About the North Korea Economic Forum

The North Korea Economic Forum (NKEF) is part of the policy program at the George Washington University’s Institute for Korean Studies (GWIKS). The Forum aims to promote the understanding of North Korean economic issues, distribute well-balanced, deeply researched, and multi-dimensional insights on the North Korean economy and to expand networks among various North Korea watchers, scholars, and policymakers. The Forum mostly involves closed and off-the-record meetings, where participants can freely and seriously discuss critical issues. Mr. Daniel Wertz is currently the chair of NKEF and is leading the meetings. NKEF also organizes special conferences made public throughout the academic year. The Forum is made possible by a generous grant provided by the KDI School of Public Policy and Management.

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Preface

North Korea has been considered a ‘hard target’ by analysts because of the country’s lack of transparency and accessibility. Its economy is no exception. With the dynamic marketization, North Korea watchers have difficulty collecting economic data and relevant information. Sources and methods themselves are often the main topics of debate among experts. In this context, the second part of the North Korea Economic Forum (NKEF) Annual Conference in October 2020 examined sources, methods and pitfalls of researching North Korea in the areas of interview techniques, official economic data, satellite imagery analyses, maritime monitoring, illicit finance networks, and unclassified commercial data. This collection of papers is a product of the conference sponsored by the KDI School of Public Policy and Management. The ongoing policy debates over how to address the challenges North Korea presents should be based on solid research methodologies in collecting and understanding information on the country. I hope this set of papers offers a range of views on conducting these important tasks.

The first part of the 2020 NKEF Annual Conference examined the current development trends in North Korea in the areas of public infrastructure, tourism, and mobile telecommunications. The North Korean economy, which has already been experiencing pressure due to tight international sanctions, faced unprecedented economic challenges since the global outbreak of COVID-19. The health crisis revealed the vulnerability of North Korea’s economy and raised questions about the validity of Pyongyang’s economic development plans. The session provided a unique opportunity for the Washington audience and beyond to understand the North Korean economy in a holistic way, learning about not only the current state of the North Korean economy but also its relationship to domestic politics, market forces, and international political and economic dynamics.

NKEF is part of the policy program at the George Washington University’s Institute for Korean Studies (GWIKS). The Forum has been recognized by the North Korea watchers throughout the world as a center for knowledge-sharing and network-building, both private and public, on the North Korean economy which is relatively less discussed by the military and security-oriented Washington policy circle. Based on the successful launch of the edited collection of Policy and Research Paper Series, NKEF will continue publishing creative, in-depth analyses on the North Korean economy relevant for both academic audiences and policy specialists.

Yonho Kim
Editor, NKEF Policy and Research Paper Series 2021
Kim Jong II, the second leader in the dynasty that has ruled the Democratic People’s Republic of Korea for three generations, is reputed to have urged his subordinates to keep the country “wrapped in a fog” (Cha and Sohn 2012, p. 74). That fog settled into place long before Kim Jong Il’s assumption of power, and though it has dissipated to some extent over the years, it still frustrates outsiders’ efforts to understand North Korea.

There are few other countries where political, social, and economic developments are harder to track than North Korea, and arguably none where external demand for such knowledge so greatly exceeds supply. Travelers to the country – whether tourists, scholars, journalists, or humanitarians – must be accompanied by state-assigned counterparts, and generally must stick to a restrictive, set itinerary. The country has long remained at the bottom of global rankings for freedom of the press, and internet access remains restricted to an elite few. Pyongyang has long treated even certain basic economic data as state secrets. Far-reaching international sanctions imposed on North Korea in recent years have only increased its government’s incentives for opacity.

But even if North Korea is still wrapped in a fog, that does not mean that scholars and analysts remain completely in the dark. Careful, dedicated research and analysis – relying on everything from refugee interviews, to satellite imagery, to data published by Pyongyang’s foreign trade partners – has allowed analysts and scholars to get a decent picture of developments in North Korea, even if that picture is often incomplete or distorted.

This edited collection includes five essays by leading scholars and practitioners on how to conduct effective research on North Korea, focusing on both the use of traditional research methods and the employment of more novel or cutting-edge approaches. Each of these essays tracks different areas of research, describing the different methodologies and skill sets necessary to make the most out of the sources available while avoiding various analytical pitfalls. They cover traditionally academic approaches to research, such as qualitative interviews and economic data analysis, as well as
open source techniques that are more often applied in investigative reporting.

North Korea is among the hardest of hard targets for scholars and researchers, but careful and methodical efforts to pierce the fog have tremendous value. Such research enhances understanding of a country that plays an outsized role on the international stage relative to its size and population, owing to its nuclear program, the provocative actions of its government, and the ongoing human rights abuses and humanitarian crises taking place within its territory. It takes North Korea – and North Koreans – out of the realm of the unknowable and the sui generis, and into the realm of comprehensibility and comparison.

Better information and understanding of North Korea, in turn, helps to influence the depth and quality of ongoing policy debates about how the U.S. and other stakeholder countries can best address the challenges the country presents – whether to pursue strategies of pressure or of engagement, whether to prioritize peacebuilding or deterrence. High-quality research and analysis cannot settle these debates, of course, but it can help to inform and frame them. Research on the North Korean economy can demonstrate the effects (or lack thereof) of sanctions; analysis of satellite imagery can show developments at nuclear facilities or prison camps; qualitative interviews with North Korean defectors allow for insights into lived experiences and social change in the country.

Investigative open source research conducted by members of the public can also play an important role by serving as an independent check on claims based on secret or confidential sources, such as reports of a covert new nuclear facility or an upcoming satellite launch.1 Open source research can challenge government claims that are based on wishful thinking, or on sloppy or politicized intelligence. Conversely, independent open source research can also be highly beneficial to governments, allowing officials to make claims and take action in ways that do not compromise confidential sources and methods. For example, when researchers use open source information to publicly identify parties who have violated sanctions against North Korea, it may make it easier for government authorities to build a case against those parties, whether in a court of law or within the UN Security Council.

Finally, careful and intellectually honest research on North Korea can serve as a counterpoint to the lazy reporting and rumor mongering that too often colors media depictions of the country. To be sure, today’s relative abundance of informed analysis and commentary on North Korea has not stopped media frenzies over rumors about Kim Jong Un’s health or various bizarre claims related to the country. As this collection’s essay by Jenny Town also points out, claims based on rushed or sloppy analysis of satellite imagery or other open source tools can sometimes fuel questionable media narratives about North Korea, rather than dispel them. However, the availability of a more sober analysis provides – at a minimum – an informed counter-narrative to a vacuous and senseless-driven news cycle.

**RESEARCHING NORTH KOREA – EVOLVING SOURCES AND APPROACHES**

Even in its early decades, North Korea was notable for the degree to which it was closed to outsiders seeking to interpret events in the country. In the years after the Korean War, Russian and Chinese officials regularly complained about the North Korean government’s failure to be forthcoming with them (Person 2019). By the 1960s, the country ceased publishing most economic data (Kim et. al 2007). Even as Kim Il Sung began to promote the North Korean regime internationally as a model for other developing countries to emulate, the country remained secretive to friend and foe alike.

Nonetheless, there have always been some channels available for outsiders to try to make sense of developments within North Korea. State media publications – newspapers, professional journals, records of Kim Il Sung’s speeches, and other sources – have long been accessible to those with the ability to make use of them. Through the Cold War era, the Foreign Broadcast Information Service (an open source branch of the CIA) collected and translated North Korean media output, while a few specialized institutions like the Library of Congress collected North Korean publications for use by researchers and specialists. Despite the obvious shortcomings of North Korean state publications as sources of information, they are nonetheless valuable when read through a critical lens (Schmid 2018) or as regime signaling devices (Carlin 2015). State media are also capable of erroneously revealing information the regime would rather keep hidden; as OSS Director William Donovan noted, “Even a regimented press will again and again betray their nation’s interests to a painstaking observer” (quoted in Colquhoun 2016).

The small community of North Korean defectors in the South during this period also provided scholars with insights into the structure and historical development of the DPRK. Robert Scalapino and Chong-sik Lee, in their monumental study *Communism in Korea* (1972), combined a broad scope of interviews within this community with a wide-ranging review of publications in Korean and multiple other languages, producing the first comprehensive English-language study of the North Korean regime. Notably, Scalapino and Lee’s use of defector sources was the source of some degree of criticism (Koh 1998), anticipating the doubts about refugee testimony that would come in the wake of the famine two decades

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1. Jeffrey Lewis (2016) contrasts the response to a 1998 intelligence leak about a suspected North Korean nuclear facility at Kumsan-ri to the handling of 2014 claims by an Iranian dissident group about a secret enrichment facility outside of Tehran. The former incident, which occurred before relevant open source material was easily available, hijacked U.S.-DPRK negotiations for several months until an investigation showed the fears of a secret nuclear facility to be unfounded. The latter story, in contrast, had little impact in part because independent groups were able to quickly employ open source information to cast doubt on the dissident group’s claims.
The collapse of the Soviet Union, and the ensuing economic crisis and famine in North Korea during the 1990s, significantly expanded the scope of sources available to scholars and researchers seeking to understand developments in the country. These changes coincided with South Korea’s own process of democratization, which gradually made North Korea less of a sensitive subject for research, analysis, and policy advocacy among South Koreans.

The partial opening of Russian, Eastern European, and Chinese archives provided scholars with major new insights into historical developments in North Korea, and had a particular impact on the historiography of the Korean War. Archival research by Kathryn Weathersby (1995), among other scholars, revealed the political dynamics behind Kim Il Sung’s decision for war in June 1950, demonstrating his multiple attempts (eventually successful) to lobby Joseph Stalin for Soviet backing and support prior to initiating the conflict. Evidence from the archives has also helped scholars understand the motivations behind China’s intervention in the Korean War (Chen 1994), as well as other episodes shaping Pyongyang’s complex relations with its great power allies (Person 2019). The Woodrow Wilson Center’s North Korea International Documentation Project has been an invaluable resource for scholars and policymakers, collecting and translating thousands of documents from North Korea’s former communist allies into English.

Domestic changes within North Korea during the famine years and in their aftermath provided an aperture through which observers could better understand social change and everyday life during this period. In 1995, Pyongyang admitted to the dire situation in the country – caused by severe flooding, in the regime’s reckoning – and allowed international humanitarian agencies to enter its borders. Even though humanitarian access during this period was contentious and restricted (Binet 2014), it provided somewhat of a window into the severe conditions inside the country as well as a firsthand view of North Korea’s stovepiped bureaucracy (Natsios 2001; Smith 2005). UN humanitarian agencies also began collecting and publishing data from North Korea at this time, providing important insights into demographics and questions of food security. As Stephan Haggard and Liuya Zhang’s contribution to this collection notes, however, this data (and subsequent demographic or nutritional studies produced in collaboration with the North Korean government) should not be viewed uncritically, given the limited access of the agencies collecting it and the incentives of North Korean authorities to dissemble in various ways.

A much larger window into North Korean society began to open in the late 1990s and early 2000s, as tens of thousands of North Koreans began seeking refuge in China, with some eventually making it to South Korea. This population provided a wealth of insights into conditions inside a changing North Korea, both through quantitative studies (Haggard and Noland 2011; IPUS 2020) and through qualitative interviews (Fahy 2015; Oh and Hassig 2015). Memoirs written by North Korean refugees, such as Kang Chol-hwan’s Aquariums of Pyongyang (2001), have also provided insights into life in North Korea during the Cold War era.

In 1977, the U.S. National Archives opened up its cache of North Korean documents captured by UN Command forces during the Korean War, enabling a new wave of scholarship on a brief but critical period of North Korean history.

Similarly made good use of these archival materials, as well as Japanese records covering the pre-1945 period.

A small amount of information on North Korea during the Cold War era also came from foreigners who spent time living in the country or who traveled there. The account of Ali Lameda (1979), a leftist Venezuela poet who lived in Pyongyang as a translator before being imprisoned in North Korea from 1967-74, provides a particularly noteworthy example. His testimony, published by Amnesty International, shined a small light into conditions in North Korea’s labor camps decades before refugee accounts began to reveal the extent of suffering and deprivation within these institutions. During the 1970s and 80s, a modest number of Western journalists, peace groups, researchers, and politicians also traveled to North Korea and provided public accounts of their impressions.3

2. Scalapino and Lee’s sources, it should be noted, had a very different demographic profile than later defectors, and the authoritarian character of the South Korean government at the time of their research may have cast a distinct set of questions on the reliability of their interviewees’ testimony.

their authors’ former homeland and recounted harrowing tales of escape.

The growth of North Korean refugee populations in South Korea and China, coupled with the development of market-based trade along the China-DPRK border, led to the establishment of new transnational networks reaching into North Korea to facilitate the movement of people, money, goods, and information. These networks facilitated the emergence of new outlets, such as Daily NK and Rimjingang, that feature regular reporting from sources inside North Korea. Other specialized publications, such as NK News, have also used sources from within Pyongyang’s small expat community and foreign tour operators to good effect. Additionally, interviews with Chinese merchants and traders engaged in business with North Korean counterparts have provided journalistic and scholarly insights (Demick 2010; Hastings 2016; Thompson 2011).

Changes in technology have also had a major impact on the methodology of researching North Korea over the past few decades. As Jenny Town’s essay in this collection describes, commercial satellite imagery has increased in quality and availability over the years, while costs have declined. Satellite imagery analysis, once in the exclusive domain of government intelligence agencies, enabled pathbreaking studies of North Korea’s military facilities (McKinzie and Cochran 2004) and prison camps (Hawk 2003) in the early 2000s, and has now become a staple of research and reporting on North Korea. The Internet has also made it far easier for researchers to access North Korean media, even though South Korea’s National Security Law continues to restrict domestic availability and U.S. sanctions have prompted major video-hosting services to delete much DPRK-origin content.

Finally, developments in North Korea in recent years have prompted the employment of cutting-edge new research techniques. As North Korea has engaged in aggressive cyber campaigns for espionage and profit, efforts to track Pyongyang’s digital footprints have ramped up (Recorded Futures 2020, Jun et al. 2015). Research into North Korea’s efforts to employ new technologies to monitor and surveil its own population has proven fruitful, as well (Kretchun et al. 2017, Williams 2019). Additionally, the expansion of U.S. and UN sanctions against North Korea has led Pyongyang to take measures to obscure its foreign trade. Concurrently, researchers and bodies such as the UN’s Panel of Experts have employed new techniques and approaches to track North Korea’s illicit shipping (as described by Neil Watts’ article in this collection) and procurement networks (as described by Andrea Mihailescu’s contribution.)

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Fahy offers examples of how to ask “questions that stir elaboration,” as well as how to assess the reliability of an interviewee’s narrative and how to be aware of the “cognitive blocks” between interviewer and interviewee that can lead to false assumptions or miscommunication. Her essay emphasizes the importance of language in interviews with North Koreans. Listening carefully to defectors, Fahy points out, is crucial to opening up new areas for discussion. Moreover, how language is employed can also be highly revealing of the social and epistemic context of the speaker. Fahy recommends that interviewers pay close attention to how their interviewees used wordplay and humor; how rumors emerged or were passed on; and even recollections of self-talk and dreams.

Stephan Haggard and Liuya Zhang’s essay on using official economic data to analyze North Korea provides a comprehensive survey of the available sources, their uses, and their limitations. The authors look particularly closely at the mirror trade data published by North Korea’s foreign trade partners, a crucial – though flawed – source of information in the absence of any trade data published by the country itself. They trace the collapse and eventual rebound of North Korea’s foreign trade...
that began in 1990s; the rise and fall of inter-Korean trade after the beginning of the “Sunshine Policy” in the early 2000s; and the trajectory of China’s role as North Korea’s dominant trade partner, with a close examination of changes in trade composition following the imposition of wide-ranging UN sanctions on North Korea in 2017. Haggard and Zhang also examine the “humanitarian” data generated by UN agencies, looking both at reported aid flows and at “collaborative” data produced by these agencies in partnership with the North Korean government. Finally, the authors look briefly at North Korea’s self-reported budget data, expressing skepticism about any conclusions that might be drawn from this information.

Jenny Town’s essay on the use of satellite imagery emphasizes the importance of context and cross-referencing in getting this kind of analysis right, and reviews the various kinds of pitfalls that can lead analysts to get it wrong. She starts with an overview of how the cost, quality, and availability of commercial imagery has evolved over time, and how it has been applied to monitor developments pertaining to North Korea’s economy, food production, prison camps, and WMD-related facilities. Her essay emphasizes the importance of analysts having sufficient baseline knowledge of a particular site or activity in order to assess what a given image may or may not mean. The crucial role of such baseline information makes triangulation of satellite imagery with other sources of information particularly important.

Town’s essay also raises important questions about the ethics of open source analysis using tools such as satellite imagery. As she points out, faulty analysis that purports to be based on satellite imagery can quickly propagate through the public sphere, “impossible to retract and difficult to correct.” The incentives for analysts to get a scoop and beat their peers to publication increase the probability of someone getting it wrong, even unintentionally. Furthermore, Town points out how open source research based on satellite imagery can spur “two-way learning” – such publications allow North Korea’s government to better understand its own vulnerabilities, leading to the concealment of sensitive facilities or to deceptive actions intended to mislead observers watching from the sky.

The essay from Neil Watts, a former member of the UN Panel of Experts for North Korea, provides a firsthand look into how the Panel collects information from disparate sources to investigate North Korean sanctions violations. Watts provides a close review of the Chong Chon Gang incident, wherein Panamanian authorities interdicted a North Korean vessel covertly laden with a cargo of arms. The incident provided the Panel with significant insights into the structure and operations of North Korea’s illicit shipping networks, setting the stage for subsequent investigations as the scope of the UN sanctions regime expanded in the following years. Watts proceeds to detail how the Panel’s investigative work has proceeded in recent years, with a purview covering everything from illicit shipments of fuel and coal to the procurement of dual-use goods for North Korea’s military. As he describes it, the Panel has relied on information from a very wide range of sources – maritime databases, North Korean defectors, the “Korea watcher” community, surveillance reports from UN Member States, and North Korean state media – to conduct its investigations.

Finally, Andrea Mihailescu’s essay provides two case studies in how researchers can track North Korea’s foreign procurement networks. She first uses Russian customs data to investigate North Korea’s imports of purebred white horses from Russia – horses that have been featured in state images of military parades and in Kim Jong Un’s symbol-laden visits to Mt. Paektu. Drawing on recent investigative work by the nonprofit research organization C4ADS and the New York Times, Mihailescu then traces how North Korea’s procurement networks have evaded sanctions to import armored luxury cars into the country. As her analysis reveals, the thorough examination of documents such as customs records and shipping data can sometimes allow a diligent researcher to map out – at least partially – the winding pathways of such procurement. However, North Korea’s evolving techniques for concealment means that researchers (not to mention exporters, customs officials, and law enforcement agencies) need to innovate to keep pace. Mihailescu ends her essay with a set of recommendations on how governments and the private sector can take action to create a less permissive international environment for North Korea’s illicit procurement.

Collectively, the essays in this volume demonstrate both the difficulties and the possibilities for producing in-depth research on North Korea. Conducting such research is by no means easy – it can require advanced language skills, financial resources for access to specialized databases, or the broad background knowledge necessary to interpret a satellite image or a flawed dataset.
REFERENCES


QUALITATIVE INTERVIEWING: APPROACHES AND TECHNIQUES FOR SENSITIVE TOPICS

ABSTRACT

This essay describes how researchers can employ qualitative interview research techniques with individuals. The case study is taken from two decades of work by the author recording oral history from North Korean defectors on their experience of surviving the 1990s famine. Sensitive, emotional, and personal topics are easier to navigate and explore if the researcher takes a thoughtful approach. The essay outlines the epistemic injustice researchers and their interview subjects face when dealing with traumatic, sensitive topics. It addresses how to access and assess credibility in research material gleaned from qualitative interviews. Standpoint epistemology is identified as a way for researchers to position themselves in a project and to connect with research subjects transparently. A specific approach to starting interviews on sensitive topics is outlined and followed by an analysis of cognitive blocks—where interviewer and interviewee misunderstand one another—and how to be aware of these and possibly remedy them. Finally, six tools that turn language into a resource during qualitative interviews and their analysis are identified.

