4)	

Korea is a somewhat ‘helpless’ and ‘impossible’ state (Cha, 2012). However, if we look at the situation from the standpoint of North Korea, we may come up with an alternative conclusion. Many scholars regard North Korea as a state that is very difficult to understand and predict. Indeed, predicting one single future for the country is almost impossible. Thus, we need to forecast multiple futures rather than a single one. The reasons behind this are outlined below.

First, there are various stakeholders involved in forecasting the futures of the North Korean economy. The years 2018 and 2019 have been – and still are – significant in terms of major changes in inter-Korean and in U.S.–North Korea relations. The inter-Korean summits, which had not been held since 2008, resumed in 2018, and the leaders of the two Koreas held three consecutive summits in 2018. In addition, Kim Jung-un also met Chinese President Xi Jinping three times. Similarly, the historic meeting between U.S. President Donald Trump and Kim Jong-Un was held on June 12, 2018 in Singapore, on February 27 to 28, 2019 in Hanoi, Vietnam and on June 30, 2019 in Korean Demilitarized Zone (DMZ). In addition, Kim Jung-un held bilateral talks with Russia on April 25, 2019 in Vladivostok. Naturally, the interests of countries that directly or indirectly affect the Korean Peninsula and North Korea are diverse in terms of politics, diplomacy, security, economy, and human rights. Taking all of these factors into consideration can be very complicated and there are various limitations in assigning any numeric value to the relevant variables and in performing traditional research analyses.

Second, any event related to North Korea is a ‘wild card’ event. However, if such a low probability is to arise, this would emerge as a global issue that affects world peace and security beyond the Korean Peninsula and Northeast Asia. North Korea has developed nuclear weapons and secured the technological capacity to launch them via the inter-continental ballistic missile (ICBM) system. This poses a clear and present threat to South Korea, Japan, and the U.S. among others. Many fear of the nuclear development of North Korea and have expressed concerns about this isolated and economically weak country. All of these factors provide appropriate conditions for alternative futures research analysis.

Third, the foreign policies of the U.S. and South Korea have not been successful in handling North Korea for the past 60 years. Traditional political, diplomatic and security studies have yet to adequately account for this unique and peculiar regime. Special Advisor Moon Chung-in repeatedly emphasized “the important point in understanding North Korea is that North Korea is very unique and different from other socialist and communist countries as shown in Table 3. In fact, North Korea has developed considerable durability against the international economic sanctions” (Moon, 2019). Since there are many factors affecting foreign policy, it is difficult to identify and discuss the causes of foreign policy errors.

Fourth, most previous studies on the long-term forecasts and prospects of North Korea and especially North Korea’s economy have not been conducted from the perspective of the North Korean regime and its people. Therefore, when leaders of democracies come to face North Korean issues, they focus on current and immediate problems. However, North Korea is different in this regard. After Kim Il-Sung took power in 1945, the country’s leadership has changed only twice. Therefore, to properly recognize, analyze and respond to the North Korean regime, it is necessary to approach it with a long-term perspective as shown in Table 4.

3.1. Key factors in alternative futures of the North Korean economy

The study seeks to utilize the “four generic alternative futures” of the *Manoa* School at the University of Hawaii to analyze the futures of the North Korean economy from the perspective of North Korea’s regime and its people (Dator, 2009). Compared to other

Table 3

Five Distinctive Features of North Korean Socialist System.

	Topic	Communist States (China, Vietnam)	North Korea
1	Political Ideology	Marx and Lenin	<i>Juche</i> (self-reliance) & Oral and Written Direction of Chairman Kim
2	Political Power	Central Communist Party	Hereditary Power Transition to Kim’s Family
3	Information Access	Limited and/or Selective Control	Totalitarian Control
4	Movement	Free to travel and move residence	No Freedom
5	Economic System	Market Economy	Planned Economy with growing local mkt.

Table 4
Basic Assumptions of Futures of North Korea Economy in 2050.