ON KNOWING: AN INTRODUCTION

When I began fieldwork for my study of famine survivor experiences in 2006, I was told by an esteemed and respected scholar, not Korean but based in Korea, that the topic of famine survival and my method of gathering information through interviews with survivors was not valuable. Rather than being disheartened, I was surprised. How could anyone not see the inherent value? I tried to clarify by adding that no research had been done collecting or examining the oral histories of people who had survived famine. Globally. Ever. Nor had survivors, at aggregate, decided to record and share the stories themselves. Globally. Ever. Information was out there, carried in the minds of those survivors, and yet it remained unexplored, by anyone. Perhaps in the exchange, I was the obstinate one. I was. I ignored his views and carried on.
I am glad I did. My perseverance resulted in the collection of dozens of survivor histories from the 1990s North Korean famine. When I published Marching Through Suffering: Loss and Survival in North Korea (2015), it was the first qualitative study of how famine survival is experienced. This essay, intended as a glimpse into what that experience was like, outlines some of my methodological approaches and techniques for those who may wish to likewise elicit subjective knowledge from survivors of sensitive and traumatic collective experiences.

Although colleagues and mentors tend to give good advice, sometimes it is better to trust your gut when it comes to knowing what is worth investigation. You are, hopefully, the expert on the broad scope of your field and the new question or questions you bring to bear. Also, perhaps more important, you need to read. Widely. Chances are that someone somewhere has written in a way that signals permission for you to question the research as your gut suggests. Chances are that writing is feminist. For instance, in 2007, the scholar Miranda Fricker published Epistemic Injustice: Power and the Ethics of Knowing (Oxford). By the time her book came out, I was deep into my qualitative interviews with North Korean defectors. I bring up Fricker’s book because she discusses an issue core to work with North Korean defectors, an issue that is core not only to this essay but also to researchers of North Korea generally. If you study North Korea (or countries like it) then you are invariably studying power in its myriad manifestations. And if you are studying power, then you are in a fight over what kinds of knowledge are deemed worthy. And thus we are back where we started: in the face of doubt over types of knowing, what is worth knowing, and how to get at what you believe is worth uncovering and sharing with others.

Writing as an analytic philosopher, Fricker explains that certain types of knowing are often deemed more credible or reliable than other types. She elaborates by identifying the consequences of this belief, that it prejudices us against assessing sources equally. For instance, some subjects might be deemed unknowing a priori. This would lead to an unjust engagement with the testimony of such an individual, what Fricker calls testimonial injustice. When it occurs, credibility is entirely denied to some subjects. A shorthand example is the notion that quantitative research is de facto more reliable, credible, or useful than qualitative. The reflexive, schooled response is to acknowledge that certain types of knowledge are best gathered through one or the other.

Nevertheless, an economy of credibility persists. For example, a frame of thinking governed by testimonial injustice, or an economy of credibility, might ask how we can trust North Koreans (defectors). The positionality of North Koreans as North Koreans will be evoked to justify this line of inquiry (presupposing a sameness of all North Koreans): “They are vulnerable. Poor. They need to get ahead.” Then, at the same time—note the contradiction—is the mysterious inability to position them as a specific someone: “They could have been anyone back in North Korea!”

These statements are not of my imagination but instead what I have heard said by a few researchers, and lay people, in ordinary dialogue. It is my contention these sentences signal a concern about considering North Koreans as individuals. To do so requires that the researcher multitask, encounter personalities, and engage with the person on the other side of the table—a person who may be unlikely, or disinterested, or busy. And people are emotionally, socially, intellectually messy. Flawed. Yet it is through or with these subjects that we need to work to gather insights about their former homeland.

An example is my fieldwork in Tokyo in the spring of 2007, during which I stayed at a rental house in Shin-Okubo. A gentleman, who had stayed at the same location the night before, departed. I knew he was North Korean, a defector. We had met through the community of defectors who resettled in Tokyo. When I casually mentioned that he was from the North to the woman who owned the house, she stepped backward. Her hand on her chest, “Oh, my gosh! That’s scary.” Then I felt her anxiety move from him toward me. How could I, a foreigner, know he was North Korean when she, an ethnic Korean in Japan, could not? He could have been anyone, back in North Korea. Anyone. In the cloud of contagion, I could also be anyone.

The worry is that North Koreans could be anyone and anyone can be a liar. If they are lying, then we are. If they are unknowing, then we are. The problem with North Koreans is us. We want North Koreans to tell us everything they can, of value, about their country, but often they are experts only about their own lives. Later, I elaborate on methods the reader can use to elicit knowledge (pieces of the puzzle) that can be analyzed and, possibly, fitted together.

North Korea is a space of stratified power and stratified knowledge. The puzzle needs to be arranged according to how its pieces fit together.

This thinking raises other questions: How can we trust qualitative interviewing as a method of information gathering? It produces fuzzy, uncountable measures. How can we infer anything about the majority from this largely self-selecting population of defectors? These are standard questions people blithely ask. The questions reveal assumptions that cage thought. Sometimes these frames are so restricting they eschew questions altogether in favor of statements: Your work is very niche, someone might say. Or, what a small sample. Or, more kindly but equally dismissive, what interesting stories. Such comments indicate that epistemic injustice is contagious. Passing from interview subjects, who are alleged to be unknowing, to researchers becoming unknowing by proxy.

ON CREDIBILITY AND EPISTEMIC ADVANTAGE

The first point in this essay concerns credibility and epistemic advantage. A prejudice asserts that only certain kinds of knowing, based on positions of power, are valuable. It taxes value. It claims that how and from whom we gather knowledge determines credibility. North Korean defectors occupy a historically subordinate status. They are subordinate to their state. They are
subordinate when in South Korea, and most certainly when in third countries as they leave, return, and finally leave North Korea for good. Fricker explains that such social groups are “unjustly socially subordinate” and thus afflicted by the economy of credibility: measured in how we dismiss what they know and what we think they can know.

When North Koreans speak about their lives in the North, their experiences in third countries, and their experiences in South Korea, these narratives meet with testimonial injustice. In short, they are met with doubt. Although all North Koreans will experience testimonial injustice, not all will experience it equally. For instance, former UK diplomat Thae Young Ho will likely encounter far less testimonial injustice than, for example, a young defector from Wonsan who defected while a university student. Nevertheless, he will experience it. His standpoint epistemology, a term I explain momentarily, will be flattened by the claim that he needs to make a living now that he is in South Korea. The natural resource he mines, the dismissal goes, is his knowledge of North Korea. As if he can bring no other value to South Korean society, or indeed the world.

Similarly, although all North Korean defectors have access to a special sort of knowledge by virtue of being former North Koreans, they are not necessarily all the same, nor do they have access to the same kinds of knowledge. This nuance is best contemplated in light of how feminist theory identifies gender as a “social location” that gives rise to types of knowing. Being a former North Korean is a social location that gives rise to certain types of knowing that exist among a series of identity markers (young, old, rural, urban, educated, literate, and so on, which also give rise to types of knowing). Caution is appropriate here. This is not to suggest a fractal-like proliferation of identity markers where all becomes relative. If that is not the point, what is?

As Sharon Crasnow eloquently explains, it is important to distinguish that perspective is not what is being highlighted here (2004, 149). Instead, positionality is a mapping. Practices of power are located across the landscape being mapped. Using standpoint epistemology, we can locate and map these as they interact. Why is this important to the case of North Korea? North Korea is, par excellence, a landscape of oppressive social relations kept in place by powerful institutions that are both real and imaginary. In developing an idea of how that system of hierarchy and oppression operates, a principal element of analysis is narrative elicited from a range of social locations. To wit, Thae Young Ho experienced the hierarchy and oppression of the North Korean state in ways that were materially, physically, and emotionally different from Mrs. Yeonmi Park. In gaining perspective on how hierarchy and oppression operate within North Korea, multiple voices are vital. A critical point concerning standpoint epistemology that emerges from these social locations is that it does not automatically privilege the perspective of the oppressed (Harding 2004, 32).

As Sharon Crasnow explains, “Standpoint theorists argue that those in positions of subordination have an epistemic advantage regarding some kinds of evidence, special inferential heuristics, and interpretative or explanatory hypotheses” (2004, 151–52, emphasis added). Thus the question becomes whether the knowledge sourced from subordinate groups “allow[s] them to understand better and in ways that promote their ability to change their world?” As we will see, sometimes yes. Sometimes no.

The dismissal of North Korean defectors is masked as concern that the passage of time and its burden to memory, or financial remuneration, will tamper with information. If memory is an imperfect conduit to the past, is testimony valuable? If an individual is financially remunerated for the interview, is the testimony reliable? I examine these frames of thinking elsewhere in my work and therefore do not belabor them here (Fahy 2019).

The qualitative interview techniques for sensitive topics described here demonstrate that defectors have epistemic advantage: although testimony will invariably have gaps and imperfections, it is possible to identify reliable evidence that informs a fuller picture of the psychosocial subjective experience of North Korea.

**STANDPOINT EPISTEMOLOGY: ISN’T FAMINE ABOUT FOOD?**

In Marching Through Suffering: Loss and Survival in North Korea (Columbia 2015) and throughout Dying for Rights: Putting North Korea’s Human Rights Abuses on the Record (Columbia 2019), I discuss qualitative interviewing as a way to gather valuable information. For the first book, I conducted qualitative interviews to gather as much information as possible concerning what famine survivors from North Korea had to say about living through the famine experience. North Korean famine survivors are experts at living through the social phenomena of famine. This brings me to my second point, which is about standpoint epistemology.

The researcher should approach interviewees with questions that honor their standpoint epistemology. An example makes this clear. I was studying North Korea’s famine of the 1990s. Having studied famines globally before my SOAS PhD field work under the direction of social anthropologist Johan Pottier, I was a famine expert. My interviewees were also experts, experts on having lived through the North Korean famine. This standpoint epistemology naturally presented itself in our interactions.

After collecting the oral history of Mr. Lee using qualitative interview techniques (detailed later), we went for lunch. I offered lunch as a way of thanking my interviewee. Mr. Lee was a young man in his early twenties. From a family of teachers and having completed his high school education, he had left North Korea’s city of Hamhung a few years prior. At lunch, I left some food uneaten on my plate.

“You study famine,” Lee remarked, “but you leave food on your plate.”

I felt embarrassed, but I liked that he pointed it out. He saw a contradiction. I said, “Yes, I study famine.” I apologized for leaving food on my plate. “Famine is not about food,” I said. I knew how strange this would sound.
Our roles as interviewer and interviewee switched. He asked me to elaborate on what was for him a bizarre claim. Famine is not about food, I explained, it is instead about who can get food and who cannot. He nodded.

“Not everyone starved,” I explained. “Famine is about power. Kim Jong Il didn’t lack for food because he didn’t lack for power.” Lee nodded.

I do not belabor the field of famine studies here except to say that the most cursory look at the peer reviewed literature attests to an abundance of food to feed everyone on the planet. The matter is not one of food, in fact, but access to rights that ensure access to food or the ability to alter one’s access to food (Devereux 2001; Edkins 2000; Sen 1981). This was also true of the North Korean famine and remains the case. Scarcity has never been the issue: access and the ability to alter access is. Famine is born out of situations that have more to do with absence, or lack, of democracy and absence, or lack, of freedom of information than quantities of food. In other words, who has access to power or the ability to wrest power? Who has access to enough power to alter their access to food? Who has access to enough power to alter their means to get food? This tells us about another feature of famine that ought not be surprising. It maps itself along existing lines of inequality. Those very individuals who are “unjustly socially subordinate” are hit the worst: women, children, the disabled, the old, the periphery. The very ones who are deemed unknowing, unworthy, will instead know the experience most intimately. What is the nature of their knowing? How can we open our frame of thinking enough to solicit, hear, appreciate, and engage it?

Thus I repeat, borrowing the ideas of Sandra Harding, that standpoint epistemology does not automatically privilege the perspective of the oppressed as the correct interpretation of matters (2004, 32). Instead, in combination with the standpoint epistemology of the researcher, it demonstrates evidence for how matters are understood on the ground. How the famine is understood shapes how people try to cope with it.

Bringing Harding’s observation in line with Crasnow’s question, if knowledge sourced from subordinate groups will “allow them to understand better and in ways that promote their ability to change their world?” (2004, 151–52), the answer here is both yes and no. Yes, it enabled Mr. Lee to leave his country because there “wasn’t enough food”—but his knowledge of the famine disenfranchised him from knowing that solutions to the famine were within the power of the state.

For Mr. Lee, the most salient feature of his experience was the absence of food and his herculean efforts to get it. In the immediate, food was what he needed to get by. But in the main, rights were what his and society’s well-being needed to endure. Scarcity of rights was the real issue: his right to information and his right to the mechanics that sustain democracy, to freedom of assembly, to free movement, to freedom of expression. His powerlessness to alter the forces sustaining these violations of rights manifested as an empty stomach. Structural rights violations often manifest through phenomena that conceal originating factors. Phenomena, such as famine, manifesting at a societal level, are often the culmination of structural rights violations seeded decades and sometimes generations earlier. This brings us back to epistemic injustice.

A famine survivor’s inability to parse the structural components of famine does not mean that he is an unreliable witness. Instead, his knowledge, rooted as it is in his experience tells us about famine in situ; it tells us that the experience so confounds the individual as to make its structural solutions incomprehensible to the majority of people in situ. His experience tells us what famine looks like face-to-face rather than how it looks to experts.

So to clarify, I refer here to epistemology. To elicit the knowledge our informants have, we need to design questions that will pull this out and know what to do with it. Perhaps this is the mistake my senior colleague made those many years ago. Perhaps he assumed I was going to ask North Koreans to educate me about “The Famine.” Maybe he didn’t realize that I was after a different kind of knowledge where famine is concerned. I wanted to understand it from its inside out. I was asking them about their lives in an effort to get insights into the psychosocial experience of the famine, how it was understood (and misunderstood) on the ground.

In my research, I was curious about what it was to live with others through day after day of hunger, to live in a nation that makes broken promises about basic needs, during a time that must have been frustrating, painful, and irksome. I wanted to know how people saw structural inequality manifest in day-to-day lives. How people made sense of the state’s unrequited loyalty and the promise of a better future being broken time and time again. Who or what did they see as responsible. Who or what did they see as the solution. Answers to these questions go some way to explaining the universal phenomena of why famines have not led to uprisings or revolution. These answers tell us how North Korea survived the famine that took countless lives and scarred the lives of millions. These answers tell us how to predict similar disasters in the present and going forward. In other words, such approaches to research tell us not only about reality, but also about the reality people think is there among them causing the calamity in the first place.

THE APPROACH

This brings us to how to approach the interview. A qualitative interview is not a cross examination in a court of law; to approach it as such would be leading with the chin. The goal is to get the subject to speak. In a court of law, a lawyer sits on either one side or the other. The qualitative researcher does not, and must constantly strive to be methodologically objective. This means that, for example, even if we find some manner of speech or view contemptable we nevertheless deliberately and methodically exercise objectivity. The goal is to get the interviewee to feel comfortable enough to open up, which gaining their trust will facilitate.

Because I was studying how people understood and survived the famine, it
would have been disastrous to start by asking point blank about the famine, starvation, and food resources. This caution, of course, applies to any sensitive topic. How do we begin to talk of sad, difficult matters? I recommend beginning and ending the interview, as much as possible, with comfortable topics and positivity—at a point in the individual’s personal narrative that predated the famine.

Although individuals knew that my aim was to collect their oral narrative of the famine, I began with the context—their hometown. I asked the interviewee to tell me something they fondly recalled about it. Selecting a time before the famine established a comfortable and sometimes even pleasurable point of entry. Famines creep into a society. I knew that awareness of the famine would have manifested differently for each person but mapped along lines of inequality. Thus, though we started with the topic of the hometown and a positive aspect of it, I knew we would eventually reach the famine. Thus I could ask, “When did you first realize all was not well?” Although it is likely that you will have a set of questions or topics you hope to cover, remain flexible and open. Steer the conversation gently. The qualitative interview is not about leading with the law; to approach it as such would be leading with the chin. The goal is to get the subject to speak.

It might be that the interviewee strays off topic and onto something that preoccupies her recollection of the experience. Sometimes this can nonetheless reveal something about the topic of your interest. For example, I noticed famine survivor interviewees spent far less time talking about the difficulties of life inside North Korea during the famine years, yet spoke at length about those they faced in China. Greater portions of their narrative, on a word-to-word count, were devoted to the journey out. A researcher might assume such a tendency indicates that the experience of famine was less severe than that of being an illegal person in China. Certainly life in China is nothing to celebrate. This, though, would be too hasty a conclusion. Consider first, where in the landscape of the interviewee’s personal narrative does she halt, cry, pause, and gasp? Where does she struggle to share the depths of emotion related to what she experienced? Do we not lose language as we face greater depths of sorrow? Is it not easier to narrate what happens in the wake of disaster rather than the details of the disaster itself? This is why it was important for me to listen not only to what interviewees said, but also to what they did not. What did they with their bodies as they did and did not use words to communicate, the way they were or were not pushed by emotions. Another, trickier tool concerns how their emotions awoke matching emotions within me. Their emotion was communicable, transferable, expansive. To suggest that it captured me makes it sounds negative rather than being a sharing, a gifting.

I asked naïve questions to balance power between myself and interviewees and to remind them that they were the experts on what we were talking about: How did the authorities let you know a famine was happening? How did you communicate with each other about the famine? To whom did you complain? I knew the questions were illogical, but I also knew that they would prompt candid replies. These questions are offered here as examples.

Within the discipline of social anthropology is a willingness to use positionality in research. My approach involved positioning myself as a geopolitical subject in the research. This meant that I explained who I am in terms of the inquiry. I let interviewees know that I am an Irish citizen (because I spoke in Korean they never asked about my Canadian accent). I explained that, like Korea, Ireland was colonized. Like Korea, the land was divided, the people separated, and in 1847 the Irish experienced a famine, too. The history of the Irish famine has never been written by those who experienced it, I explained. Nor that of any famine history, by those who survived it. This is what I was trying to capture with North Koreans, their experience of their famine. It was about me and it was about them. I was not suggesting false equivalency but instead connection.

Qualitative interview research means asking questions that stir elaboration. The qualitative interview is about pulling life stories out of the interviewee. This can only be done by being a good listener to identify points of entry for further exploration. When the interviewer speaks the language of her interviewee, this is much easier. Particularly for work on North Korea. This brings me to my fourth point. I cannot stress enough how critical language is as a resource for research on North Korea. This is because language is a resource in North Korea. Many North Korean defectors say that truthful words are more powerful than nuclear weapons in North Korea. I encourage those who use qualitative interview methods with North Koreans to engage using the Korean language, whether through an interpreter or directly. It is a powerful tool for discovering aspects of life in the North, a way to discover the psychosocial space. Language, and its siblings—laughter, crying, and silence—are useful in interviews. Language is a tool for revealing and concealing. In North Korea, words make and unmake the world.

It is for the researcher to determine whether the interviewee is credible. One question is whether it is possible for the interviewee to know the issue. For instance, it would make little sense to ask poor, orphaned young adult North Korean defectors about the nuclear program,
or what the leadership of North Korea aims to do with its nuclear program. However, it would be highly insightful to hear such individuals reflect on what they knew about the word nuclear in general in North Korea. Did they hear discussion of it in the black markets? Did they know what it meant? These questions could inform the researcher about how portions of the North Korean community in their area understand, conceive, and reflect upon nuclear-capable North Korea. Why is this valuable? Because it provides some measure of popular opinion. If ordinary North Koreans never hear discussion of nuclear weapons, think nothing of the matter, and never reflect on it, then such insights could indicate a topic for information campaigns into North Korea. A credible witness is competent to give evidence and worthy of belief.

SIX TOOLS TO MAKE LANGUAGE A RESOURCE

At least six tools are especially valuable in qualitative interviews. They are useful in a range of topics of inquiry into North Korea, or most sensitive topics of qualitative research. They can be used to gain deeper information.

Reported Speech
Reported speech as a linguistic tool pertains to how information is gathered and exchanged, corroborated or dismissed. It is useful for gaining an understanding of how the interviewee recollects learning about a particular matter. Speech can be direct or indirect. Most is modulated, context specific, and changeable according to interlocutor. The context of North Korea should alert the researcher to a sensitivity on how spoken discourse is finessed in the North. How a North Korean learned of a matter is thus a critical point of discovery. Although Korean as a language can easily omit the subject, reported speech is still identifiable in its attachment to the quoted text.

At aggregate, and on analysis, a collection of interviews will demonstrate how most in the sample learned of a particular matter. Reported speech will indicate the degree of open, closed, or clandestine communication in use in North Korea. For example, I asked interviewees how arrangements were made to meet at illegal or dangerous places, such as black markets. If you couldn’t talk about the black market, how did you let your friend know to meet you there? “Oh, we’d say, I’ll see you at the Rodong Department Store. Because the Department Store was useless. We couldn’t buy anything there. They’d know we were talking about the black market.” This example also links to word play humor. An additional aspect of reported speech involves rumors or old wives’ tales. Researchers may be inclined to dismiss both, but doing so would be a mistake. Rumor may be unreliable but is often the currency used to make decisions in information-poor environments. Rumors and their spread can signal the severity of a situation. For example, the rumor that a fingertip was seen floating in soup will be more likely to spread in an environment where access to food is limited than where food access is plentiful. Rather than determining whether the rumor is true or false, a fatal error in research, the researcher should ask what such a rumor reveals about the context of its emergence.

Self-Talk
The idea to solicit self-talk from North Koreans came to me after reading about how successful athletes use self-talk to encourage themselves to get through difficulties. The decision to defect is usually a difficult point of change in the life of North Koreans, often requiring inner discussion or debate beforehand. In Korean, the expression often manifests as conversation with the self “in the heart” or “in the mouth” rather than “in the head.” However, all solicitations for these expressions were understood as pertaining to nonpublic, private talk. My questions took the following form: How did you think about yourself, at that time? How did you talk to yourself about X? These questions can access the inner world of the interviewee at the time of the matter under investigation. The most private rooms remain the heart and the mind. What kind of self-talk echoes in that solitary universe? As Kang Chol Hwan explained in his memoir, “A person dying of hunger will grab a rat and eat it without hesitation. Yet as soon as he begins to regain his strength, his dignity returns, and he think, I’m a human being. How could I have descended so low?” (2001, 142).

Humor and Wordplay
The idea of asking a North Korean about what kind of jokes or humor was common during the famine might seem ill-mannered. However, as I knew from the role it played in the lives of those who survived the death camps of the Holocaust, humor offered important insights. Many memoirs discuss how humor shored up the spirit of victims in the Nazi camps and demonstrate how language changed under the harsh conditions of the camps. These linguistic features of atrocity signaled an area of inquiry in the North Korean case. Expressions of humor and wordplay indicate areas of communal agreement—how else can they spread at an aggregate? They also delineate smaller pockets of unequal power within a community. For instance, some types were more commonly used by men than by women, in the market than at home. Some were reserved for certain occupations. A classic from North Korea is that the secret police eat secretly, the security police eat securely, and the party workers eat like they are having a party.1 This tells the researcher about how inequality was noticed, discussed, and critiqued in the North. If the researcher is aware of common jokes in North Korea, she can use these as a prompt for eliciting other jokes or wordplays. Middle-age North Korean women shared the example that women sometimes referred to men as “daytime lightbulbs.” What is the context of wordplay and jokes? From whom did the interviewee first hear these? What could not be joked about?

Dreams
Dreams may seem an unusual tool. In some cases, it can be insightful, in others,
possibly inappropriate. In North Korea tension is ongoing between the desires of the individual and the dictates of the state. Defectors invariably internalize and wrestle with this tension. Further, defectors—whether in South Korea, China, or a third country—are separated from their first home and likely from family, friends, and certainly their past. As is true for any of us, the world of dreams can function as an antechamber to greater knowledge about desires, fears, and preoccupations. Dreams can afford the dreamer a link to experiences and territories inaccessible in the waking world.

The point here is not to take the role of a psychoanalyst or dream interpreter, but rather to evoke the world of dreams as a way to incorporate more dimensions of the self of the interviewee. Reasonable questions what it means to the interviewee and how they feel in those dreams. Readers of my second book will recall that it starts with my asking Jeong Kwang Il which Korea he is in when he dreams. This question often inspires interesting disclosures from North Koreans.

**Temporal Positionality**

Temporal positionality is a simple tool but often overlooked—to our peril. The present in an interviewee’s life can shape how she interprets her past and her past self in that context. Indeed, a defector may judge her past self as “ignorant” or “naïve” and endeavor to curate a past self for the interviewer. In such cases, it is useful for the interviewer to acknowledge the differences between past and present selves, even of the researcher. Normalizing change in the self, the interviewer could elicit perspectives on how the interviewee understood the events of her past at the time of the experience, acknowledging that those views might not still be the case. Maintaining a temporal frame at set points in the interview, and signaling these to the interviewee, will be useful in clarifying that the past is being discussed and examined by both interviewer and interviewee. What did you think was the main problem of North Korea then? Permit the answer to unfold, and then ask how if at all that differs now, and why.

Temporal positionality can also be useful for identifying, with the interviewee, a critical breaking point—or period—in their lived experience of North Korea. Was there a moment when you realized X? Was there a collection of experiences which culminated in X?

**Cognitive Loading**

It is the right of the interviewee to withhold and maintain privacy. This is reasonable. However, it is sometimes suggested that North Koreans are lying, embellishing, or giving fake testimonies (Song 2015). The concern is that North Koreans imagine that researchers are interested in hearing about horrendous aspects of life in North Korea. This, though, is riddled, circuitous thinking. Song assumes that they assume that she (or we) assume they need to tell us horrific stories. This cognitive looping can be assuaged by avoiding assumption altogether and interrogating our assumptions.

During an interview, if the researcher becomes concerned about the reliability of a portion of the narrative, the technique of cognitive loading can be used to determine whether deception is part of the narrative structure. This technique is recommended with caution because it is a standard tool in interrogation interviews (Vrij et al. 2009). The premise is that the truth is easier to remember than a story that is made up. Ask the interviewee for a portion of her narrative to be retold, using reverse chronology. Prior to that, what happened? And before that? This can be finessed by walking the interviewee back through her story. This process will be more challenging if the story is deceptive, however. Another technique of cognitive loading is to have the interviewee recall a portion of the story in greater detail than initially. Inconsistencies in the narrative should be noted but not evoked as rebuttal. Instead, the interviewee should be encouraged to tell the story again. Repeated telling will likely reveal deception, if it is present. A final technique of cognitive loading is to ask for the narrative to be told while engaged in a cognitively demanding task such as linking up the events in question with key historic details known to the vast majority of North Koreans. This leads to another concern in regard to research with North Korean defectors: cognitive blocking.

**ON COGNITIVE BLOCKS**

Our approach in an interview largely relates to the types of questions we ask and the types of language and narration they elicit. However, the approach must be tempered with an awareness that cognitive blocks will arise between the interviewer and the interviewee. What I call cognitive blocking is when social systems (ours and theirs) are so entrenched as to make alternative ways of being difficult to imagine.

**Reunification and Wealth**

The YouTube channel Asian Boss conducted an interview in 2018 with three young North Korean women and asked them about reunification. Clearly random personal views will not offer particular insight. I evoke this example simply because the framing of the question—its inherent block—appears frequently in research with North Koreans.

At the two-minute mark in the video the male interviewer asks, “Perhaps, when you lived in North Korea, did you ever think about reunification, did you ever think about how to resolve the reunification problem?” The first woman answers, “We are one people, so yes I thought of reunification. But how to bring it about, I didn’t know. I just had the idea that we were one people with one mentality.” The second woman says, “Ever since I was young I always thought it was because of the US and South Korea that we were not reuniting.” The male interviewer asks, “Is that what they said in the broadcasts? That reunification couldn’t happen because of the US and South Korea?” The second woman responds, “Yes, they lead us to believe that North Korea wants unification but cannot have it because of the US and South Korea.” At this point, the interview shifts focus slightly to how the women viewed South Korea when they were living in North Korea. This use of temporal rearrangement is useful, but the interviewer misses a trick. He could have segued into questions about what the women thought reunification would look like when they were back in North Korea. Instead, he moves ahead with questions about a reunified Korea that carry dangerous assumptions: that reunification
of the peninsula would bring about a wealthy peninsula.

The tendency for bias, particularly on the topic of reunification, is significant. For instance, the expression “Reunification would lead to a rich and prosperous Korean peninsula” is not uncommon. Within it is the assumption that reunification would be under the South Korean model of governance. This is implicit because North Korea’s governance is not wealth producing but instead wealth extracting. An interview that gathers the depth of these women’s epistemic experience in the North would have asked different questions: Under what kind of system did you imagine reunification? Was the Kim family governing all of the peninsula? How would South Korea be absorbed into the North, or did you imagine the North to be absorbed into the South? Such targeted inquiries reach into the interviewees’ past to bring their frameworks for thinking into the present. Why is this useful? At least in this example here, concerning reunification, it reminds us that millions of people North of the 38th parallel probably conceive of reunification differently than those in the South and in the rest of the world. The Asian Boss interview would have benefited from asking something other than a yes or no question. For example, in what way do North Koreans want reunification with South Korea?

**War and Wealth**

Another example that illustrates the restrictive frame of our cognitive bias is an off-the-record meeting with North Korean military defectors in 2019. The topic turned to limited resources such as food within the military. “Sometimes we wanted war to break out with South Korea,” one of the former soldiers said, “so that it would put an end to our suffering.” The vast majority of people who read that sentence will likely make a critical assumption: the speaker wanted war to break out with South Korea so that the North would then be absorbed by the South. Absorbed by the South, comfort would ensue. I probed further.

“Life was difficult. So, you wanted war to break out with South Korea. Did you want to win the war with South Korea?” He answered, “Yes.” I clarified: “But the suffering you experienced in North Korea wasn’t from lack of resources, but due to governance.” “We saw it this way: if we absorbed the South, we would become wealthy.”

In sum, qualitative interview techniques need to challenge the interviewer’s assumptions. To wit, the interviewer likely knows that a war between North and South Korea would likely see the South winning. A question that goes against the assumption would ask instead: Does North Korea want to win the war? How would the North’s winning the war bring an end to suffering?

**Knowing Truths**

The third example is one of the public hearings held in Seoul in 2013 for the United Nations Commission of Inquiry into Crimes Against Humanity in North Korea. Two individuals from North Korea’s media industry have been sharing their experiences in tandem. As the lengthy testimony winds down, the floor is opened to all three commissioners for general follow-on questions. Commissioner Darusman asks an open question related to truths and untruths (emphasis added throughout).³

“Thank you to Ms. Jeong Jin Hwa and Mr. Jang Hae Sung. The testimony this afternoon is close to the essence of what we are seeking in the COI [Commission of Inquiry], and that is the state of the truth and how that is conceptualized in North Korea. Now, Ms. Jeong, you were a trained newsreader. Did you sense that, not looking back from [49:00] this point, but then, that what you were reading out was not quite what was the reality? And how did you manage to maintain the disconnects in yourself? In your psyche? Between what you were required to read and what you knew were to be untruths? It would be interesting just to know the state of mind.”

Note that Darusman uses temporal positioning to place the interviewee back in North Korea to enquire about her ability to assess truth then and there. It is set in distinction to how she views the North now with “not looking back . . . but then” to access how she understood and conceptualized truth in the North at that time. Ms. Jeong Jin Hwa answers:

“Well, everyone that works in the press, in the media, the way they think, the way they act, they just think that, we simply just think that . . . we

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2. This sentence can be said in either Korea, and its logic and legitimacy will be upheld by that Korea. This alone should alert the reader to something incoherent in the claim as it is imagined on either side of the DMZ. If both North and South Korea claim that reunification will bring wealth to the entire peninsula then one side’s reunification is the other’s occupation.

have been taught, we just knew that we had to follow everything that Kim Il sung or Kim Jong Il said. So the only truth in [50:00] North Korea is what is said and what is told by Kim Il Sung and Kim Jong Il. If Kim Il Sung or Kim Jong Il said something is white, even if it is black, we have to accept it as the truth, as white. So the announcers in North Korea, we were simply a conduit, a conveyer, a messenger of the ideology or the messages of Kim Il sung and Kim Jong Il . . . so [an announcer is] one of the people with the highest loyalty to Kim Il Sung and Kim Jong Il. So even if what we read was not the truth, we were more than prepared to say it was the truth."

Darusman is seeking an answer to whether truth or its opposite are possibly knowable in North Korea. The answer he gets from Jeong Jin Hwa is that the role of announcers, or anyone in North Korea, is not to determine or know truth. Announcers in North Korea are voice amplifiers for the words of the Kims. The conduit transmits, it conveys, it does not trouble with the content conveyed. Jeong Jin Hwa tells us that truth is unfixed, susceptible to change and reversal because it is made and unmade. It is not the work of the announcer to know whether something is black or white; instead her job is to know that she must merely convey that black or white is what Kim has determined. Recall her saying that "even if what we read was not the truth" it becomes truth in the telling so long as Kim first says so.

Yet Darusman seeks further clarification by asking, "But you knew that was not the truth, did you?" Here the exchange reaches clarity and confusion synchronously. The question carries an assumptive answer imbedded, and in light of this, her response is nevertheless unexpected: "I don't think I knew." Here the temporal frame has dropped: she has dropped it. She does not say "I didn't know" but rather "I don't think I knew." Darusman is trying to get at how, as he phrased it earlier, she managed to "maintain the disconnects in herself" and in her "psyche" and in a roundabout way we have achieved the answer: the disconnect was so great that she cannot even reconnect with it now.

Natural questions arise: What is being misunderstood? Who is misunderstanding whom? Is the misunderstanding due to communication itself, how truth is understood for example? Or is the misunderstanding rather ours (us outsiders) in how we imagine the space of North Korea to be conceptualized? Thus I repeat, Jeong Jin Hwa tells us that truth is susceptible to change, to reversal, to undoing, because it is made and unmade by Kim. In this phrasing, Jeong Jin Hwa linguistically creates a space where Commissioner Darusman, and the audience, are welcomed into the framework of "unknowing" that is the essence of North Korea itself. To wit, just as Jeong Jin Hwa did not know what was white or black, until Kim says so, we likewise are cut off from knowing. We are instead brought into a cognitive frame where we learn that "truth" is an empty signifier determined by the Kims. It is not the work of the announcer to know, but merely to convey what is known by Kim. For announcers, truth telling or knowing is not part of the job. Recall how Jeong Jin Hwa began her answer: "Well, everyone that works in the press, in the media, the way they think, the way they act, they just think that, we simply just think that. . .we have been taught, we just knew that we had to follow everything that Kim Il-sung or Kim Jong Il said."

Choice

During the same panel of public hearings, Jang Hae Sung, a former North Korean journalist, is asked a question about employment and changing jobs by Commissioner Sonja Biserko. "Once you realized that the Juche ideology was really a big lie, would you be able to leave your jobs without, for example, coming [out] publicly that you disagree, just leave the jobs because you disagree, without punishment?" Here a cognitive block appears. Jang Hae Sung does not understand the question. It is incomprehensible. "What exactly do you mean?" Biserko elaborates: "Could you leave your positions without openly saying that you disagree? Would you be punished? Would they ask for the explanations?" This is an intriguing line of questioning. It could be that Biserko knows that leaving a job in North Korea is not something about choice or desire or aspiration, but instead about political lineage (Songbun). Nevertheless, the question proves insightful for the cognitive block it brings up. Once the question to Jang is elaborated, he clarifies:

"[1:21:00] Not really, it's not up to you to quit a job. You have to have a good reason, a good excuse. If I was working as a reporter, if I wanted to quit, then I had to give excuses, I had to give reasons. I can't just leave my job because I want to. So once you have a job, you can't just quit because you want to."

The cognitive block is resolved when Biserko's question—"You don't expect at all any disobedience within the structures?"—meets with Mr. Jang's answer—"No, no disobedience, no resistance. That's just unimaginable." Through this we learn that the impulse to leave a job is not imaginable in North Korea. The initial question on whether a person could leave a job, quietly, for reasons of disagreement was useful for its ability to reveal the cognitive block that provided further detail about the context of life decisions inside North Korea.

ON REFLECTION: A CONCLUSION

Methodologies and tools can be transformative in the right hands yet destructive in others. It should go without saying that researchers need to engage their subjects with dignity and respect, regardless of what information they share, or who they are or may have been in North Korea. It cannot be mechanical, at least where sensitive, emotional topics are concerned. If mechanical, the interviewees will likely sense it. What beats at the heart of the research? A genuine desire to understand the collective experiences of others? To work in the service of our fellows? Research must be shaped by rigor and reflection both. The frames of knowledge and approach presented here, along with the suggested tools, have worked for me in qualitative research with North Koreans as we collectively probe North Korea. Working with North Korean defectors, but also in analysis of North Korea's own propaganda materials on video, these techniques frequently bring clarity and accuracy to analysis.
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Reseaching a Hard Target: Analyzing North Korea with Official Economic Data

ABSTRACT

This paper reviews the growing use of official statistics to draw inferences about the North Korean economy given that the North Korean regime generally treats economic and social data as state secrets. Although it releases some questionable budget data and has collaborated with the UN system in a few areas, such as agriculture and health, most “official statistics” are from trading partners or international organizations. We divide this data into two broad categories—trade and humanitarian aid—and look at through recent developments drawing on data of both sorts. The data underline not only the growing dependence of North Korea on China and the shocks related to sanctions and COVID, but also efforts to circumvent these constraints by participating in new global production networks, among other efforts. Discussion of the limits on such official data includes a possible decline in the integrity of Chinese customs statistics and that errors in the data are not necessarily constant over time, making it difficult to assess trends.

INTRODUCTION

This paper reviews some of the benefits and disabilities of using official economic data to study the Democratic People’s Republic of Korea (DPRK or North Korea). Defining “official” economic data in this setting is complicated, however, by the fact that the regime treats a variety of statistics as state secrets (Noland 2000; Eberstadt 2007). Because the country is not subject to any effective oversight in regard to data production—as, for example, members of the International Monetary Fund (IMF) or World Bank are—the data it does generate are rightly treated with skepticism. Doubts are compounded by strategic incentives to dissemble. At any given moment, it may be in the regime’s interest to underestimate or overestimate a given economic parameter. An example of the former

1. Our thanks to Nicholas Eberstadt, Rudiger Frank, and Benjamin Silberstein for comments and data and to Becky Christofferson for research assistance.
would be low-balling food production to secure foreign assistance or understating trade to demonstrate the adverse effects of sanctions. An example of the latter would be touting domestic production associated with government campaigns and targets.

Given these constraints, we take a broad view of purportedly official data. We consider efforts to use official North Korean government data, such as in regard to the budget and agriculture. Some data that rest at least partly on such official statistics—including earlier iterations of the well-known Bank of Korea series on gross national income and economic growth—are in fact only estimates, and not even derived in a particularly transparent manner.

The bulk of our focus is therefore on official data from sources outside North Korea, and thus of necessity dealing largely with the foreign sector. We divide this data into two broad types. The first is mirror statistics, which are collected from North Korea’s trading partners to analyze North Korea’s trade. In developing mirror statistics, one uses the bilateral exports (imports) of a partner country as an estimate of North Korea’s imports (exports) from that partner. The analysis of North Korea’s trade permits some inferences about the extent of opening, the direction of trade and even structural change in the North Korean economy. In addition to permitting estimates of total trade, these techniques can also be used analyze key relationships, most notably those with South Korea (Republic of Korea, ROK) and China. Aid data from the advanced industrial state donors bears a certain resemblance to mirror statistics, in that they show at least one type of financial flow to the country.

The second external source of data is the multilateral institutions. Because North Korea is not a member of the IMF, World Bank, or Asian Development Bank, these sources are primarily limited to the six UN agencies with a presence in the country: the World Food Program, the World Health Organization, UNICEF, the Food and Agricultural Organization (FAO), the UN Fund for Population Activities, and—largely in a coordinating role—the United Nations Development Program. Of particular significance is the long-standing work of the World Food Program and FAO, which have published highly detailed crop assessments, and the Office for the Coordination of Humanitarian Affairs, which provides useful overviews of UN activities and the underlying donors to them. These agencies have also generated a very different type of data: surveys—primarily on food consumption, health, and nutrition—administered jointly by the North Korean government and UN agencies. This data has been crucial in estimating—but not measuring precisely—the extent of humanitarian distress in the country with respect to food security, nutrition, and access to health care, sanitation, and water.