Field	Details
Research Method	The four generic futures method at Manoa School at the University of Hawaii
Four Alternative Futures	<ul style="list-style-type: none"> ● Grow ● Collapse ● Conserved ● Transformation
Projected Timetable	● Year 2050 (32 years later)
Unification with South Korea	<ul style="list-style-type: none"> ● Grow, Conserved, Transformation : No Unification ● Collapse : Unification by absorption to South Korea
Key Factors	<ul style="list-style-type: none"> ● Dismantling nuclear and missile program (complete – partial – none) ● Level of sanctions imposed on North Korea (low – medium – high) ● Level of economic reforms (low – medium – high) ● Regime stability (unstable – medium – stable) ● Foreign Relationships (U.S., China, Japan)

scenario techniques, this model is a useful framework for capturing various images that the North Korean people hold regarding their futures. Based on empirical research, the Manoa School categorizes images of the future into four: ‘Growth’, ‘Collapse’, ‘Conserved’, and ‘Transform’ (Dator, 2009). In this study, we observe the alternative futures of the North Korean economy within these four categories. The assumed scenarios refer only to the futures of the North Korean economy and do not take into account the possibility of reunification with South Korea. The time horizon of the scenario is 2050.

In addition, to enrich the four future scenarios of the North Korean economy, we derive five key factors and applied them to each scenario. The first factor is the dismantlement of North Korea’s nuclear weapons program and the ICBM program. The second is the economic sanctions imposed on North Korea by the U.S. and the United Nations. The third is the level of economic reform pursued by the North Korean regime. The fourth is the stability of North Korea’s regime and the fifth is relations with foreign countries including China, Japan, and the U.S.

The nuclear weapons program and self-sustaining strong economy have always been crucial to understanding the stance of North Korea. North Korea has long been active in explaining that being a ‘nuclear weapon holding economically powerful state’ represented its ultimate vision. Another factor to consider is the guarantee and maintenance of its own socialist idea of *Juche*. According to Thae Yong-ho,² a former North Korean diplomat, “in the 1960s, North Korea has moved away from Marx and Lenin ideology and changed into a hereditary system with the idea of “*Juche*”, which evolved as the unique principle of North Korea” (Thae, 2019). At the recent U.S.-North Korea summit in Singapore, the United States requested the complete, verifiable, and irreversible dismantlement of North Korea’s nuclear program (CVID),³ while North Korea requested the ‘complete, verifiable, irreversible, guarantee (CVIG),⁴ in return to the U.S. This interaction outlined that the foremost priority for North Korea is the securement of its socialist regime; nuclear retention and economic growth are simply tools to support this overriding priority (Byman & Lind, 2010).

Another key factor for the futures of the North Korean economy depends upon improving external relations, especially with the U.S. To achieve this, the resolution of the nuclear issue should be reached first. China is concerned about the rapid changes taking place in North Korea, which it has used as a security buffer from the U.S. and South Korea until now. Meanwhile, Japan hopes to resolve sensitive human right issues such as the abduction of Japanese citizens. Finally, Russia is interested in economic development in the Far East and the geopolitics among the U.S., China, Japan and the two Koreas. With these geopolitical interests in mind, we have devised four alternative futures for the North Korean economy as shown in Table 5.

3.2. First alternative: ‘growth’ (mixed economic system under a socialist framework)

The first scenario is referred to as ‘Growth’. The negotiations between the U.S. and North Korea to dismantle North Korea’s nuclear weapons and the ICBM (Inter Continental Ballistic Missile) programs end with the North’s abandonment of its nuclear and missile program. North Korea then accepts a global inspection team led by the U.S., North and South Korea, China. The global inspection team jointly declares the end of the Korean War and North Korea establishes formal diplomatic relations with the United States and Japan. After the diplomatic resolutions, Pyongyang gradually introduces elements of a market economy into the framework of socialist ownership, rather than adopting full reforms and opening up. This minimizes confusion caused by the changes, and the Kim Jong-Un regime consolidates the power.

North Korea’s reform and opening-up policies are based on Chinese and Vietnamese models. Increasingly, private sector activities begin to be officially allowed. Investment from abroad is also activated, with most invested in resource development and light industry sectors. The increase in private sector activities and investment from abroad lead to an increase in employment and the stabilization of people’s livelihoods, with annual growth of more than 6 to 7 percent for nearly three decades. This is the most optimistic scenario for Kim Jung-un who wants to maintain his absolute power while achieving a decent level of economic growth at

² Thae Yong-ho is one of the highest ranking North Korean diplomatic officials ever to defect from the North.

³ CVID: Complete, Verifiable, Irreversible Dismantlement of nuclear program.

⁴ CVIG: Complete, Verifiable, Irreversible, Guarantee of the North Korea regime.