What is excluded by identifying official data narrowly—as that produced by North Korea, its trading partners, and the UN agencies? We exclude rich sources of data generated by surveys of informants collected by scholars, journalists, or NGOs. One example is the well-known series on rice prices and black market exchange rate maintained by DailyNK and the array of surveys of North Korean refugees (Haggard and Noland 2011). We also do not address in detail data from official sources that we believe are little more than informed guesses, such as that on foreign direct investment maintained by UNCTAD (2020), or from prominent think tanks that estimate based on their sleuthing, such as the Stockholm International Peace Research Institute (SIPRI) data on arms trade (2020). We underscore the importance of interesting new work being done by organizations that are exploiting other sources of official data than those mentioned here, including on maritime and air transport and corporate records, but those sources are addressed for the most part in other papers for this project.

What can be done with this official data and what are the risks? In other settings, the purpose of such data would be causal inference: to estimate the effect of one variable, such as sanctions, on another, such as trade (Haggard and Noland 2017, 96–104). Yet the constraints on the ability to do such modeling are fairly clear, and much use of this data has been descriptive or involved mixed methods approaches to inference. A common style of analysis is to look at time series economic data to see whether changes in the series can be correlated, even if loosely, with political or policy developments either inside North Korea or outside it. We pay particular attention to developments that constitute constraints on the regime or—conversely—suggest its capacity to adjust. We focus on series covering two periods: from 2000 to the present, in effect, from the onset of the prolonged nuclear crisis that began in 2002 and 2003; and from 2010 to the present, showing developments during the Kim Jong Un era, which began in December 2011.

What are the risks of using such data? In general, we can assume that statistics from multilateral institutions and advanced industrial states are largely accurate or susceptible to acceptable error. For example, we have little reason to doubt South Korean data on trade and aid with North Korea. Survey data collected as a result of collaborative projects between the North Korean government and UN agencies should also be seen as broadly reliable, though some geographical regions of the country may be omitted from coverage.

We cannot be so sure, however, about data from other sources—including China, Russia, and Iran—where silences are also nontrivial. The bottom line is that with a country such as North Korea, no single source of data is likely to be dispositive and official sources need to be supplemented with all of the correctives accessible.

**TRADE DATA: UNDERSTANDING NORTH KOREA’S FOREIGN ECONOMIC RELATIONS**

To our knowledge, only one effort has been made to estimate a complete, internally consistent series on North Korea’s balance of payments that includes both the current and capital account (Haggard and Noland 2017). Such efforts are rare for good reason—heroic assumptions with respect to a number of variables. How do we estimate North Korea’s illicit activities or remittances? What about capital flows or reserves?
Confidence intervals around such estimates are bound to be large.

Most efforts in this vein thus begin with what can be captured by mirror statistics from North Korea’s trading partners. The fine points of using such data are not insignificant; discussions are extensive about how the IMF’s Direction of Trade and the UN Comtrade databases are prone to error, and that the data historically provided by the Korea Trade-Investment Promotion Agency (KOTRA) and now available in its annual review of North Korea’s trade is more reliable (see Kim 2017, 161–73). For our estimates of North Korea’s global trade, we rely on Korea Statistical Information Service (KOSIS), which in turn relies on the Korea Trade-Investment Promotion Agency’s (KOTRA) annual report on North Korea. We also look at other South Korean government sources that can assumed to be reliable and Chinese customs data, which likely involve some omissions, though we think they should not be exaggerated.

**Aggregate Trade and Its Direction**

We start in figure 1 with North Korea’s observed merchandise trade from 1990 through 2019, estimates that exclude any service transactions, which could be significant. A 10 percent cost, insurance, and freight on board adjustment is applied to values reported from partner countries. Inter-Korean trade designated as noncommercial by the Ministry of Unification is excluded. Typically, such data can be used to measure trade openness: total trade as a share of gross national product (GDP). As we discuss in more detail, however, we lack meaningful estimates of North Korean GDP. More accurately, we are hesitant about the ones we have. Nonetheless, this broadest of trade series can be taken as a rough proxy of the de facto openness of the North Korean economy, particularly during periods when trade appears to be growing very much faster than likely GDP growth. The series tracks fairly well with the known economic history of the country. The descent into the mid-1990s famine is reflected in the decline of both observable exports and imports in the first half of the decade. But North Korea does not adjust even once the famine has subsided: the decline in total trade continues thereafter, reaching a nadir in 1999 at about 40 percent of 1990 values.

Starting around 2000—and resulting in part from a rapprochement with China—trade starts to take off. Several hypotheses have been floated about this apparent opening, including shifts in Chinese policy that send signals of greater openness to economic engagement (see Reilly 2014a, 2014b, 2014c) and the rise of global commodity prices (Haggard and Noland 2017). From mid-2006 forward, North Korea was subject to a succession of ever-tightening multilateral sanctions contained

2. Because mirror statistics look at trade data from the perspective of foreign partners, they do not capture earnings from or payments to North Korea. North Korea’s imports, or a partner country’s exports, are usually recorded on a freight on board (FOB) basis, but to import such merchandise, North Korean importers are paying the cost, insurance, and freight (CIF) charges of transporting the commodities to the DPRK. Similarly, when looking at North Korea’s exports, we should convert it into an FOB basis, because that is what North Korea actually earns. A conventional way to perform CIF to FOB conversion is to either divide or multiply CIF or FOB by 1.1. We have followed that convention here (Eberstadt 2014), though the accuracy of these estimates will vary by shipping costs and thus probably by proximity.

3. UNSCR 1695 of July 2006; UNSCR 1718 of October 2006; UNSCR 1874 of June 2009 and UNSCR 2094 of February 2013
map with sanctions: the closing of the Kaesong Industrial Complex in 2016 and a gradual shift in the Chinese approach to sanctions starting in the same year are clearly consequential. Yet, as we argue, we cannot be assured that the contraction is as sharp as it looks if North Korea is shifting toward other foreign exchange generating activities unrelated to the path of its merchandise trade.

Another interesting finding from this simple series is that North Korea manages to maintain a current account deficit with the rest of the world, and that deficit even widens during the rapid trade growth between 2000 and 2015. Some analysts focus on the question of how this deficit is financed (for a review, see Haggard and Noland 2017). The options are limited—and by no means mutually exclusive—and each would require a full paper to explore in its own right. The important point is that no meaningful data pertains to any of the contending hypotheses.

First, the deficit could be made up in part by invisible or service transactions, from labor remittances to other services such as provision of shipping. It could be financed by foreign direct investment or other capital flows; the only related series we have, however, UNCTAD’s guesstimates, shows that net FDI peaks in 2012 and declines to approximately zero in 2017 and 2018 before turning up slightly in 2019. Third, it could be financed by aid, or effective aid in the form of arrears to Chinese companies. Finally, it might be that the regime is financing these deficits by running down reserves, presumably held abroad in banks in jurisdictions willing to flout UN financial sanctions.

Trade data can be used to capture not only the extent of trade but also its geographical diversification and—conversely—changing patterns of North Korean dependence. Figure 2 shows data on North Korea’s total trade with the so-called Five Parties—China, Russia, South Korea, Japan, and the United States—as well as with the rest of the world; note

in a succession of UN Security Council resolutions. Whether these sanctions had any effect on observed trade is uncertain; trade growth could have been higher still in their absence. They were initially defined relatively narrowly, though, around WMD-related materiel, major weapons systems, and a weakly-enforced ban on luxury good exports to the country. The gradual introduction of complementary multilateral sanctions on financial flows in later resolutions was similarly tied to WMD and weapons-related activities and did not in principle affect the financing of commercial trade.

By 2015, total trade was more substantial than at any point in the 1990s and 2000s. That, however, proved to be a peak and total trade began to contract quite rapidly. This contraction does at least

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4. A number of analysts—notably William Brown (2018b)—have focused in on the macroeconomics of the deficit and in particular the question of the exchange rate. A second strand of related work has looked at how trade data may be correlated with the market price data we have from DailyNK (see, for example, Silberstein 2019, 2020b). Both topics are crucial but take us beyond our focus here.
that these are trade shares and thus capture the relative significance of the countries in question. Data of this sort can be read through both economic and political lenses: Where are there natural complementarities? How has North Korean trade been shaped by political alignments?

It is striking that in 2000, DPRK trade was quite diversified: China, South Korea, and Japan each accounted for about 20 percent of North Korea’s trade and the rest of the world made up much of the difference. That the United States accounts for little of North Korea’s trade is hardly surprising. More noteworthy is the limited economic role that Russia plays. As Eberstadt, Rubin, and Tretyakova (1995) show in an early use of mirror statistics, North Korea’s trade with the Soviet Union and then Russia collapsed between 1989 and 1993 and never really recovered. This outcome cannot be laid at the doorstep of politics; it may reflect a simple lack of natural complementarities and the limited ability for Russia to play a significant economic role in regard to North Korea.

The most interesting developments over time are seen in the South Korean, Chinese, and rest-of-the-world shares. South Korea’s commercial trade with North Korea has depended heavily on politics in the South. South Korea’s trade share grew during the Kim Dae Jung and Roh Moo Hyun eras, but then flattened and even declined during the presidency of Lee Myung Bak before turning up under Park Geun Hye as a result of the Kaesong Industrial Complex coming fully online. But sanctions clearly play a role and North-South trade ultimately falls to virtually zero as a result of the combination of sanctions imposed after the sinking of the Cheonan in 2010 and the ultimate closure of Kaesong in 2016.

The steady decline in trade with the rest of the world likely reflects a combination of general hesitance about dealing with the country after the onset of the nuclear crisis, the sheer difficulties of doing business in the country, and multilateral sanction commitments. However, if we repeat this exercise on direction of trade focusing not on North Korea’s total trade but instead on exports, we see a sharp uptick of roughly 15 percent in exports between 2017 and 2019 (figure 3). The three top rest of the world export destinations in 2018 were Pakistan, India, and Bangladesh, and in 2019, Vietnam, Bangladesh, and Pakistan. Clearly, this increase reflects an effort to diversify by focusing exports on lower-income countries where North Korea’s technological disadvantages are offset by a high degree of price competitiveness.

Nonetheless, the major storyline from figures 2 and 3 is both clear and well known. Particularly during the Kim Jong Un era, China has come to occupy a dominant position in North Korea’s total observed merchandise trade—accounting for about 95 percent of it in 2019. This finding clearly casts doubt on claims that Beijing has no leverage vis-à-vis Pyongyang. Figure 4 provides a broader look at China-DPRK over the entire nuclear crisis period, demonstrating the more or less steady increase in trade from 2002 to 2014 before it plateaus and then falls, particularly precipitously on the import side. As figure 5 makes more clear, however, the fall-off in trade did not affect North Korean imports and exports equally: exports were constrained by sanctions, imports from China continued and as a result Beijing incurred a steadily increasing current account deficit.
Trade data can not only be used as a guide to total trade and its direction but also be interrogated with respect to commodity composition and even prices. Many projects are possible here; we touch on only a few as examples of how North Korea seeks to break out of existing constraints (for more examples, see Haggard and Noland 2017, chapter 2).

One question is whether China has been indirectly supporting the regime not simply through aggregate trade but through key commodities, including oil, which is subject to complex sanctions caps, and food. Figure 6 looks at the first question, figure 7 at the second. At least in the official data, it appears that Chinese exports of oil products to the DPRK have fallen dramatically with sanctions. Yet this is also precisely the period when a succession of UN Panel of Experts reports, and other intelligence has focused in on ship-to-ship oil transfer and smuggling; the official data here wildly underestimates total trade. Food data may be less sensitive to this problem, but some patterns are distinctive. It appears that China engineered large food exports right around the succession in late 2011 and early 2012. It also appears that China has been responsive to the recurrence of distress in 2018 and 2019 and into 2020 as well although it is far from clear that these imports were enough to fully offset losses.

If the Chinese data is accurate in at least suggesting a major external shock to North Korea starting in 2017, data on commodity composition can be used to provide insight into how the country is responding to that shock. One way of doing so is to look at data at the sectoral level and at significant shifts. Figure 8 shows the import share of a number of major commodity groupings at the two-digit Harmonized System Codes (HS Codes) level: mineral fuels, mineral oils and products of their distillation, nuclear reactors, boilers, machinery and mechanical appliances (in fact, a product category not limited to or even reflective of nuclear-related trade), and machinery and electrical machinery and equipment. All have been declining over time, particularly after the announcement of new rounds of UN sanctions (UNSCR 2371, 2375, 2397) in 2017, which capped imports of crude oil, natural gas, and refined petroleum and banned all machinery, metals, and vehicle (HS 72-89) imports. In contrast, the import share of plastics, man-made filament, and clocks and watches has been increasing over time, and now accounts for around 20 percent of North Korea’s total imports.

Figure 9 repeats this exercise on the export side looking at the export share of mineral fuels, mineral oils, and distilled products; articles of apparel and clothing accessories; and fish and crustaceans, all of which declined sharply after UN sanctions fully banned the exports of textile, seafood, and coal in 2016 and 2017. In contrast, the exports share of export-processing and manufacturing products, such as clocks and watches, feathers and down, artificial flowers, medical or surgical instruments, footwear, toys, games, and sports accessories all increased sharply after 2017.
A consideration of this data suggests both a kind of resilience on the part of North Korea and how China facilitates the country’s survival. Putting the export and import sides together, we see a decline in traditional industries and particularly in sanctioned products, but the simultaneous emergence of new international production networks between China and North Korea in light, labor-intensive manufacturing that is not subject to sanction.

This finding can be reinforced by looking at the import products with highest growth rates in 2019 (figure 10). These include plastics, clocks and watches, man-made filaments, and tobacco products. The plastics and man-made filaments imports have been mostly trending upward, even before 2011. Clocks and watches are a new industry that shot up after 2017. Figure 11 repeats the exercise on the North Korean export side. The graph shows the exports of clocks and watches, feathers and down, artificial flowers, medical or surgical instruments, footwear, and toys and games and sports requisites that have all surged after 2017.

A closer look at China-North Korea trade at still finer sub-categories of clock and watch parts further underscores China’s indispensable role in North Korea’s emerging assembly industry. As figures 12 and 13 show, North Korea clearly imports clock and watch parts from China, and then exports assembled clocks or watches back to China. In 2019, the exports of clock and watches accounted for about 23 percent of North Korea’s recorded merchandise exports to China (KOTRA 2019). Equally interesting, these exports to China constituted only 20 percent of total exports of these goods, suggesting that North Korea is in fact becoming a platform for exports to other markets as well.

In sum, it appears that the UN sanctions after 2017 not only struck its traditional mining and heavy industry exports to China but also affected North Korea’s emergent apparel and seafood industries. The externally induced economic crisis forced North Korea to begin a process of restructuring to focus on other export-processing activities that could evade sanctions. The economy became more dependent on imported inputs in these sectors—plastics, man-made filaments, and parts of clock and watches—with exports making corresponding gains. In 2019, for example, plastics and man-made filaments imports accounted for 16 percent of North Korea imports from China. The exports of clock and

statistics, no meetings in 2016 and 2017 followed by thirty-six meetings in 2018. Here we focus again primarily on the economic relationship, which is neatly summarized in figure 14. South Korea breaks down its trade with the North into somewhat unusual categories. We sum general trade and processing on commission trade because these come closest to what we would think of as purely commercial interactions; a first point to make is that though this trade plays an important role in the origins of North-South trade, which actually date to Roh Tae Woo’s Nordpolitik, commercial trade is subsequently overshadowed by two other categories: trade associated with economic cooperation projects—most notably the Kaesong Industrial Complex—and noncommercial trade, which is dominated by food and fuel exports. Nominally financed by loans with the North, it was widely recognized even at the time that this trade was likely to be unrequited.

The Sunshine Policy under Kim Dae Jung and Roh Moo Hyun saw the rapid rise in noncommercial trade that came to dominate total trade through 2004. The Lee Myung Bak administration subsequently pulled back from the open-ended support offered under the center-left governments and that support never revived, even under Moon Jae In. The collapse of more purely commercial trade from 2010 is a result of the so-called May 24 sanctions following the sinking of the Cheonan.

Despite these sanctions, Lee Myung Bak and Park Geun Hye did permit the continuation of the most important of the economic cooperation projects: the Kaesong Industrial Complex (KIC). After a tourist was killed at Mt. Kumgang in 2008, however, North-South trade was solely KIC trade, which centered on light-labor manufacturing based on imported South Korean inputs. The shuttering of the KIC ushered in a period of extremely limited North-South economic exchanges that has continued into the Moon Jae In era.

Finally, data on the Inter-Korean Cooperation Fund, which tells a broadly similar story (and with even more granular detail than shown in figure 15),
warrants mention. The fund is financed through a particular tax contribution and has continued to grow. Deposits from the Public Capital Management Fund account for the largest share of the fund sources, followed by government and nongovernment contributions and then operating profits. Actual expenditures were concentrated in the Sunshine years and in the last decade much has actually gone to activities and groups in the South. Nonetheless, the fund is a potential instrument for the government were a breakthrough of some sort to be reached.

HUMANITARIAN AND AID DATA: THE ROLE OF THE IFIS

UN agencies in North Korea generated additional information on the country. Three quite different types of data from these sources might rightly be considered official. The first deals with aid, and because—like mirror statistics—it comes from donor countries can be considered reliable. The second covers selective data sharing and some collaborative data generation projects. Assessing the veracity of this data is more difficult because of North Korean motivations: the regime shares data selectively and typically when it has some instrumental reason to do so. One likely source of bias in any survey data is that the government may not appreciate the importance of randomization and appears to prohibit access to certain parts of the country. Given this important qualification, the data appears to come from North Korean civil servants and their counterparts in the UN and NGO communities.

Third, the OCHA complex of institutions also reports on the extent of the humanitarian challenges in the country, typically summed up by the number of vulnerable individuals or households. At one level, this data might be dismissed given that it is really nothing more than informed estimate. On the other hand, it is actually quite informative because it provides insight into planning by these institutions—what they believe the extent of humanitarian need actually is.

The substantive findings from this data are easily stated. First is evidence of aid fatigue: a declining willingness to extend support to the country. Second, the overall humanitarian assessments of North Korea do appear to have an empirical foundation. The country has not managed to resolve long-standing issues in its agricultural sector, wherever role natural shocks might have played, and large swaths of the country’s population remain highly vulnerable as a result.

Aid Data
A number of countries sustain aid programs to North Korea and some studies of these efforts have been undertaken, based on official statistics, including from the United States (Manyin and Nikin 2014) and Europe (Alexandrova 2019). A significant share of all aid to North Korea—beyond that extended by South Korea and China—passes through UN agencies.
Each year, the UN Office for the Coordination of Humanitarian Affairs (OCHA) issues a document titled DPR Korea Needs and Priorities. As noted, these reports are useful both for actual data they report and for the estimates they outline of humanitarian need, to which we return in more detail. For tracking actual aid, however, a particularly important source of official data is the Financial Tracking Service (FTS) maintained by OCHA. The FTS is a centralized source of data emanating ultimately from government donors, UN-administered funds, UN agencies, and NGOs. A major FTS shortcoming is that China does not report its bilateral assistance, and other bilateral donors may also not submit information to it. Nonetheless, the FTS does provide credible data for aid from the UN system and from the advanced industrial states that appear to be reliable reporters, including both aid they channel through the UN system that takes place bilaterally. Moreover, the dataset can be used to track not only actual commitments, but also overall estimates of need, whether appeals are funded, and who precisely is contributing to them.

Figure 16 tracks reported aid flows since 2000, when North Korea first shows up on the FTS website. North Korea first opened itself to humanitarian assistance in the middle of the great famine of the mid-1990s. Aid-seeking subsequently became a significant aspect of the country’s foreign economic relations and indeed of its grand strategy. How much aid to supply and in what form also became an ongoing quandary for donors: What should be given to a regime that fails to address the most basic human security of its population? Outside donors have generally been reluctant to provide hard currency to the regime because of fears of diversion. The bulk of reported aid has thus come in the form of in-kind contributions of food and other humanitarian goods; this was true of South Korea as well. Nonetheless, money is fungible, and as Haggard and Noland (2007) show in Famine in North Korea, as aid increased following the famine, commercial imports of food actually declined.