Table 5
Four Futures of the North Korean Economy.

	Details	Economy	Politics	Nickname
G	(1) (Nuke and missile) complete dismantlement	mixed economy (market & socialist)	Kim's regime socialist system	O Next Vietnam (new model for econ. development)
R	(2) (Sanctions) steady decline & lift all sanctions			
O	(3) (Economy) moderate open and reform (Vietnam model)			
W	(4) (Politics) strict control & monitoring of its people to ensure security of regime			
	(5) (Diplomacy) improved relationship with U.S., Japan & S. Korea → formal diplomatic ties with U.S.	war-time state controlled economy	Kim's regime interim coalition gov't socialist system	X Fall of hermit Kingdom (implosion lead to absorption to the South)
C	(6) (Regime) partial market economy under the socialist systems - shift from heavy to light economy system			
O	(1) (Nuke and missile) possession and no dismantlement			
L	(2) (Sanctions) strong international sanctions			
L	(3) (Economy) collapse of NK economy and food crisis	eco socialist economy	Kim's regime	O Marxist & Leninist state
A	(4) (Politics) uprising among people and defectors			
P	(5) (Diplomacy) heavy dependency on China & Russia			
S	(6) (Regime) coalition with military leadership, war-time economy, collapse of Kim Jong-un's regime with coup			
E	(1) (Nuke and missile) partial dismantlement	socialist system	Kim's regime	O
C	(2) (Sanctions) moderate international sanctions			
O	(3) (Economy) self-sufficient economy with strong central government control			
N	(4) (Politics) strict control & monitoring of its people			
S	(5) (Diplomacy) secluded & closed foreign relations	market economy	Kim's regime	X Role Model of the Fourth Industrial Develop.
E	(6) (Regime) return to fundamental socialist planned economy-mix of socialism and ecology			
D	(1) (Nuke and missile) complete dismantlement			
T	(2) (Sanctions) steady easing & eventual lifting of all sanctions			
R	(3) (Economy) state-led economic development plan (close to 'Singapore model')	capitalist system	Kim's regime	O
A	(4) (Politics) expanding free market and privatization drive			
N	(5) (Diplomacy) engaging an active open/reform stance, friendly relationships with foreign countries			
S	(6) (Regime) shift (socialism → capitalism) - changes in political landscape and people's sentiment			
F	(7) (Innovation) test-bed for 4th industrial revolution and innovative technology, future concept city			

the same time. By 2050, the North Korean economy has greatly benefited with active inter-Korean economic cooperation, trade with China and Russia, and additional private investment coming from Japan and the U.S.

3.3. Second alternative: 'collapse' (the north leading to absorption into South Korea)

Before looking at the Second alternative in detail, it is necessary to look at the background of North Korea's nuclear weapons development. According to Thae, there are three reasons why North Korea insists on nuclear weapons. The first is the collapse of the North Korean economy, the second is the weakening of the military force, and the third is the need to stabilize the North Korean regime. As the nuclear weapon becomes regime stabilizer and justification for maintaining a failed economy and military, it is difficult for North Korea to easily give up its nuclear weapons (Thae, 2019).

The second scenario for the North Korean economy is 'Collapse'. Despite extensive pressure and sanctions from the U.S., North Korea eventually refuses to give up its nuclear weapons. The improvement in relations with the U.S. and South Korea are jeopardized. The international community, including the U.S., maintains strong economic sanctions and exerts pressure on North Korea. In particular, the U.S. strengthens the North's isolation by pressuring not only Russia and China but also the South Korean government. These strong sanctions disrupt the North Korean economy, worsening economy as compared to in the mid-1990s when it suffered severe food shortages.

As a result, the internal turmoil and deviation of North Korea increases and the number of North Korean defectors to China and South Korea also rapidly increases. Eventually, the severe internal turmoil leads to a massive uprising, and the North's military is forced to oust Kim Jong-Un through a coup. Kim Jong-Un dramatically flees to China, and a regime is established in North Korea by an alliance of the military leadership. The military government manages a war-time controlled economy, which is propped up by Chinese and Russian aid. Again, North Korea becomes a 'hermit kingdom' as witnessed in the late 19th century during the Joseon Dynasty. A new Cold War era situation returns to the Korean Peninsula. The sudden change in North Korea has neither been anticipated nor prepared for. Also, the North Korean regime become unsustainable and unsupported neither by the regional powers nor its people. The US-led harsh economic sanctions remain and Beijing no longer represents the interest of North Korea, which eventually leads to its collapse. This leaves no option other than absorption-type unification with South Korea.

3.4. Third alternative: 'conserved' (environmentally sound eco-socialist economy)

The third scenario is 'Conserved'. As the denuclearization negotiations between North Korea and the U.S. break down, the Kim Jong-Un regime sticks to its strategic line of 'nuclear weapon possession and economic development'. North Korea declares its possession of nuclear weapons, but stops conducting additional nuclear tests or launching inter-continental ballistic missiles. Washington also admits North Korea's status as a nuclear power by accepting that the North will no longer conduct nuclear tests. North Korea, then, starts to build a new socialist economy when external relations are prevented by its failure to restore ties with the U.S. However, the situation is different from the traditional planned economy. Politically, it maintains strict control and monitoring of its people. Diplomatically, North Korea cannot build or expand formal relationships with the West due to the imposed sanctions. However, environmentally it intends not to repeat the negative footsteps of capitalist industrial countries, such as damaging the environment and draining resources.

Ultimately, a new socialist economic construction proposed by North Korea is oriented toward 'eco-socialism,' a combination of socialism and ecology. Eco-socialism is based on Marxism's socio-philosophic ideology and the economic laws of socialism. Like traditional socialism, it emphasizes social ownership and redistribution of production means, but is focused more on ecology and environmental conservation, and not on the expansion of productivity. The goal of the ecological plan is to manage the environment and resources in a controlled manner while producing what the public really needs without wasting resources. It also transformed state-owned agriculture, which was maintained in the communist regime, into small family-oriented organic enterprises; meanwhile, an 'organic movement' based on recycling local resources, and links to ecosystems are actively developed in urban and rural areas. In addition, the North Korean government maintains eco-friendly energy and transportation policies.

A friendly external environment has also helps North Korea's new policy. Environmental cooperation between the two Koreas is not included in the list of international and UN sanctions. South Korea actively supports North Korea's environmental and forestry cooperation. Owing to this cooperation, North Korea's environmental ecosystem becomes the best preserved in Northeast Asia. North Korea's creation of an eco-socialist economy brings some positive effects. One such is a dramatic reduction in food shortages in North Korea. Eco-centric economic policies increase greater adaptation to climate change challenges and create a farming environment safe from natural disasters such as droughts and floods. By 2050, while many Asian countries are suffering from food shortages, North Korea maintains a poor but stable economy through its own food self-sufficiency. As of 2050, North Korea is receiving keen attention from ecologists who dream of a de-material and a de-oil civilization.

3.5. Fourth alternative: 'transformation' (a role model for the 4th industrial revolution)

The last scenario for the North Korean economy is 'Transformation'. When the denuclearization talks with the U.S. are finally resolved, North Korea revises its national development strategy and concentrates all of its capabilities on opening up and economic development. The improvement of the international environment results in increased assistance and investment from the U.S., Japan, and South Korea. In particular, the North Korean government recognizes future prospects in the sciences and technology. It makes intensive investments in technologies related to the 4th industrial revolution. Given the economic situation in North Korea, which has no industrial base or legacy of regulation, a big opportunity emerges in the country, as global companies seek for the place to engage innovative projects around the world. Specifically, North Korea becomes a global hub of testing the 4th industrial revolution innovative technologies. An experimental smart city is built and digital healthcare and artificial intelligence medical systems are first realized in North Korea. Most of all, the transfer of technologies accumulated in the defense sector, such as computer-controlled technologies and intelligent machine tools, accelerates the fourth industrial revolution. In fact, North Korea records remarkable achievements in the IT, nuclear, space and computer numerical control (CNC) machine industries and has many automated unmanned factories.

With privatization and the market accelerating, changes also occur in the consciousness of residents and the power landscape in North Korea. In particular, a generational shift takes place among North Korea's elite as Kim Jong-Un strengthens his power. The new generations are more innovative than those of the past. For instance, the younger generations have grown up and lived in a way that is far removed from socialist ideology. These new generations perceive that economic development was limited under socialist regimes and are eager to convert to capitalist market economies. Eventually, Kim Jong-Un is ousted by a group of young elites who were his closest allies and they become the heads of a political faction within the country. Thereafter, the emerging elite group of North Korea accelerates its transition to a capitalist market economy, and by 2050 North Korea becomes a leading country and a role model for the 4th industrial revolution.