Aid peaked at over $350 million in 2001 and 2002—well after the famine had subsided—but several trends since that time are noteworthy. The first is the obvious decline by the mid-2000s. North Korea has certainly not experienced a humanitarian crisis on the order of magnitude of the famine since then, but it has seen recurrent food deficits, most notably between 2010 and 2013 (when aid does increase) and again between 2018 and 2019 (when that increase is much more modest). It is possible that aid fatigue is related to the onset of the nuclear crisis.

The hypothesis that reluctance to provide extended humanitarian support is increasing is suggested by three

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6. The one dataset that is seeking to collate Chinese aid data in a way that is useful for researchers specifically warns users away from their North Korean data: “Our dataset uncovered 20 projects to North Korea totaling $272.65 million (including pledges), but we have reason to believe that this is a substantial underestimate of total Chinese official financing to North Korea” (AIDDATA, https://www.aiddata.org/pages/how-to-use-global-chinese-official-finance-data)
noteworthy trends in the data. First, NGO support fell steadily in the first half of the 2000s. Second, reported bilateral assistance—again mostly from the advanced industrial states—fellowed suit, declining from 2007 or 2008 forward. By 2010, just before the Kim Jong Un era, bilateral aid from these sources had dried up.

Finally, this reticence is also visible in the data on the so-called combined appeals. These outline a broad array of needs but are funded overwhelmingly by commitments from member countries. Combined appeals were issued only once between 2005 and 2010, but we compared the extent to which they were fulfilled between 1996 and 2004 with the period from 2011 to 2019, measured as the ratio of contributions from member states to the stated need. In the first period, appeals secured 68.8 percent of financing, in the second only 35.3 percent, despite the fact that those requests were also failing. We also tracked the number of countries contributing to UN efforts through OCHA. Between 2000 and 2010, an average of seventeen countries contributed; between 2010 and 2020, an average of twelve had.7

Much more complementary research would be required to confirm the proposition that North Korea’s aid-seeking strategy has met with greater resistance; we would ideally control for level of need. But North Korea’s turn to China for support is visible not only with respect to trade but on the aid front as well. Moreover, we know from studies of major players including Korea and the United States (Manyin and Nitikin 2014) and Europe (Alexandrova 2019) that aid fatigue has set in, that donors—including both governments and NGOs—are increasingly reluctant to extend humanitarian assistance to North Korea in an open-ended, long-term way.

Data Sharing and Collaborative Data Generation
UN agencies have also managed to secure selective data sharing efforts and even collaborative data generation activities with their North Korean counterparts. Two particular efforts in this regard bear noting. The first involves the highly detailed WFP-Who crop assessments, which provide important insights into the rural sector (WFP-FAO 2014; FAO 2015; WFP-FAO 2019; see also Korea Rural Economic Institute). These have been used—sometimes in conjunction with weather and satellite data (Dinville 2017)—to track, estimate, and predict crop yields (for example, Ireson 2013). More important, they have also been used by a number of scholars to estimate overall food balances and possible shortfalls (Haggard and Noland 2007; Haggard, Noland and Weeks 2008; Ireson 2013; Silberstein 2015; Haggard and Noland 2017, chapter 4; Silberstein 2020). This can be done by aggregating total sources of supply—production, food aid, and commercial imports—and comparing those against various estimates of human need, ranging from an absolute consumption minimum to those that would take account of inevitable losses and other uses, particularly animal feed and seed use. In addition, these assessments often included survey data on households, including rations from the Public Distribution System, market prices, and even survey data on household consumption and coping mechanisms, such as the share of households consuming less preferred foods or reducing the number of meals.

These exemplary reports also point to the deeper data problems with respect to North Korea, given that in-country visits were suspended from 2014 to 2019. Yet the richness of potential data is on display in the 2019 report (WFP-FAO 2019)—when North Korea was experiencing shortfalls—and would merit an extended treatment on its own. Among other things, this “rapid food security assessment” includes data on national harvested area, fuel and fertilizer supply, yields and production.

Yet for assessing external constraints on North Korea, the most interesting portion of the report focused on food crop supply-demand balance. The data go to the core of North Korea’s failed agricultural system. Total use outstrips domestic supply by 1.5 million metric tons (MT), but “anticipated commercial imports” are estimated at only 200,000 MT and aid at 21,000 MT. The uncovered deficit: 1.36 million MT, more than 35 percent of total domestic supply.

A second source in this basket of collaborative data exercises are a series of health and nutrition surveys; the latest of these appeared in 2012 (DPRK 2012) and 2018 (UNICEF 2018). These surveys pose two problems. First, they are not regular and thus can chart trends only in a choppy way. Second, outside agencies and donors have faced challenges in regard to geographic access to particular regions of the country. That said, if we take into account the second limitation in particular—that surveys may not be fully representative—they nonetheless do appear to provide useful insights into health and particularly nutrition in the country.

In summing the findings of the data on the rural sector and health and nutrition, it is worth restating the obvious: that whether we think the data is fully accurate, North Korea remains a poor country with a highly vulnerable population. The core findings of OCHA’s most recent DPR Korea Needs and Priorities (2020) bear restating and reflect the organization’s operational priors:

- In a population of approximately twenty-five million, 10.4 have been designated as vulnerable “people in need.”
- Around 10.1 million people—40 percent of the country—are food insecure.
- One-third of children age six to twenty-three months do not receive a minimum acceptable diet.
- According to the 2019 Joint Monitoring Program report, about 8.4 million people, some 33 percent of the population, do not have access to safely managed water sources, that number rising to 50 percent in rural areas.

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7. One result of this decline in support is that a greater share of multilateral funding comes out of the Central Emergency Response Fund, a limited pool of resources that the UN Office for Coordination of Humanitarian Affairs can use if their appeals to country donors fall short (https://cerf.un.org/search/node?keys=DPK). Given underlying resource constraints, however, the CERF cannot fully substitute for shortfalls in the combined appeals.
NORTH KOREAN DATA

We have focused so far on official data generated outside North Korea: by trading partners and by international organizations (if working with North Korean officials, as we have seen). What about data generated either by the North Korean government or that rests in whole or part on information generated by North Korean data? Because some confusion is likely, it is worth being precise about definitions. Aside from the joint projects undertaken with the noted international organizations, or data shared with them (such as about crops), North Korea releases only two types of “official” data: annual budget data and the periodic national censuses, the last two of which took place in 1993 and 2008.

What all analysts of North Korea would like to know more than anything else is the aggregate size of the North Korean economy and how rapidly it is growing. For a number of years, Rudiger Frank (2018, 2019, 2020) has reported on the SPA meetings that generate the budget data, looking at the budget reports both as a signal of policy trends but also treating growth in the budgets as a rough proxy for GDP growth; a time series from his most recent report in this vein is reproduced in figure 17. Initially reported in local currency, the figures are now reported only as annual growth rates. As shown in the figure, the data are broken into three series: planned revenue and expenditure—essentially goals—and achieved revenue, which lags by a year.8

What can these data tell us?9 Frank makes two points about the numbers. The first is that although we really do not have a very good sense of what either revenues or expenditures are, the changes in them over time contain at least some information. As he puts it, “if we assume that the error margin—resulting from deliberate adjustment of the numbers and/or differing accounting standards—is relatively stable over time, a comparative analysis of this kind of data can provide clues on development trends” (2019).

But Frank goes further, arguing that the budget data can be used as a proxy for aggregate output or growth. The state-owned sector is still the largest component of the North Korean economy and about four-fifths of all revenue is derived from transactions taxes and profits of state-owned enterprises. The significant military economy and the emergent private sector are not captured by these numbers. But Frank makes an important institutional point: the budget does not only include the SOE sector but captures revenue from the quasi-private markets as well, for example via licenses and stall fees. Critics emphasize uncertainty about what is in the data and the complexities surrounding the fact that it shows nominal and not real growth; we do not know much about inflation, which could vary year to year and thus affect the real growth rate. Nonetheless, Frank argues that it can be seen as a reasonable aggregate measure of the nominal growth of total output.

We are more skeptical. First, the early 2000s are not generally believed to be a particularly good time for the North Korean economy, but this data shows it growing quite dramatically if we take the data as a proxy. The somewhat chaotic period of reform just prior to the onset of the second nuclear crisis in 2002 and 2003 generated very large increases in the budget before growth was brought to heel between 2006 and 2008. This, though, could well have reflected the effects of the very limited price liberalization of the reform era. Second, during the run-up to the succession, budgets increased at steadily increasing rates through 2012, since which time budgets have been largely flat. But it was the early Kim Jong Un era—not the late Kim Jong II period—that was supposed to relax constraints on growth and in which impressionistic evidence suggested a modest upturn. Finally, if North Korea were growing at the rates suggested here, its performance over the entire period would in fact be quite robust. This means that some downward adjustment from budget

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8. As Frank (2019) points out “higher growth rates for expenditure over revenue are not a sign of deliberate deficit spending since the figures for actual, or ‘achieved’ revenue are usually higher than planned and thus lead to a more balanced budget and occasionally even a small surplus, at least according to the official figures.”

9. Our thanks to Rudiger Frank for his comments on the data.
growth to GDP growth is required, but by how much? It is impossible to tell.

So, what can we say from official statistics about the size of the North Korean economy and its growth performance? Our view is that the answer is “almost nothing.” Since 1990, the Bank of Korea has estimated North Korean GDP using data on the volume of output, multiplied by South Korean prices for the same goods, and from this derived a nominal—again not real—growth rate. However, it is important to underscore that the data on the volume of goods and services produced by the North are themselves not taken from official North Korean sources (at least, after the late 1980s when a number of official series ceased), but rather are estimated from satellite data and other sources of intelligence collection; the underlying estimates provided to the Bank of Korea come from none other than South Korea’s National Intelligence Service. The Bank of Korea estimates have been subject to recurrent criticisms that need not detain us here (Kim et al. 2007; Noland 2001, 2014, 2015, 2016, 2017; Kim 2017, 70–83; Brown 2020).

But two recurrent problems are worth noting. First, even if we had good series on agricultural and industrial output, we only have consistent data on prices for rice and the exchange rate, and that only from relatively recently and via informants. Second, it is difficult to assess the role of markets and of the service sector more generally. Recently, for example, Byung-Yeon Kim (2019) notes that growth rates in the early Kim Jong Un years may have been significantly underestimated—by as much as one percentage point—by not taking into account market activities. Despite the heroic efforts to generate such estimates, we have little confidence that we are likely to get anything meaningful, and that it may be time to turn to altogether different sources, such as tracking night lights through satellite data.

CONCLUSION

Academic work has strict standards for data use, which start with concerns about validity and reliability. How much random error is acceptable? What—if anything—can we do about bias or error that takes a consistent direction or form, particularly when magnitudes—food production shortfalls, for example—are consequential? Dealing with black boxes like North Korea pose these problems in spades, and it is tempting to throw up our hands and say that none of the data we have is of much use. This would be a mistake for two reasons. First, we have no choice but to try to make sense of the data we do have. Second, a purist approach is misleading about the extent of error. In fact, some of the data we have are likely to be both valid and reliable. We start with observations about how we can assess data from different sources. We then speak briefly about some of the things we have been able to infer from extant data. We close by arguing for a multimethod approach: that we should not rely on any given source of data on its own, but instead should combine it with sustained conjectures—in effect theories of the case—and triangulation with multiple sources that go far beyond official ones.

We close by arguing for a multimethod approach: that we should not rely on any given source of data on its own, but instead should combine it with sustained conjectures—in effect theories of the case—and triangulation with multiple sources that go far beyond official ones.

Let’s start with a loose hierarchy of likely reliability and validity. Data from advanced industrial states and the UN family about their own activities is likely to be highly reliable. These entities are constrained by strong data-production norms and typically do not have obvious reasons to misrepresent what they are doing. However, even these organizations may be prone to unmotivated error, or less politely, mistakes. For example, not rely on any given source of data on its own, but instead should combine it with sustained conjectures—in effect theories of the case—and triangulation with multiple sources that go far beyond official ones.

Ties with North Korea. The result is that the role of developing countries in North Korea’s total trade could well be underestimated (Marumoto 2009; Lee 2014; see also figure 3 notes). A second problem is that KOTRA data on South Korea’s aid to North Korea may also mislead somewhat despite the overall reliability of South Korean trade data. Humanitarian food shipments were valued not at prevailing international cereal prices but instead at the often much higher prices in the ROK’s protected domestic agricultural markets. Moreover, some quasi-official financial transfers to the regime may not show up at all; witness the secret payments by the Kim Dae Jung government to secure the historic
June 15, 2000 summit in Pyongyang—a sum whose exact total is still a matter of dispute and needless to say has never been reflected in official ROK figures on its relations with the North.

What about other official sources of consequence that may not be subject to the same reporting norms as those of the advanced industrial states? The most important case in this regard is China. In the Appendix we compare the Chinese customs data with the KOTRA/Korea Statistics data on Chinese exports and imports and note the possibility of some underestimation of Chinese exports to North Korea starting in 2014. But the problems could be larger. Some studies have pointed out non-negligible data discrepancies across UN and KITA databases at the product level, which could be due to reliance on different data providers, different product classification methods or simply human errors (Lee 2013). More troubling, we have clear historical evidence that China has obfuscated politically sensitive data. For instance, after North Korea’s second nuclear test on May 25, 2009, and the subsequent UNSCR 1874, the China Customs Bureau subsumed bilateral trade from August to November into the category “Other Asia, Not Elsewhere Specified” (Buckley 2009). Another example is an estimated $500 million in unreported crude oil exports in 2014 or 2015 (Haggard 2016). Although we suspect that the product-level data we have used here is useful for understanding current shifts in North Korean participation in new global production networks, we cannot rule out at some later period that such data would be seen as controversial and then misstated as a result.

One additional issue has not gotten the attention it deserves: China Customs statistics exclude trade through Hong Kong, despite the fact that the city appears to play a considerable role as re-exporter of goods originating from and headed toward the mainland. Moreover, there appear to be tax reasons why trade is routed in this way, suggesting an important channel for DPRK-China trade that tends to be ignored (Schindler and Beckett 2005).

With all of these qualifications, however, the problems with Chinese data may not be in the merchandise trade data itself; rather they lie in the fact that other sources of support for North Korea are not reported except indirectly. The current account deficit suggests at least the possibility of aid, financing or other current account income. The large volume of illicit exports of coal and sand and the acquisition of virtual currencies via cyberattacks disclosed by the UN Panel of Experts report in 2020 provide exemplary clues. Through ship-to-ship transfers, self-propelled barges and direct deliveries by foreign-flagged vessels, North Korea appears to have exported at least 540,000 tons of coal in three observed months in 2019 and one million tons of sand in 2019, as well as $120 million in revenues from fishing rights transferred in 2018. These do not show up in Chinese trade statistics because they constitute service transactions in the case of fishing, but because they circumvent Chinese Customs altogether in the case of illicit coal and other mineral imports.

What about the data generated by the UN organizations, either as a result of selective data sharing or particularly by the handful of highly detailed surveys conducted jointly by the organizations? These efforts might also be motivated—they are conducted because North Ko-
The national budget data probably do contain some information to the extent we believe that what is reported is reported consistently, but we are doubtful that it can be treated as a proxy for economic growth. In conclusion, what has all of this official data been able to tell us? Here, we simply tick off those we think are the most substantively significant.

- North Korea did witness a de facto opening and growth of trade starting in 2000 and extending into the mid-2000s. Yet despite Kim Jong Un’s image as a reformer, it appears that North Korea’s efforts in this regard stalled out under his leadership. This could be due in part to adverse external developments such as the decline in commodity prices, the onset of a more vigorous sanctions regime and the COVID crisis. The data, though, suggest that the problems emerged before Chinese sanctions were tightened and thus reflect ongoing difficulties the country faces from its choice to pursue nuclear weapons and the ongoing difficulty in doing business with the country.

- That said, the data on the country’s current account deficit and related research on the stability of prices and the black market exchange rate suggest that merchandise trade is not the only source of foreign exchange for the country. It is clear that additional current account income as well as unrequited transfers—aid or arrears—as well as possible capital flows are not captured in this data. North Korea could well be receiving foreign direct investment from China, and we know that it certainly has in the past, such as in the mining sector. Although those investments have probably ceased, other areas—including real estate and manufacturing—are large blind spots in reported data.

- Official statistics can provide evidence on North Korean efforts to adjust to external shocks. Of particular interest in the recent period are efforts to diversify trade away from China by courting other markets and to develop new industries, particularly light, labor-intensive manufacturing.

- The international community, including South Korea, has tired of providing open-ended support for the country. Aid appears to have fallen from all sources for which we have credible information. It would take more extended discussion to decide if this is the result of shifting need, but if we think North Korea is in fact constrained by external developments, then need should have increased not decreased.

- Not surprisingly, the official data we have provide little insight into the extent of illicit activity.

- The data on agricultural production and health and nutrition that is available suggest ongoing humanitarian concerns: an inability to overcome long-standing problems of productivity in the agricultural sector or to reduce basic distress.

It is important to close by stating the obvious. Given the bounded nature of official statistics from important partner countries and the opaque nature of North Korean data itself, relying solely on official statistics is a fool’s errand. Data analysis on North Korea—no matter how careful—bears a closer resemblance to financial forensics than standard political economy analysis. Supplementing accounts based on these sorts of data with a variety of other sources—from satellite imagery, to other sources of official records such as those tapped by the outstanding work of the Center for Advanced Defense Studies (C4ADS) (Kuo and Arterburn 2019; Arterburn 2018; Sejong Institute 2017; Thompson 2017), to surveys of companies and refugees—is de rigueur.

**APPENDIX: A NOTE ON CHINESE TRADE STATISTICS**

Figures 18 and 19 compare monthly data and annual data on EPS China Data collected directly from China Customs and the KOTRA/KOSIS data. They are nearly identical for imports over the period but starting in 2014 KOSIS/KOTRA data suggests that Chinese exports to North Korea may be underestimated but the reasons are not clear. KOTRA notes that the methods of collecting North Korea trade statistics since 2014 were changed to reflect information both from Chinese customs and from specialized global trade statistical sources but it did not specify what these organizations are or what corrections were made. Nonetheless, it is worth noting the discrepancy as it could be motivated.
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The Uses and Challenges of Satellite Imagery in Researching North Korea

ABSTRACT

The use of commercial satellite imagery has become a common practice when assessing developments in North Korea. Given limited access to the country, especially its more politically or militarily sensitive areas, imagery has provided an important and, in some cases, the only look at facilities that help the international community gain a better understanding of what is happening on the ground. However, although satellite imagery is increasingly used to research and monitor North Korea, caveats about how much can be learned from it alone are significant. Limits to imagery resolution and frequency of viewing can create distorted narratives if considered in isolation. Instead, the imagery needs to be paired other sources of data that help situate it in the appropriate context of the times. Moreover, North Korea’s ability to adapt to a highly monitored environment also emphasizes the constant need to factor in the potential for camouflage, concealment, and deception practices when viewing any image. Failing to take these factors into consideration can lead to misleading or over-extrapolated conclusions. Because images increase the persuasive power of the analysis, and news and social media cycles are unrelenting, the burden is heavy on researchers to do their due diligence, consider the ethical implications of their work, and conduct responsible analysis. Despite these limitations, satellite imagery provides a source of hard data to review and debate, as well as a window into areas of North Korea where there is generally no visibility.

INTRODUCTION

Commercial satellite imagery is an important source of data about North Korea, providing windows into a country where access is limited even under the best of circumstances. When combined with other data sources, it can help enhance understanding of current and long-term developments on the ground.

This paper reviews both the growing use of satellite imagery in studies about North Korea and the numerous ways...
it is facilitating data-driven analysis. It discusses the challenges of working with satellite imagery and the need for careful, conscientious analysis to provide responsible and meaningful contributions to the field.

BACKGROUND

Although high-resolution commercial satellite imagery has been available to the public since 1999, its usage in North Korea studies did not gain wide traction until around 2012. Prior to that, studies that featured satellite imagery were limited, mainly focused on sites central to North Korea’s nuclear program such as the Yongbyon Nuclear Scientific Research Center and Punggye-ri Nuclear Test Site.