4. Strategy for the preferred future

Based on the four alternative futures presented above, we suggest four strategies for the North Korean economy to achieve its preferred future. First, current views on North Korea can vary greatly from one expert to another, but there is a general consensus that North Korea is in danger of the 'Collapse' scenario in 2019. North Korea is an isolated nation, and the U.S. has implemented harsh economic sanctions on it, making its economy increasingly fragile. The top priority for North Korea in the current situation is to swiftly implement the denuclearization measures announced in the U.S.-North Korea summit. If North Korea does not give up its nuclear weapons, it will fall into either the "Collapse" or "Conserved" scenario.

The world is changing rapidly and innovative technologies are emerging in every field. North Korea cannot stand still while others advance and failure to progress in terms of innovation and technology would put the future of its economy and regime into doubt. If

Table 6
North Korean Strategy to Achieve the 'Preferred Future (Transformation)'.

	Present (2019)	16 years later (2035)	31 years later (2050)
necessary measures	M1) give up nuclear weapons M2) lift sanctions & reform M3) forge diplomatic ties M4) inter-Korea cooperation	M4) active reforms M5) open market policy	
future scenario	'Conserved' or 'Collapse' stage	'Grow' stage	'Transform' stage

the economy collapses and falls to a level that can no longer be recovered, the North Korean regime will not be sustainable. Thus, it is important that it gives up its nuclear weapons and relieves itself of the imposed sanctions by the international community. In addition, the current gradual shift toward a market economy in North Korea should be pursued in a more aggressive manner. If these measures succeed, North Korea could avoid the 'Collapse' scenario and realize the 'Grow' scenario instead as shown in Table 6.

Second, after relieving itself of economic sanctions through the abandonment of its nuclear weapons, North Korea should engage in active diplomatic relations with the U.S., Japan, and other Western countries. The stability of North Korea's regime can be better guaranteed through the establishment of diplomatic ties with the U.S. It is also necessary to establish diplomatic relations with Japan, despite lingering tensions about the colonial past. Through these various diplomatic efforts, North Korea can be recognized as a normal state by the international community.

Third, North Korea should pursue an agenda of active reform and openness. For North Korea to develop economically and become a developed country, it will be necessary to secure help from the international community including the U.S., the Europe and Asia. Measures to guarantee foreign investment and active reform and openness are necessary in this regard. In particular, North Korea needs to join the IMF and international development banks like the World Bank, Asian Development Bank (ADB) and Asian Infrastructure Investment Bank (AIIB). Ultimately, like Vietnam and China, it is important to become a partner in the global trade system through completing the accession process to the World Trade Organization (WTO).

Fourth, North Korea must establish a relationship of active economic cooperation with South Korea. Even if North Korea achieves economic development in the fourth industrial revolution era, basic infrastructure development is essential. In this case, North Korea would be fortunate to share its border with South Korea, a country with one of the most exemplary economic development models in the world. Economic cooperation should focus on infrastructure projects such as building roads, ports, airports and railroads linking North and South Korea. In addition, North Korea should develop tourism and make use of its abundant underground natural minerals while preserving its forests. This would require the signing of a legal instrument such as a Free Trade Agreement (FTA) and joining the WTO to ensure foreign trade and investment. Another important reason for cooperation with the South is that South Korea has successful experience in economic reform and opening up to the world. If North Korea succeeds in implementing these measures, it could realize the 'Transform' scenario as depicted above.

5. Conclusion

Due to the secluded and unpredictable nature of North Korea's regime, it was, is and will be challenging to forecast North Korea's future 20 or 30 years from now. However, considering the fact that the tensions surrounding North Korea have not eased for 70 years, we found that envisioning the four alternative futures represented a useful attempt at understanding and solving the conundrum of North Korea. In this regard, we summarize the significance of this study and distinguish it from existing research with the following three points.

Until now, many academic studies have suggested that unification is a desirable future for both Koreas; however, the desired future for either North or South Korea may not be unification like it was for East and West Germany. As long as North Korea and its leader Kim Jung-un believe and insist on its Juche principle, a preferable future alternative cannot be unification. Since the division of the two Koreas in 1948, unification has been the ultimate value in South Korean society. For this reason, the mainframe research works on the prospects of North Korea has been based on the assumption that unification is a desired goal for the South. However, this is based mainly on the hopes and expectation of South Korea. Of the four scenarios presented in this study, the futures that North Korea hopes for are 'Growth' or 'Transformation.' However, these two futures are not based on unification. Although it is possible to hope for unification, it is also important to acknowledge alternative futures of the two Koreas.