The limited usage was due in part to the limited availability of imagery posted to public catalogs as well as the prohibitive cost of licensing this imagery on a regular basis. Satellite imagery companies collect enormous quantities of images, but not all of it is pushed into their public catalogs. The decision may be based on technical or political considerations, or simply corporate preferences and priorities, but the choice of what is made public is at the companies’ discretion.

Moreover, the cost associated with licensing commercial satellite imagery is not insignificant. Pricing is based on various criteria such as area size, acquisition date, resolution, and format. For optical imagery, even a minimum order of 25 square kilometers can range in price from $600 to 700 to upward $1,500 per image depending on a combination of these factors. Synthetic-aperture radar (SAR) imagery can run $5,000 to 10,000 per image. In many cases, only low-resolution previews of the imagery are provided to the customer before purchase, making it also difficult to determine the true value of an image to one’s goals in advance.

As satellite technologies have advanced and the industry has expanded, satellite imagery has become more accessible to the general public with the emergence of free or lower cost options, although many of these options are of lower resolution. Additionally, as public interest in North Korea has grown, satellite companies have responded accordingly, collecting imagery of key sites in North Korea at more frequent intervals, making efforts to broaden the areas of the country captured, and pushing more imagery into their public catalogs.

THE LANDSCAPE OF SATELLITE IMAGERY STUDIES OF NORTH KOREA

Several types of satellite imagery are available to the general public, providing researchers with a wide range of working options. For a country like North Korea, where access is limited especially to more sensitive areas for either political or security reasons, satellite imagery has provided ways around those restrictions. Researchers have used various types of satellite imagery in a variety of ways to increase understanding of North Korea today.

North Korea at a Glance

First, satellite imagery can be useful in defining larger-scale features of North Korean sites of interest. Characterizing these general features can help improve understanding of the country’s geospatial layout and development, making it easier to identify undeveloped versus urban areas, sharp differences in elevations such as mountains and valleys, shallow areas along the seacoasts, and sites such as airports, ports, bridges, railways and stations, and more.

Understanding the common features of North Korea’s marketplaces, for instance, which are characterized by a cluster of long, narrow, blue-roofed, single-story buildings, has led to a number of studies about how marketplaces have developed throughout the country since the famine era. The consistency in structure and dimensions of similar buildings across the country, paired with pictures from inside the one or more of the markets, helps researchers estimate the approximate number of vendor stalls within each market complex. Combined with information about how much it costs a vendor to rent a market stall, the assessment of how many markets exist around the country and approximately how many stalls are contained in those markets form a basis for estimating the “taxes” or “rents” the regime may earn from market activity. Because North Korea does not publish hard numbers about its economic performance, satellite imagery can provide unique insights into an otherwise opaque aspect of the country’s economy.

WMD

One of the most prominent ways satellite imagery has been used in North Korea studies is to monitor activities and developments at facilities associated with North Korea’s weapons of mass destruction (WMD) programs. Despite the limits to what can be learned from only aerial views, imagery has helped improve understanding of how Pyongyang’s nuclear weapons programs have developed over time based on infrastructure and activity in and around these sites.

Assessing activity around key sites provides indicators as to what parts of the program are active or suspended and when expansions or modifications are made to related infrastructure, indicating program priorities and practices.

At the Yongbyon Nuclear Scientific Research Center, for instance, understand-

1. At least 1-meter resolution or better one.
2. Technical reasons could be a variety of factors such as problems with resolution or excess cloud cover. In the Korean context, for instance, the summer monsoon season is an especially difficult time to acquire cloud-free optical imagery.
3. Some of the more common types that have been used in studies about North Korea include optical imagery, images that capture the optical part of the spectrum and are displayed in either natural color, as viewed by human eyes, or in false-color infrared, which aid the detection of features not visible otherwise, such as vegetation health. Thermal images depict the distribution of temperature. SAR images are created using radio waves rather than utilizing light from the sun. This is especially useful for capturing images at night and imaging through clouds and smoke. Nighttime optical imagery detects lighting on the ground, such as from cities and towns.
ing when and how long the 5 MWe reactor may have been operating is an important factor when estimating how North Korea’s fissile material stocks may have evolved over time. When trying to assess the status of the reactor, a few visual indicators are sought. These include steam emitting from the building housing the reactor’s steam turbines and electric generators, which indicates that the reactor is likely either nearing or in operation. It is also common to see effluent expelled from the secondary cooling system’s discharge pipeline when the reactor is running, though this is not the only time this indicator would be observed. Water discharge could also signal that the North Koreans were testing the cooling loop, performing maintenance on the cooling system, or simply attempting to deceive for political reasons. Trained imagery analysts therefore look for a combination of indicators when trying to make these kinds of determinations.

Although imagery is useful in trying to monitor and assess the operations of key facilities, the kinds of conclusions that can be drawn based on imagery alone are subject to caveat. For instance, gaps in commercially available coverage are often large, making it difficult to assess the consistency of activity over time. In the case of the 5 MWe reactor, signatures such as steam generation and warm water discharge indicate that the reactor was probably running the day the image was captured. Without frequent coverage, however, determining whether the reactor ran constantly or only intermittently is difficult. It also does not convey the level of reactor operations—at full or partial capacity. These factors of operation consistency and output level would substantially affect production estimates.

Imagery can also be useful as a verification tool when facilities are not in use. For instance, after the exploding of test tunnel entrances and support infrastructure at the Punggye-ri Nuclear Test Site in May 2018, questions loomed as to whether North Korea would try to reactivate the facility, especially given that imagery showed the Command Center for the complex remained intact. Monitoring of this site since then has revealed no efforts to re-excavate the tunnel entrances or rebuild the support buildings and infrastructure, despite what appears to be continued patrolling and maintenance of the area. Without access to the test site to verify its dismantlement, satellite imagery provides a way to at least monitor for attempts to restore its previous capabilities.

Because US and international experts and officials are rarely granted access to North Korea’s WMD related facilities, especially without some kind of nuclear agreement in place, satellite imagery is one of the only open source ways to gain insights into the country’s ongoing WMD program developments.

**Human Rights and Human Security**

Satellite imagery can be extremely useful in efforts to monitor and assess developments in North Korea related to human rights and human security. For instance, when it comes to North Korea’s political prison camps, the Committee for Human Rights in North Korea has published a series of reports that combine North Korean defector testimony and satellite imagery to characterize the common physical features of prison camps as well as monitor activity over time. In this context, imagery can help show patterns of life to see whether the camps are still active; whether and when facilities within the complex are renovated, expanded, or closed; or even evidence of forced labor at mines located within the secure grounds. Such imagery-based studies can provide documentary evidence in attempts to hold the government accountable for violations of international human rights laws and norms.

Remote sensing data is also commonly used to monitor such things as agricultural production in efforts to assess North Korea’s human security. In a country where malnutrition is persistent and domestic food production is critical to the well-being of the people, understanding how weather, such as floods or drought, affects crop health and potential harvestability is essential. One such report in 2017 used satellite imagery to assess the effects of droughts on that year’s harvests. It compared the normalized difference vegetation index measurements, based on thermal imagery, with comparable periods in the previous years, assuming similar crop management practices were followed in both periods with regard to growing season conditions. A similar study in 2020 by Crop Monitor (a GEOGLAM initiative), looked at the impact of the summer typhoons on primary rice producing areas, identifying which agricultural areas experienced

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7. See the Committee on Human Rights in North Korea’s publications listing for a full list of reports on North Korea’s prison camps and political prisoner system ([https://www.hrnk.org/publications/hrnk-publications.php](https://www.hrnk.org/publications/hrnk-publications.php)).

the worst flooding effects and how that would likely impact harvests.9

These kinds of studies of North Korea’s agricultural situation help better assess the country’s humanitarian needs. Data-driven analysis like this is important when access to the country’s critical areas is limited or nonexistent and trust in the government’s official reporting of the situation is minimal.

Economic Infrastructure and Activities
Satellite imagery is also useful in looking for regional and nationwide development patterns and trends. For instance, studies have examined the development of hydropower dams and plants in North Korea. One noted a move away from the large signature hydropower plant projects of the Kim Jong Il era and toward more durable small to medium-size tiered plants in the north central and northwest provinces of the country, dams and reservoirs adjacent to their associated power plants.10 Although some of these developments were mentioned in the North Korean press, the region by region analysis helped corroborate and illustrate the trend over time. In a follow-on study of the hydropower plants in the northeast provinces, especially Ryanggang Province, satellite imagery showed evidence of a unique pattern of development less discussed in North Korea.

In addition to domestic economic activity, satellite imagery is now commonly used to help identify North Korea’s illegal and sanctions-violating activities. For instance, a recent innovative study in Science Advances used various kinds of satellite imagery to assess the scale of illegal fishing by “dark fleets”—vessels that do not publicly broadcast their location or appear on public monitoring systems—operating in North Korean waters.12 The study used a combination of optical imagery to detect the presence and activity of pair trawlers; SAR imagery and nighttime optical imagery (Visible Infrared Imagery Radiometer Suite) to identify and distinguish different fleets of lighting vessels; combined with Automatic Identification System data, observational data from the South Korean coast guard, written evidence of illegal fishing operations and other open source data.

The study found that the scale of illegal Chinese fishing in North Korean waters, at least some of which were found to have North Korean fishing permits, involved more than nine hundred vessels in 2017 and seven hundred in 2018, despite a ban on the sale of North Korean fishing rights established under UN Security Council Resolutions 2371 and 2397 as well as under corresponding Chinese laws.13 According to the report’s coauthor Jaeyoon Park, senior data scientist at Global Fishing Watch, the fleet engaged was roughly one-third the size of China’s entire distant water fishing fleet, calling this the “largest known case of illegal fishing perpetrated by vessels originating from one country operating in another nation’s waters.” 14

The range of studies included in this article are only a small sampling of the broad and diverse ways in which satellite imagery has helped piece together a greater understanding of what is happening in North Korea. From monitoring of large construction projects, to examining dual-use facilities, to investigating illegal smuggling activities, satellite imagery is empowering analysts to produce innovative and original data-driven research in a data scarce field of study.15

Making Sense of Fleeting Moments
Satellite imagery can help improve understanding of what is happening inside North Korea in numerous ways despite several challenges to interpreting that data in accurate, meaningful and responsible ways with broad implications for incomplete or overreaching analysis.

Pictures can make for a compelling story, especially on topics where the audience has little prior technical knowledge of the subject area. In the current 24-hour news and social media environment, news about North Korea spreads globally at lightning speed. Once a narrative is out in

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13. Coauthor Jaeyoon Park, senior data scientist for Global Fishing Watch, reported a follow-up event that similar numbers of vessels were spotted in 2019 and 2020 (https://www.stimson.org/event/untangling-the-impact-of-illegal-fishing-in-north-korean-waters/).


Although this type of activity had been reported by the UN Panel of Experts (POE) in their final reports in 2019 and 2020, their reporting did not provide a sense of the scale of these operations.

Satellite imagery analysis can be challenging, especially when the imagery resolution is insufficient to confidently determine what is being observed. While anything one meter or less is considered high-resolution imagery, viewing a site at even 0.5-meter resolution leaves a lot of room for interpretation. People look like dots and large boxes or crates may look similar because of their shapes and dimensions. Trained analysts work to make sense of what is observed based on experience and technical expertise about what should be there and what would make sense in that particular situation, but also factor in other possibilities if the image is truly unclear.

Moreover, a satellite image may provide a clear aerial view of a specific place at a specific moment of time but not context—more information is needed. When monitoring North Korea’s WMD program facilities, for instance, baselines of activity are necessary to understand how recent activity in a single image relates to the site’s normal patterns of life. For instance, large trucks around a missile related facility may indicate unusual or suspicious activity. But determining what is “unusual” requires an understanding of what a normal level of traffic is in and around that site over a longer period.

Unfortunately, baseline assessments are not always taken into account. Depending on the level of detail is needed, researchers may not always have access to enough recent high-resolution imagery to determine what is normal. In some cases, this may be due to budget restrictions, as discussed. Depending on the area of interest, though, a wealth of historical imagery may not always be publicly available either. Satellite companies, for instance, often prioritize collection of areas of high interest, both for the strategic value as well as an assumed level of marketability for that imagery, and more obscure sites or more rural areas of lesser strategic consequence may have limited coverage. Further, in a field where competition is increasing, analysts may also feel pressured at times to rush their analysis and make determinations with less information than ideal in order to be the first to publish.

Activity viewed out of context can easily be misconstrued, especially when it appears consistent with something suspicious, such as preparations for missile or nuclear weapons testing. For example, in September 2020, an unusually large assembly of vessels were observed berthed inside the secure boat basin at North Korea’s Sinpo South Shipyard. Under normal conditions, this would be strongly suggestive of preparations for a submarine-launched ballistic missile test. In context—the area had just been hit by a destructive typhoon and another was hours away—the probability that a test was being prepared under those conditions was diminished. Although test preparations could not be fully ruled out, the vessels were more likely positioned in the basin to protect them from heavy storms.

Another point to consider is that satellite imagery is not without some level of curation. Some mobile applications, for instance, track the location of orbiting satellites, allowing users to estimate

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when they may be overhead. If the North Koreans are using these or similar tools, they could also plan their activities accordingly—including potentially refraining from certain revealing activities when satellites are expected to pass overhead as well as deliberately conducting suspicious-looking activities as part of a deception campaign.

In March 2017 at the Punggye-ri nuclear test site, for example, activity consistent with nuclear test preparations was observed around the North Portal, the tunnel complex where four previous nuclear weapons tests had been conducted. It started with the appearance of a large crate or trailer around the portal. Over the next few weeks, the activity increased: pumping water out of the test tunnel, laying cabling leading to the portal, and draping camouflage netting over equipment just south of the portal’s support building. For all intents and purposes, the portal appeared to be ready for the conduct of an underground nuclear test by mid-April.

The nature of this activity was consistent with what had been observed in the weeks prior to North Korea’s February 2013 nuclear test, which was heavily reported on at the time. The timing made sense as well, in that it would have positioned the North to be able to conduct a nuclear weapons test around a key North Korean holiday such as April 15, the Day of the Sun (Kim Il Sung’s birthday) or even April 25, Korean People’s Army Founding Day. But while the context of the activity made sense, one question loomed: why would North Korea reveal this activity?

North Korea had conducted two nuclear tests in 2016 for which no obvious indicators had been observed in the days or weeks prior, clearly demonstrating the ability to camouflage or conceal test preparation activities from remote sensors. Therefore, why would the North Koreans allow test preparation activities to be detected this time around? Were they really preparing for a test? Were they trying to threaten a test without actually

planning to do so or without officially committing to conducting one? Did they prepare for a test and then decide not to go through with it?

To this day, the North’s intention in that case is still unclear. 38 North’s reporting of the activity at the time was hedged to include the range of possibilities for why this type of activity was taking place, even though the easiest explanation was that preparations were under way for a forthcoming test.

In the end, North Korea did not conduct a nuclear test in April 2017. Instead, on at least one of the holidays, it appeared the North Koreans were engaged in volleyball games throughout the various courtyards around the complex.

In this instance, understanding the context and a baseline of activities did not bring clarity to what was observed on the imagery. It did, however, underscore the need to constantly factor potential deceptive practices into the analysis—a practice North Korea analysts know all too well. But this case also served as a clear demonstration of how Pyongyang was adapting to a highly monitored environment.

Coverage of the nuclear test preparations in 2013 provided the North Koreans with the knowledge that the site was being monitored by nongovernmental actors, as well as clues as to what types of activities were noted. They therefore altered their test preparation practices in 2016 to be able to go unnoticed. In 2017, they demonstrated the ability to curate what activity would be captured by remote sensors to suit their purposes—whether technical, political, or both.

The North’s adaptation to increased satellite monitoring has been observed not only in its practices, but also in its WMD infrastructure. One of the more extensive examples are modifications to facilities at the Sohae Satellite Launching Station, Pyongyang’s showcase space launch complex. Following widely publicized coverage of its two satellite launch attempts in 2012, North Korea began upgrading the site to not only accommodate larger rockets, but also to better conceal rocket launch preparation and engine testing activities.

In 2012, for instance, rocket stages were observed being delivered to the site via rail, which were then transferred to the motor pool adjacent to the horizontal assembly building until they were ready to be assembled. Once the rocket was checked out and assembled, it was transferred to the launch pad via truck and driven to the launch tower. There, it would be placed by crane into the tower until it was ready to launch. Coverage by 38 North of this preparation process allowed for timelines to be created and estimates to be made about when the North might be ready to launch.

It did not take long, however, before the North Koreans modified their infrastructure to better conceal their launch preparation activities. In 2015, they built shelters over the rail spur, obscuring the arrival of trains (that would carry rocket stages). They extended the rail line to deliver the rocket stages directly to the launch pad and built a vertical assembly building and transfer structure on the launch pad, facilities that would conceal any movements associated with the rocket being checked out, assembled, or transferred to the launch tower. They also built permanent environmental covers around the launch tower platforms, obscuring the view of anything within them.

This meant from delivery of the stages to the site to the moment it was ready to launch, the rocket could be sheltered from optical satellite view. Video footage from the February 2016 satellite launch, indicated that North Korea had even taken the precautions to conduct Kim Jong Un’s site visit of the launch site at night, avoiding satellite capture of the associated extra traffic or activity that could have provided clues that the rocket had arrived and the launch time was near.

These kinds of adaptations make it more difficult to detect launch-related activities via satellite imagery and allow the North Koreans to curate what remote sensors capture. In some cases, this means keeping certain activities out of view. In other cases, it may mean taking

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deliberate actions such as moving the transfer structure at odd times to raise questions about the purpose of its movement: did it move because a rocket is being transferred to the launch tower or could it simply be movement of an empty structure with no purpose other than to deceive?

Consequently, although satellite imagery has created opportunities for the external world to view developments in North Korea, the North Koreans have also learned more about the tradecraft of imagery analysis. This does raise serious questions about what is an acceptable level of two-way learning and is one of many factors that have led to discussions about the ethics of publishing satellite imagery analyses.

CONCLUSION

The proliferation of satellite imagery has created a number of ways to conduct data-driven research about what is happening in a country where access is generally limited. From broad national or regional trends and sector-wide studies, to focused monitoring of secure facilities, satellite imagery provides windows into the country that the government has worked hard to obscure. When combined with other sources of information, it helps improve understanding of how the country is developing, what the regime prioritizes, and when and where problems may be looming.

Analysis, backed with purported photographic evidence, has enormous influence and media cycles are swift. Hasty or incomplete analysis can quickly lead to a widespread spread of misinformation or disinformation, even if unintentional. This places a heavy burden on imagery analysts to their due diligence, to be objective and precise, and to acknowledge varying levels of uncertainty in their analysis, despite any pressure to tell a good story.

The persuasive power of imagery and the two-way learning that can occur from imagery analyses are among a number of factors that have led to questions about the ethics of publishing these kinds of studies. Although currently no set standards or guidelines are in place for ethical conduct in the field of imagery analysis, concern is growing among practitioners and preliminary groundwork is under way to help foster and promote more responsible practices, peer review, and accountability.

Moreover, as much as analysts should strive for careful and conscientious analyses, the media should also take seriously the implications of sensationalized or inaccurate reporting of these studies. Because photographs appear to corroborate a narrative that is difficult change once it is in the public psyche, journalists should work to gain an accurate understanding of conclusions drawn from these studies and report them in an equally conscientious way to avoid spreading misinformation about issues of national security concern.

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REFERENCES


Watching Through the Lens of a Long Telescope

Monitoring North Korean Sanctions Evasion in the Maritime Domain

ABSTRACT

The UN Security Council has imposed substantive sanctions on North Korea since 2006. The sanctions regime is monitored by a panel of experts based at the United Nations headquarters in New York. Because the country does not recognize the sanctions regime, the panel is compelled to fulfill its mandate by looking into North Korea from a distance. A former South African Navy captain, the author was tasked with the portfolio of maritime transportation and the North Korean Naval forces. He served on the panel for five years until 2018. The paper unpacks the many ways that the panel, specifically the author, looked into North Korea to either investigate or monitor cases of evasion or violations of the sanctions involving bad actors in the maritime domain. The paper starts with the interdiction of the Chong Chon Gang and uses case studies selected from panel reports to demonstrate how, through a combination of technology, data, and information from states, it is able to look into the country, monitor it, and investigate evasion and violations of sanctions affecting the maritime domain. Aspects such as vessel disguises, deception, command and control, and the transfer of illicit goods and technology are covered in detail. The value of media and open-source information and other sources are also demonstrated. Many of the experiences detailed here have never before been shared in print. The challenge is to see it happening, look beyond the deception, and identify those behind it.