The main feature of our research that distinguishes from existing studies is that we deal with the futures of the North Korean economy from the perspective of North Korea's regime and its people. It is difficult to understand the thoughts and strategies of North Korea's regime in a time where information on North Korea is extremely limited. However, when looking at the activities of the North Korean leadership over the past 70 years and official "discourse", North Korea has followed a certain pattern, namely the maintenance of the socialist system and the building of a strong and Juche nation. If we assume the North Korea will continue to adhere to these two core principles as the guiding value, we will be on better position to understand and interpret North Korea.

Finally, the most meaningful contribution of this study is that futures studies can be helpful in addressing even complex geopolitics issues today. North Korea's isolated nature and opposition to the West has been present since the Korean War. The root of the conflict between North and South Korea is deep and complex. However, applying futures research on a difficult and long-standing problem like North Korea has provided some potentially useful solutions. The four generic alternative futures of the North Korean

economy were not only the futures of different hypotheses but they also propose effective current strategies to achieve its most preferred future. In this respect, futures studies proved a useful strategy that can be put into practice in the field of diplomacy and security including inter-Korean relations and denuclearization.

Declaration of Competing Interest

None.

References

- ASAN Institute for Policy Studies(ASAN) (2019). *South Koreans and their neighbors 2019, public opinion surveys*. Apr. 26.
- Bank of Korea (2019). *Gross domestic product estimates for North Korea in 2018, press release*. Jul. 26 2019, available at <https://www.bok.or.kr/eng/bbs/E0000634/view.do?nttlId=10053001&menuNo=400069>.
- Bennett, B. (2013). *Preparing for the possibility of a North Korean collapse*. The RAND. National Security Research Division.
- Byman, D., & Lind, J. (2010). Pyongyang's survival strategy: Tools of authoritarian control in North Korea. *International Security*, 35(1), 44–74.
- Cha, V. (2012). *The impossible state: North Korea, past and future*. Random House.
- Clemens, W. (2009). *Alternative futures for North Korea, global asia*.
- Cummings, B. (2011). *North Korea: another country*. The New Press.
- Dator, J. (2009). Alternative futures at the Manoa school. *Journal of Futures Studies*, 14(2), 1–18.
- Delury, J., Moon, C., & Terry, S. M. (2014). *A reunified theory: Should we welcome the collapse of North Korea? Foreign affairs*. Nov/Dec 2014.
- Eberstadt, N. (2011). *The North Korean economy: Between crisis and catastrophe, Vol. 1*. Transaction Publishers.
- Friedman, U. (2018). John Bolton's radical views on North Korea. *The Atlantic* Mar 23, 2018.
- Harrison, S. (2005). Did North Korea cheat? *Foreign Affairs*, 84(1), 99–110 Jan.–Feb., 2005.
- Jeon, W. (2000). Issues and problems of adaptation of North Korean defectors to South Korean society: An in-depth interview study with 32 defectors. *Yonsei Medical Journal*, 41(3), 362–371 Jun 2000.
- Jeon, W., Eom, J., & Min, S. (2013). A 7-year follow-up study on the mental health of North Korean defectors in South Korea. *Journal of Traumatic Stress*, 26(1), 158–164 Feb 2013.
- Jiang, X. (2006). Cross-cultural pragmatic differences in US and Chinese press conferences: The case of the North Korea nuclear crisis. *Discourse & Society*, 17(2), 237–257.
- Jung, E. C. (2018). *Recent North Korean economic status and future prospect*. Ministry of National Unification, Institute for Unification Education.
- Kang, M., & Park, S. (2018). Institutional economic integration between south and North Korea and the economic impacts of integration. *Asian Economic Journal*, 42(3), 257–276.
- Ko, S., Chung, K., & Oh, Y. (2004). North Korean defectors: Their life and well-being after defection. *Asian Perspective*, 28(2), 65–99 2004.