INTRODUCTION

The UN Security Council imposed substantive sanctions on North Korea in response to concerns over its nuclear weapons program and after its first nuclear test in 2006. The sanctions regime has since become the most comprehensive of any country in history. It is monitored by a panel of experts based at UN headquarters in New York, in support of the 1718 Committee established to oversee the sanctions since 2006. The panel tasked with monitoring North Korea may not set foot in the secretive state.
Korea—the Democratic People’s Republic of Korea (DPRK)—does not recognize the existence of the committee, the panel, or the sanctions regime, and so defiantly rejects its resolutions and reports.³ The United Nations celebrated its seventy-fifth anniversary in 2020 and North Korea has been at the forefront of the international body’s efforts to mitigate threats to global peace and security, starting with the Korean War and continuing with the country’s subsequent nuclear weapons ambitions, culminating in the sanctions imposed from 2016 onward. In his commemorative speech on September 21, 2020, Secretary-General António Guterres urged the leaders of what is becoming an increasingly polarized world to work together, and bemoaned that “today, we have a surplus of multilateral challenges and a deficit of multilateral solutions” and “so many years without a military confrontation between the major powers.” However, the ongoing, unresolved North Korean threat continues to be an unhealed wound in relations between the permanent members. China and Russia even proposed a draft resolution to lift some sanctions on North Korea (Nichols 2019).

The Panel of Experts, comprising eight independent experts, is mandated, among other things, to “gather, examine and analyze information from States, relevant UN bodies and other interested parties regarding the implementation of the [sanctions] measures, and gather, examine and analyze information in particular, on incidents of non-compliance.” This is done from the UN headquarters in New York, so the panel is therefore compelled to fulfill its mandate by looking into North Korea (and its neighbors), from the outside looking in, from afar.

With my appointment by then Secretary-General Ban Ki-Moon, the panel of seven became eight. I was the first to be tasked with the responsibility of specifically monitoring and investigating maritime transportation and the North Korean Navy. This expansion was in recognition that shipping is the lifeblood of North Korea, at least 80 percent of its trade flow going by sea and the fact that most evasion cases involved maritime transportation in one way or another. I served on the panel for the maximum allowed five years between 2013 and 2018, during which time I was never permitted to go to the secretive state or to its immediate neighbors to the North. In this role, I also supported the Iran and Yemen panel because they did not have a maritime expert and would therefore call on me from time to time. An incredible degree of sanctions evasion was ongoing—the adage “high risk–high gain”—given the great deal of money to be made in circumventing sanctions and North Korea seeing itself in survival mode. The discussion that follows unpacks the many ways that the panel, and specifically I, was able to look into North Korea (and neighboring states) in the course of either monitoring or investigating cases involving bad actors in the maritime domain.

**THE CHONG CHON GANG INCIDENT**

After my having barely stepped off the flight from South Africa to New York on July 11, 2013, the North Korean vessel the Chong Chon Gang had been interdicted by Panama at the canal entrance outside Colon. On July 15, the Panamanian president publicly revealed (the first use of Twitter by a national president) that Panama had stopped a North Korean vessel carrying “undeclared military cargo.” This forced me to hit the ground running when the panel coordinator appointed me the lead investigator. Two days later, on July 17, the Panamanian Permanent Mission formally informed the 1718 Committee Chair that the North Korean-flagged vessel had been inspected in Panama’s territorial waters and that materials possibly subject to the arms embargo in the resolutions 1718 (2006) and 1874 (2009) had been found aboard.⁴ When Panamanian authorities boarded the vessel, they were doing so with a search warrant to look for drugs. The panel arrived on August 12 to conduct an onsite inspection.⁵

Their search revealed more than 240 tons of military equipment buried under thousands of bags of Cuban sugar, uncovering a North Korean–Cuban weapons transfer and the biggest weapons interdiction under the sanctions regime.⁶ Because the panel could only investigate an interdiction onsite at the behest of the host Member State, we had to wait for a formal invitation. Fortunately, Panama provided reports on what they had found, and another UN agency, the UN Office on Drugs and Crime, which was on the scene when the containers were opened, provided us with additional insight and information because seizures of illicit goods were part of their mandate. The panel was thus able to do extensive research on the containers, military items, and the vessel’s background and movements from its office in New York.

The North Korean vessel sailed with its automatic identification system (AIS) transponders off to evade international surveillance, sailing through the Panama Canal before picking up its illicit cargo in Cuba. The ship communicated via secret codes with Pyongyang and the North Korean Embassy in Havana, arranging the transfer with the Cuban military. Payments for the vessel’s transit through the canal and voyage costs were made through a network of shadowy front companies with offices stretching from Vladivostok to Singapore.

Because the panel has no access to company or government records in North Korea, as would be typical in most countries, the information from member states or onsite at incidents (but for a very limited window) is like gold. It is

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1. Since 2006, nine substantive resolutions which include twenty-six types of measures.
2. The Panel of Experts assists the 1718 Security Council Committee established pursuant to resolution 1718 (2006).
3. The Permanent Mission of the Democratic People’s Republic of Korea does however, on rare occasions, send a note verbale addressed to the president of the Security Council to make a statement.
5. The panel may only conduct a site visit if invited by the relevant Member State.
6. Twenty-five standard shipping containers (sixteen forty-foot and nine twenty-foot) and six military trailers (for Volga and Pechora systems), for a total of about 240 tons of arms and related material.
often important to take a second look at the information retrieved from a case because only then is fully understanding the meaning and context of the key elements of the case possible. A second look enables seeing new connections and, as a result, knowing what new documents and records are needed to complete the picture and take the investigation forward. Usually only one opportunity to get all the documents and information onsite is possible, but in the case of the Chong Chon Gang, we were able to go back to Panama a second time because the case against the captain and first mate was ongoing. We were able to get more communication records, copies of documents from the prosecutor’s files, and a very rare interview with the captain.

Of vital importance also, because the representatives of the company had to pay the fine for the release of the vessel in person—these key individuals had to fly out from North Korea and present identity documents, a formal company letter—in person. This provided critical information on the identity and contact information of key players in the hierarchy and critical information on the company that we could never have obtained without going to North Korea or having it provided by the country (which would never happen). The same bounty awaited us when it came to the seizure of the North Korean–flagged vessel Mu Du Bong by Mexico the following year. Although we were unable to access the address book of the first vessel’s email system, the Mu Du Bong yielded all of its contacts. The information from these two incidents enabled the panel to build a picture of the structure and operation of the operating entity Ocean Maritime Management Company. I say entity because North Korea has no private companies, shipping or any other type. All commercial vessels and their related “companies” in North Korea fall under the Maritime Administration, which reports to the Ministry of Land and Maritime Transport. We also learned that every North Korean crew had a political officer onboard, whose authority was superseded only by the captain. Last, that every captain keeps meticulous records of every voyage, including all receipts, which helps identify agents and complicating actors.

Both the Chong Chon Gang and its company, Ocean Maritime Management, were designated by the United Nations, so all vessels, companies, and personnel linked to it are subject to an asset freeze and travel ban. The activities of these are all then investigated and monitored by the panel. An implementation assistance notice was also created to share lessons learned from the incident with member states and to clarify the meaning of arms transfer. Because the main text of the panel’s reports is word-length restricted—because of translation capacity—a great deal of granular detail is shifted into the annexes, which are not translated.

THE CHONG CHON GANG’S ILLICIT CARGO

Examination of the Chong Chon Gang’s illicit cargo of arms and related materiel also provided a few insights into the relationship between Cuba and North Korea and the state of the conventional weaponry of Korean People’s Army. As a rule, the panel does not speculate in its reports. On the basis of my background and experience, however, I suspected that the cargo was but one of a series of clandestine shipments between Cuba and North Korea. Further, that it revealed a shortage of MIG-21 jet trainers (one was fitted for instrument flying training)—possibly through losses incurred, and engines—something they would have problems manufacturing independently, especially in light of an earlier illicit transfer of thirty-two decommissioned MIG-21 fighters and spares from Mongolia that was prevented (UNSC 2012, 40; 2015, 37–38). The presence of limited quantities or singleton varieties of tank tracks, the AO-18 cannon parts, the shells casings, the rocket-propelled grenades, 7.62 mm cartridges, further suggested these were possibly a precursor, serving as samples for a larger order if it met with the approval of their North Korean clients.

In my opinion, the unused equipment and equipment still in its original packaging suggests that these items all came from a very large war reserve of Soviet-era munitions, stockpiled during the Cold War, that was rapidly approaching its shelf life, being phased out of service, or surplus to the needs of a more peaceful era. It is entirely possible that this was an opportunity for Cuba to make good use of it as tradable goods or barter trade with an increasingly isolated North Korea and as a gesture of friendship between pariah states. Of some conjecture is the method of payment for the military equipment and sugar from Cuba, within the context of the delivery of hot rolled steel, springs, and locomotive wheels carried onboard the vessel that was offloaded in Havana on arrival. The panel calculated that the sugar, using its estimated international value, to be about $3.8 million, comparable to the combined value of the steel and wheels delivered by the Chong Chon Gang, $3.7 million.7

COMMAND AND CONTROL FROM NORTH KOREA

The communications between the Chong Chon Gang’s captain and Pyongyang provided interesting insights into the network of command and control for North Korean-flagged fleet of vessels engaged in international trade—both legal and illicit. It became clear that the Maritime Bureau in Pyongyang was running operations through the pseudo-company Ocean Maritime Management (OMM). The communications, documents, and interview with the captain revealed several significant findings:

- Despite not being on its fleet list, OMM operated and supported the Chong Chon Gang on its voyage via its Pyongyang headquarters and regional branch offices.

7. The retail value of the hot rolled steel, if new, was about $3.66 million (5,341 tons as of July 2013 price at $673 per ton), and the locomotive wheels at around $36,000 (twelve units at $3,000 each), using www.steelonthenet.com and alibaba.com.
in Vladivostok, Russia, and Dalian, China. OMM also made use of a complicit company in Singapore, Chinpo Shipping Company.

- All communications between the ship and OMM’s headquarters were copied to OMM’s Vladivostok office, “OCRU” (RU referring to Russia). Both passages through the Panama Canal were arranged with the Panama agent by OCRU.
- OMM Dalian branch arranged for spare parts while the ship sailed to Cuba.
- Chinpo Shipping Company, Singapore, paid the Panama agent for the canal transit and other services.

**Automatic Identification Systems**
The panel monitors movements of vessels linked to North Korea using specialized maritime tracking software such as MarineTraffic.com and Windward. These databases combine the AIS data from land stations and satellites to provide real-time information on ship’s location, tracks, and information transmitted by each vessel.  

Although it is promulgated as mandatory by the International Maritime Organization (IMO), for all vessels over three hundred gross tons to avoid collisions at sea, it is often manipulated by bad actors. The act of manipulation and false data also provides evidence of evasion through deception techniques. Legitimate instances of its being switched off aside, such as countermeasures against piracy and to avoid scrutiny by competitors such as choice fishing grounds or preferred areas for legal ship-to-ship transfers, not maintaining AIS in operation at all times is a violation of IMO requirements. Many operators have begun making its operation continuous (uninterrupted) through contractual obligations following panel recommendations to curtail the practice. It could be argued that the problems posed by AIS deception really gained international significance and attention with the *Chong Chon Gang* case. The vessel’s AIS was turned off on June 1 immediately after the ship passed through the Panama Canal, allowing it to quietly load the illicit cargo of weapons at a submarine base in Mariel (near Havana) before proceeding to another port to cover it with sugar. The AIS was only switched back on again on July 11, when the ship was approaching the Panama Canal on its western passage to North Korea, which cast a veil over all its movements in Cuban waters. Mariel was purposefully omitted from the vessel’s declared list of last ten ports of call to complete the deception.

**Maritime Databases**
Finding vessels requires a combination of specialized maritime databases such as the IMO’s GSIS, I Seaweb, and Equasis. This is done by analyzing company information (even if they are fronts), company records, registrations with flag states, and the commonality of contact information or office bearers. Open-source databases such as the Tokyo MOU, containing Port State Control data, and even the North Korean Maritime Administration database, is also helpful. These are combined with communications, and emails between entities, and the connectivity between key individuals, given that North Korea invariably relies on a few key individuals—who are based both in North Korea and embedded in companies abroad.

**Surveillance Patrols**
The panel also receives a great deal of information from coalition partner surveillance assets (naval vessels and aircraft) that monitor North Korean maritime activities. The contributing countries are Australia, Canada, France, Japan, New Zealand, the United Kingdom, and the United States. The activities include monitoring and surveillance of suspected UN sanctions violations, such as designated vessel movements, illegal ship-to-ship transfers of oil, petroleum products, and coal, illicit sand exports, and illegal transfer of fishing rights to foreign fishing vessels. The Japan Ministry of Foreign Affairs often posts press releases and photographs from patrol assets on its website to publicize these activities.  

I cover these sanctions violations in greater detail to demonstrate how information is gathered to support panel investigations.

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8. The IMO is a UN agency.
9. AIS is used to prevent collisions at sea, for vessel traffic management to ensure safe passage and for search and rescue purposes. SOLAS (Survival of Life at Sea), Chapter V, Regulation 19.2 on Carriage requirements for shipborne navigational systems and equipment.
Ever since the imposition of an annual cap of five hundred thousand barrels allowed for petroleum product (fuel) transfers to North Korea in 2017, the country has continued to violate the resolutions by conducting illicit ship-to-ship transfers to import refined petroleum.11 More recently, the panel reported that this tactic has been supplemented by brazen direct, undeclared deliveries to the port of Nampo in violation of export reporting requirements for deliveries made to North Korea.

The panel is tasked with monitoring and reporting to the committee, which in turn alerts 78 member states on how close the reported (legal) transfers are approaching the cap, with a view that deliveries should then be scaled back.12 Tellingly, the market indicators for gasoline and diesel reflect steady price levels within North Korea—indicative of an absence of price spikes, which would mean fuel shortages, despite the cap imposed on supply by the sanctions (UNSC 2019b, 8). From January to August 2020, only China and Russia have reported exports. Without doubt, however, given the low price of oil and glut of tankers storing fuel, illicit transfers would be very tempting in a highly constrained global market. The panel monitors the status of fuel deliveries by satellite images of the fuel terminal in Nampo, tanker tracking, and reports from member states. Figure 1 shows a comparison reflecting how direct foreign tanker deliveries to Nampo has escalated while North Korean tankers engage in ship-to-ship transfers.

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Investigation of evasion activities includes these aspects and images taken by surveillance assets monitoring maritime evasion activities by North Korean-linked vessels. Figure 2 shows the fuel terminal at Nampo dedicated to receiving oil and petroleum products from vessels doing illicit ship-to-ship transfers at sea and direct deliveries, and a hub for inland distribution. Underwater pipelines are also attached to offshore mooring buoys to offload fuel from these vessels to the terminal complex.

Ship-to-Ship Transfers

Ship-to-ship transfers are intended to circumvent sanctions compliance controls at ports and to conceal the destination or origin of the transferred cargo. North Korea has been illicitly exporting coal and obtaining petroleum products illegally this way for some time. Vessels conducting such transfers with North Korean vessels will typically switch off their AIS to evade detection and mask their movements, which is contrary to IMO regulations governing safety of life at sea (SOLAS), requiring that the AIS be in operation at all times. These vessels also disguise themselves through ship identity theft and false AIS transmissions, often transmitting previous flags for as long as six months or more.

Vessel Disguises

Other methods of evasion include the physical disguise of North Korean tankers, the use of small, unregistered vessels, illegal name-changing and other forms of identity fraud, night transfers, and the use of additional vessels for transshipment. In figure 3, the vessel Shang Yuan Bao is captured by low light imaging by surveillance aircraft. A good example of comprehensive deception is the foreign-flagged tanker the Yuk Tung (IMO no. 9030591) using AIS spoofing in the Yellow Sea. It impersonated another vessel by falsely transmitting using the MMSI number of its sister-ship and taking on the identity of the Maika, ostensibly flagged in Panama. It even used the Miaka’s IMO number, 9033969. All the while, the real Comoros-flagged Hika, using its legally registered IMO number of 9033969, was seven thousand miles away in the Gulf of Guinea (see figure 4). The Yuk Tung also took the Hika’s name then altered it to Mahika, which it broadcast on AIS transmissions. Last, to complete the impersonation, the Yuk Tung painted the abbreviation YT within a circle on the funnel, and painted over its IMO number and name on the stern, changing it to Maika. The vessel also generated a false Equatorial Guinea registration certificate as the Maika.

In a relatively new tactic, tankers engaged in illicit transfers meet via decoy “fishing vessel” Class B AIS decoy for illicit transfers. The second feeder vessel, using a Class B AIS transponder to disguise itself as a fishing vessel, conceal its identity, and limit the range of detection by patrolling assets. This vessel then acts as a homing beacon for potential transfer vessels for the North Korean tanker Saebbyol, sailing with its AIS off (see figure 4). The Class B transponders are carried by vessels below the threshold for compulsory AIS (Class A) as required by SOLAS, such as small fishing vessels. Although Class B units have less functionality, reduced power, and range, they can operate and communicate with Class A units on vessels above three hundred gross tons.

MONITORING BANNED COMMODITIES: COAL SHIPMENTS

North Korea was a global leader in anthracite coal exports before sanctions, mostly to China. In addition, exports of this commodity have been one of the key pillars of North Korea’s economy. Recognizing the contribution of this source of foreign revenue to its nuclear programs, the UN imposed a cap on coal exports in 2016 and then, following ballistic missile launches in 2017, a full ban of all coal exports on August 5, 2017. However, the high quality of its anthracite at bargain-base prices has proved irresistible to many importers. Ways of monitoring illicit exports from North Korea include watching not only vessels leaving its ports but also the stockpiles of coal at the coal loading terminals, particularly the port of Nampo, the largest west coast port. The problem with exports from Nampo is that vessels have to pass through the West Sea Lock Gates across the entrance to the Tae-dong River, which limits vessels to fifty thousand tons and a harbor draught of ten meters. The shipment of illicit coal from North Korean ports should not be confused with legal shipments of Russian coal from the Rason Free Trade Zone, Port of Rajin coal terminal, linked to the Trans-Siberian Railway. Here China and Russia provide information to the 1718 Committee, in advance, on the vessels and their exempted cargo. The two armored Mercedes-Benz S-Class sedans recently used by Kim Jong Un in North Korea on parade and abroad during talks with the United States revealed a nexus between coal smuggling from North Korea and luxury goods being smuggled into the country. The vehicles were shipped by an Italian company from Rotterdam initially to a company in Dalian, China, but after two changes, first ended up in Osaka, Japan—then onward to Busan, South Korea (Republic of Korea). There they were loaded onto the Togo-flagged vessel DN5505, which sailed with its destination listed as Nakhodka, Russia. It soon switched off its AIS. Research by C4ADS, using databases such as Palantir and Windward, suggests that the vessel transferred the vehicles at sea with another vessel in exchange for North Korean coal linked to a company.

13. The Shang Yuan Bao has been involved in multiple ship-to-ship transfers and vessel identity fraud with a number of North Korea-flagged tankers.
14. Flag registries issue Maritime Mobile Service Identities (MMSI) numbers, which are recycled. IMO numbers are unique and never reissued. Spoofing occurs when one or more vessels are shown in imaging by surveillance aircraft.
 MONITORING BANNED COMMODITIES: SAND EXPORTS

Member states play a big role in reporting prohibited exports from North Korea. Although North Korea had exported sand to states in the region in the past, it has recently exponentially ramped up dredging and exporting the sand in violation of the ban imposed by the resolutions since 2017. This activity should be seen within the context of North Korea clearly stepping into the gap in the sand export market left by exports restrictions imposed by Malaysia and Vietnam (Workman 2020). North Korea can generate millions in foreign revenue by exporting to its closest neighbor, China (less than a day’s sail away) which, together with India, exports two-thirds of the world’s cement, and an historic scale of construction that has generated a voracious appetite for sand, a critical ingredient of cement (Van Oss 2019, 42). Satellite imagery has once again played a definitive role in exposing the scope and scale of the illicit sand exports from North Korea.