- Lee, B. W. (2018). North Korea's economic development strategy for unification of Korea: Income boost and spiritual reform. *Review of Institution and Economics*, 12(1), 157–176.
- Lee, H. S. (1988). North Korea's closed economy: The hidden opening. *Asian Survey*, 28(12), 1264–1279.
- Lee, J., & McKibbin, W. (2019). Korean unification: Economic adjustments under german assumptions. *Asian Economic Policy Review*, 14, 262–281.
- Lee, J., & Pyun, J. (2018). North Korea's economic integration and growth potential. *Asian Economic Journal*, 42(3), 301–325.
- Lee, Y. S. (1994). *Economic integration of the Korean Peninsula: A scenario approach to the cost of unification*. The Korean Economy at a Crossroad 207–221.
- Lim, J. C. (2008). *Kim Jong-il's leadership of North Korea*. Routledge Contemporary Asia Series.
- Mazarr, M. (1997). *North Korea and the bomb: A case study in nonproliferation*. Palgrave Macmillan US.
- McCormack, G. (2004). *Target North Korea: Pushing North Korea to the brink of nuclear catastrophe*. Basic Books.
- McKibbin, W., Lee, J., Lie, W., & Song, C. (2018). Modeling the economic impacts of Korean unification. *Asian Economic Journal*, 42(3), 227–256.
- Ministry of Unification (2018). *Understanding North Korea 2018(Korean)*, press release. Institute for Unification Education Mar. 2018.
- Moon, J. (2019). *Future strategy of North Korea. Special lecture at the KAIST moon soul graduate program for future strategy and interview* Jan. 12 2019.
- Nanto, D. K., & Manyin, M. E. (2011). China-North Korea Relations. *North Korean Review*, 7(2), 94–101.
- New York Times. 'We No Longer Need' Nuclear or Missile Tests, North Korean Leader Says, New York Times, Choe Sang-Hun, April 20, 2018.
- Noland, M., Robinson, S., & Wang, T. (2000). Rigorous speculation: The collapse and revival of the North Korean economy. *World Development*, 28(10), 1767–1787.
- Park, H. S. (2002). *North Korea: The politics of unconventional wisdom*. Boulder, CO: Lynne Rienner Publishers.
- Park, K. (2004). North Korea in 2003: Pendulum swing between crisis and diplomacy. *Asian Survey*, 44(1), 139–146 Jan/Feb 2004.
- Park, S. Y. (2016). North Korea's military policy under the Kim Jong-un regime. *Journal of Asian Public Policy*, 9(1), 57–74.
- Park, H. S. (1996). *North Korea: Ideology, politics, economy*. Prentice Hall.
- Schäfer, A. (2006). A new form of governance? Comparing the open method of Co-ordination to multilateral surveillance by the IMF and the OECD. *Journal of European Public Policy*, 13(1), 70–88.
- Schwekendiek, D. (2008). The North Korean standard of living during the famine. *Social Science & Medicine*, 66(3), 596–608 Feb. 2008.
- Seoul National University (SNU) (2019). *Unification perception survey 2018*. Institute for Peace and Unification Studies Mar. 11 2019.
- Sigal, L. V. (1999). *Disarming strangers: Nuclear diplomacy with North Korea*. Princeton University Press.
- Smith, H. (1997). *The North Korean economy: Collapse, stasis, or reform?* The Brookings Institution.
- Smith, H. (2000). Bad, mad, sad or rational actor? Why the 'Securitization' paradigm makes for poor policy analysis of North Korea. *International Affairs*, 76(3), 593–617.
- Smith, H. (2015). *North Korea: Markets and military rule*. Cambridge: Cambridge University Press.
- Stares, P. B., & Wit, J. S. (2009). *Preparing for sudden change in North Korea. Council on foreign relations, council special report (No. 42)*.
- Thae, Y. H. (2019). *Future strategy of North Korea. Special lecture at the KAIST moon soul graduate program for future strategy and interview* Jan. 12 2019.
- Washington Post (2018). *North Korean economy suffers its steepest decline in two decades*. The Washington Post, Adam Taylor & Min Joo Kim Jul. 20, 2018.
- White House. Remarks by President Trump and President Moon of the Republic of Korea Before Bilateral Meeting, Whitehouse Press office, May 22, 2018.
- Yang, M. S. (2018). *Economic reform at the Kim Jung eun regime*. University of North Korean Studies Working Paper.
- Yoon, I. J. (2014). A study on the privatization in North Korea: Current status and its implications. *Korean Association of North Korean Studies*, 18(1), 55–85.