Data analytics companies such as the Center for Advanced Defense Studies (C4ADS) also help the panel’s investigations by providing high-quality supporting data. Their excellent report on the tracking of the dredging and convoys of barges transporting sand, through a combination of open-source commercial satellite imagery, and specialized maritime databases, is but one such example. To quote their report, the astonishing scale and coordination of sand dredging operations off the west coast “showcases the boldness and impunity with which sanctions evasion networks operate, even under close scrutiny.” Ships transiting in the Haeju Bay area numbered at least 1,563 between March and August 2019 alone, relative to a modest 418 over the two previous years combined (Kuo and Sung 2019).

Member states reported to the panel that, in May 2019, more than ninety-two Chinese-flagged, large self-propelled barges were loaded with sand from dredgers in the Haeju port and Sinchang areas. These barges carried at least one million tons of sand with a value estimated of at least $22 million.23 Tellingly, according to C4ADS, none of the 279 vessels tracked transmitted their IMO number, making it very difficult to definitively identify them. The risks are high, however, because the barges were never designed for an ocean voyage, demonstrated by the sinking of one barge in bad weather en route to China with its ill-gotten cargo of sand. Similarly, three other barges doing illegal sand dredging near Taiwan have also sunk with significant loss of life (Shim 2020). The Alibaba website details a plethora of Chinese sand suppliers, which raises the question of where the “good quality” sand is coming from, given that China only produces the “poor quality” variety, hence the attraction of North Korean sand. In figure 6, barges are visible taking on sand from dredgers in North Korean waters.

The sand is also being delivered to Chinese ports by large vessels and also transshipped in Chinese coastal waters to larger vessels destined for foreign ports. The panel named a Palau-flagged bulk carrier, the 16,725 gross ton Rui Jin, which has a Lebanese owner, that made multiple deliveries of North Korean sand to Ningbo, China. To hide its movements, the vessel switched off its AIS and LRIT (long-range tracking and identification system operated by the flag registry) on each voyage. To its credit, the Palau registry ordered the vessel to be detained in Ningbo and it has not moved since. In another classic deception tactic, the operators tried to change its name to Mir, to assign it a new registered owner, and to change its flag to Sierra Leone.24 The panel also tracks this phenomenon, called flag-hopping, when vessels are identified as complicit in sanctions evasion activi-

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ities. Aside from sanctions violations, in the long term, the industrial-scale sand dredging will without doubt cause extensive damage to the coastal environment as North Korea seeks to cash in on the shortage of international supply and resultant spike in sand prices.

STATE MEDIA AND OPEN-SOURCE MEDIA

The panel uses North Korean state media extensively, both print and video releases, to identify sanctions violations and to gather information to support investigations, monitoring, and analysis. Articles and photographs from Rodong Sinmun and the public broadcaster Korean Central News Agency (KCNA) are powerful primary sources of information. In this context, NK News, a subscription-based website that provides news and analysis about North Korea, in particular, it provides a user-friendly interface and an archive to these media sources through its KCNA Watch professional services platform.\(^{25}\) The Internet Archive’s Wayback Machine is also a useful open-source resource for North Korean media.\(^{26}\)

During my time on the panel, I used a combination of state media to monitor and analyze the development of North Korea’s sea-launched ballistic missile (SLBM), the adaptation of commercial marine equipment for its Navy, and the acquisition of luxury yachts.

Luxury Yachts

A media article drew attention to luxury yachts acquired for North Korea’s leader, Kim Jong Un, in violation of the luxury goods ban.\(^{27}\) I based my investigation on a combination of state media imagery, commercial satellite imagery, and yachting magazines to track down the type of yacht, its manufacturer, and the route taken. The yacht in figure 7 was found to be a Princess 95MY manufactured by Princess Yachts International, Great Britain, valued between $4 to 6 million. The model pictured in 2013, produced between 2007 and 2011 was one of twenty-one sold worldwide.\(^{28}\) Notably, a Princess Yachts representative for North China, based in Dalian, notorious for its connection to North Korean illicit activity, denied any involvement (Ryall 2013). Satellite imagery showed that this yacht and another luxury yacht were based at the west coast port of Wonsan (Smith 2020). The yachts reveal the luxury lifestyle of Kim Jong Un while “diverting critically needed resources away from the people in the DPRK at tremendous cost when they have great unmet needs” to develop nuclear weapons.\(^{29}\)

Adaptation of Commercial Radars

Images of a new naval stealth surface effect ship, test-firing an antiship missile publicized by state media in 2015, revealed three commercial radar antennas manufactured by the Japanese company Furuno Electric Co. Ltd (see figure 8).\(^{30}\) Because this was a violation of the arms embargo through the acquisition and adaptation of commercial systems for the Korean People’s Army Navy vessels, it triggered a panel investigation. In this case, Furuno gave its full cooperation: no records of sale to North Korea after 2009 existed.\(^{31}\) The subsystems displayed aboard the missile boats are inexpensive, commercial, off-the-shelf

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\(^{25}\) NKNews and KCNA Watch are accessible online (https://www.nknews.org and https://kcnawatch.org).

\(^{26}\) Internet Archive is a free service available on registration (http://web.archive.org).


\(^{28}\) UNSC Panel report S/2015/131 of February 23, 2015, 42–43 (see also S/2014/147, para. 120).


\(^{30}\) Rodong Sinmun, February 7, 2015.
products used globally in the fishing and leisure craft markets, making it impossible to trace the source without the serial numbers.\textsuperscript{32} The case demonstrated how easily North Korea can modify commercial maritime technology that can easily be integrated through plug-in interfaces for military use.

\textbf{The Sea-Launched Ballistic Missile Program}

The combination of state media releases and satellite imagery are crucial to monitoring the development of North Korea’s indigenous SLBM capability. On May 9, 2015, state media in Pyongyang announced that it had conducted “an underwater test-fire of [a] Korean-style powerful strategic submarine ballistic missile,” showing a missile emerging from the sea (KCNA 2015). Seven member states reported that the missile had been launched from an underwater platform rather than from the submarine as claimed. It became necessary to also monitor all the elements associated with the project: testing facilities (ground and a submersible test barge), a unique indigenous submarine design (Gorae class), infrastructure at the Sinpo South shipyard, a submersible drydock, and a towing vessel for the test barge.

The most important task was to determine the type and capability of the ballistic missile. Because North Korea is prone to exaggerating missile capabilities and manipulating imagery, the first objective was always to test the quality of the imagery for manipulation. This is essential to estimating dimensions, the type of propulsion, and the method of launch. The KCNA images of the missile showed that the SLBM (named Pukguksong-1) resembled the Soviet-era SS-N-6/R-27 SLBM, in terms of its length to diameter ratio, external features, and the warhead (see figure 9).\textsuperscript{33} The exhaust plume pointed to a liquid fuel propellant and, because ignition was above water, suggested an underwater cold ejection.

Satellite imagery of October 2013 showed a missile testing complex near the submarine construction hall in Sinpo. In figure 10, the imagery reveals a test stand and impact area adjacent to it, to conduct land-based launch ejection tests. Imagery from July 2014 revealed a hitherto unknown submarine in the fitting-out basin (with work going on within the submarine’s sail), a submersible test barge, and a towing vessel. Analysis of the vessel showed a single launch tube capability for an SLBM.

KCNA footage of a visit by Kim Jong Un to an engine test facility revealed the gas generator used to cold-launch the missile on March 24, 2016, from an underwater launch tube for the test (left) when fitted onto the base of a submarine-launched ballistic missile (see figure 11). This successful launch test, which transitioned through the ejection, boost, and flight phases, on a lofted trajectory, was a significant leap forward, placing North Korea into an exclusive group of nations with a submarine-launched ballistic missile capability. The two-stage missile has subsequently been upgraded to solid-state propellant and the new, bigger version seen on parade in 2017. The Pukguksong-3 was first test-launched on October 2, 2019 (the Pukguksong-2 being a land-based version).\textsuperscript{34} The main fabrication hall at the Sinpo shipyard is being carefully watched for signs of a suspected newer submarine with capacity for multiple launch tubes, particularly given that the capability depends on a single launch platform and only one launch tube. Of significance is the state media coverage of the October 10, 2020 military parade, where a fourth iteration of the Pukguksong SLBM was revealed: this will spark a new round of research to determine what “upgrades” have been developed to enhance its capabilities (Van Diepen and Elleman 2020).

Seafood and Fishing Rights

Despite a ban on seafood exports, North Korea has continued to transfer its fishing rights in violation of sanctions. Seafood exports are an important source of revenue for North Korea, estimated to have generated about $295 million in 2017 (Nichols 2019). This aspect is challenging to monitor because these vessels are not easily tracked without AIS. It has been estimated that revenue dropped to $120 million in 2018 after the ban. It is now growing again, however. Reportedly, Chinese fishing vessels have been displaying North Korean fishing permit number plates, documents, or North Korean interim certificates of registry in mid-2019 (see figure 12).

The going rate of a fishing permit for three months is reportedly ¥400,000 or $57,594. Notably, the fishing vessels try to avoid the scrutiny of patrols by painting over their names and superimposing another. Although the ban intended to deny North Korea revenue for its nuclear and ballistic missile programs and make vital nutrition available to citizens, the sale of fishing rights created other problems for fishermen. This is manifested in a phenomenon known as “ghost ships,” where fishermen are pushed long distances from their ports and beyond their traditional areas to find new fishing grounds. Along the Japanese coast, North Korean fishing boats are washing up with the bodies of their crew. Although this has been happening for years, the increase since 2017 is dramatic. The displaced fishermen being pushed farther out have also resulted in conflict, even gunfire, in the Exclusive Economic Zone of Russia (BBC 2019). Incidentally, the lifting of the ban on seafood was one of the proposals made by China and Russia in December 2019 (Nichols 2019).

CASTING THE NET WIDER: PANEL RESOURCES

The panel uses diverse sources that each contribute pieces of the puzzle, including interviewing individuals from companies dealing with North Korea, those involved in incidents, and defectors.

\begin{itemize}
\item[31.] UNSC Panel report S/2016/157 of February 24, 2016, 41.
\item[32.] These types of sensors are available for less than $1,600 per unit or under $9,000 for complete systems.
\item[33.] Pukguksong translates to Polaris, or North Star, in English.
\item[34.] UNSC Panel report S/2020/151 of March 2, 2020, 70-71, 227-31.
\end{itemize}
Defectors
Another effective way to look into North Korea and get a snapshot of activities within the secretive country’s programs is to interview defectors. I use the word snapshot deliberately because the freshness these individuals’ knowledge stops the moment they leave and the time lapse before the panel gains access to them is often significant. Although the panel cannot quote or mention these individuals to protect their identities, they are nevertheless invaluable in providing insights into the methodologies, activities, and hierarchies of those carrying out the illicit activity. Furthermore, an unspoken rule dictates that defector testimony per se does not meet evidentiary standards. It is nevertheless very helpful by providing insight into direction for investigations and broadens the scope of what is known but still needs to be verified.

Across the Borders
An important part of the maritime domain is the monitoring of the flow of trade that goes by sea from North Korea to nearby foreign ports for transshipment, such as those in the Chinese ports of Dalian and Dandong (which is relatively close by road and rail via the Yalu River) on the west coast, and Russian Far East ports on the East Coast and across the Tumen River by road and rail (particularly the Trans-Siberian rail link). I have had investigations from concerned banks regarding marine diesel ostensibly destined for Chinese companies, but the rail link crosses over the Tumen River via a North Korean station before crossing over again to China.

Economic data also provides a way to monitor maritime activity from North Korea because certain exports from the isolated country can be shipped only by sea. This provides the panel with a clue that can be used to trigger investigations into trade prohibited by the resolutions. This information is available from the UN Comtrade database, a free repository of official international trade statistics and relevant analytical tables.55 Because North Korea does not provide trade data, the panel does reciprocal calculation of imports to trade recipients to extrapolate exports from the secretive country.

Korea Watchers Community
For the panel, and particularly in the maritime environment, Korea watchers are a highly effective force multiplier. These groups and individuals often have access to greater resources and many highly talented analysts at their disposal. The panel often meets with analysts, experts, and diplomats for briefings, discussions, and an exchange of ideas. The importance of such engagements is often in breakthroughs in cases or in pieces added to the puzzle that enable the panel to take cases further by providing additional avenues of enquiry or context or details that clarify the meaning or importance of information at hand. The inverse is also true, on many occasions I have seen Korea watchers take information from panel reports and open up new windows on incidents of evasion or deception.

CONCLUSION
This paper intended to share insights into the work of the UN Panel of Experts

for North Korea, and how the experts do their research and investigations on what is a highly secretive, inaccessible country, faced with the most comprehensive sanctions regime in history. Being denied access and having to work from New York is both difficult and challenging. It can be done, however, using a combination of technology, data, and the support of cooperating states, providing evidence of evasion activities and violations of a multitude of sanctions measures impacting the maritime domain. Looking into the country invariably entails looking outside the country and working to trace the activity back to North Korea, often in multiple steps. The challenge is heightened when North Korean and other complicit actors employ counter strategies and tactics to obfuscate their identity, tracks, and networks to mislead due diligence efforts and their connectivity to North Korea.

Only eight members serve on the panel, each with a distinctive portfolio. Mine was the maritime domain, which linked up with nearly every case and often constituted the bulk of the seven reports I contributed to. The evasion going on is considerable: the adage “high risk–high gain” applies, given the money to be made in sanctions and North Korea seeing itself in survival mode. If you are seeking granular detail on the cases, actors, typologies, and deception, I urge you to seek out the reports. They often read like a spy novel, full of intrigue, twists, and turns.

**NOTE:** All opinions expressed are solely my view and are independent from the current Panel of Experts. Images for this paper have been sourced from the UN Panel of Experts final and midterm reports.
REFERENCES


The Lap of Luxury: Using Open-Source Data to Trace North Korea’s Procurement of Luxury Goods

ABSTRACT

More and more information is becoming available as reporting or in studies, or when North Korea decides to show the rest of the world something in a parade or a Kim Jong Un review. Customs data may help corroborate and identify the sourcing of those items or materials. It does not always do so, particularly in regard to luxury goods. The UN Security Council bans the export of luxury goods to North Korea but has delegated the definition of what a luxury good is to member states. The more clearly defined a luxury good, the more North Korea works to obscure its origins from customs data and authorities—taking advantage of an imperfect system where countries are not always committed to enforcement. This paper examines two sets of luxury goods: Russian thoroughbred horses and two armored Mercedes. One is not clearly defined and one is. The goal of this paper is to analyze the patterns and trends of North Korea’s acquisition of luxury goods through illicit trade and provide a set of recommendations to help identify ways to capture illicit activity and strengthen enforcement.

INTRODUCTION

Photographs and video footage are windows into North Korea’s purchasing capabilities and show us where sanctions have failed. Footage from North Korea’s military parade celebrating its seventy-fifth anniversary makes it clear that sanctions have not had the desired effect. Noncommercial, publicly available trade data from UN Comtrade enables identifying the source from which North Korea was able to import some of the goods and materials visible in those images. Other goods remain untraced, obscured from government recorded customs data. The focus of this study is how North Korea obtains the luxury goods it does.

I review noncommercial open-source information to examine the trends and patterns of North Korea’s luxury goods trade and to identify the schemes Pyongyang uses to circumvent sanctions and local customs laws and regulations so
that its transactions are untraced. I also review unpaid literature that has analyzed commercial data in its research and made that research publicly available free of charge. My goal was to use open-source information that would be available to anyone at no cost.

The first step is to assess how luxury goods are defined. The definition alone is problematic and made enforcement on the luxury goods ban to North Korea challenging, to say the least. The term luxury goods is not defined by the UN Security Council, which prohibits luxury goods transfer to North Korea but then delegates the responsibility of defining such goods to individual member states. This in turn has often created confusion and challenges to both the Security Council and member states seeking to impose their obligations under Security Council resolutions in the interpretation of luxury goods and how to define them from country to country. No standard international definition has been established. Member states at all levels of development are individually expected to define luxury goods in their domestic policy.

Two types are reviewed here. The first involves the payment schemes related to North Korea’s import of Russian thoroughbred horses over the years, horses recently used in the military parade celebrating the country’s seventy-fifth anniversary. Russian definitions of luxury goods are limited to address the status of the horses and whether they meet the threshold. The US Department of Commerce luxury ban is far more comprehensive. The definition of the horses remains ambiguous but may depend on how the horses are used. According to the Commerce Department’s Bureau of Industry and Security, horses may be considered livestock. North Korea, however, does not use them as such.

Do the horses meet the thresholds of a luxury good, even under US standards? Perhaps the answer depends on the breed of horse. The white horses in the parade or the ones Kim Jong Un rides are Russian thoroughbreds, so not all the horses North Korea imports qualify as livestock. The definition remains problematic in the most sophisticated of sanctions regimes and gets increasingly complicated quickly.

The second type of luxury goods are the two armored and illicitly imported Mercedes. Mercedes, a German company, has several transshipment points: Rotterdam, Dalian, Osaka, Busan, Nahodka. Unlike Russian thoroughbred breeders, Germany, Mercedes, and the company manufacturing the armored protection for the vehicles were likely unwitting participants. Here, the UN 1718 Sanctions Committee (DPRK) has defined high-end vehicles as luxury goods, leaving little ambiguity.

These two items were selected both to analyze North Korea’s illicit imports and assess how Pyongyang circumvents sanctions and to better understand when parties are complicit and when they are not. The trends and patterns in these two models could help regulators and authorities detect illicit activity. They also illustrate North Korea’s ability to continue to abuse the international trade and finance system by violating international sanctions.

Sources used include the UN DPRK Panel of Experts’ annual reports over the last several years, news articles, rules and regulations of countries where the illicit trade is taking place, UN Security Council resolutions, research from the Washington-based Center for Advanced Defense Studies (C4ADS), the Institute for Science and International Security, noncommercial customs data from UN Comtrade, and photos and video footage, including from North Korea. The UN Comtrade database was used for detailed exports of specific traded goods per the Harmonized System, short for Harmonized Commodity Description and Coding System, or HS code. HS code is a standardized international system used to classify products in shipments. The data pulled from UN Comtrade supporting North Korean trade, however, clearly do not capture traded goods North Korea is able to obscure. First, North Korea does not report any data. Second, countries do not always report all of their trade activity, particularly their exports, given that most countries tend to tax imports and not exports. To capture North Korea’s imports, we would have to pull export data from countries to North Korea, which could be less reliable. Finally, UN Comtrade data do not necessarily contain entity-level information; this study did not use any commercially available trade data sources to investigate specific entity-level information.

As sanctions have tightened and Pyongyang has become more adept at circumventing them by using evolving elaborate illicit payment schemes, tracking North Korean illicit activity has become increas-

ing more difficult. Photos and video footage released from North Korea give us an additional glimpse into what it has acquired beyond the new missiles and gear showcased during the parade. The day-to-day images of Kim Jong Un reviewing sites are a window into the country. They range from Kim traveling in his growing luxury fleet of vehicles to inspect areas affected by typhoons to riding horseback with his inner circle to Mount Paektu, the mythological birthplace of his father, Kim Jong Il. Kim is not shy about any of these goods. If anything, he flaunts them, caring little about sanctions ramifications or criticism from abroad.

Luxury goods are significant in the North Korean regime as a tangible reward as well as for their symbolic importance and cultural significance that builds friendship and loyalty, as the Panel of Experts 2020 annual report highlights. Despite sanctions, Pyongyang is still able to source them.

**RUSSIAN HORSES**

The greater the difficulty in assessing whether a luxury good is indeed a luxury good, the fewer restrictions the Security Council is able to impose on North Korea to import them. This in turn makes it increasingly difficult for the United States and its allies to hold North Korea accountable for items that may have a dual purpose, such as the horses. Such workarounds enable Kim to maintain loyalty among the Pyongyang elite. Kim is able to work around Security Council resolutions faster than it is able to adopt new ones (as the United States struggles to press China and Russia to support stronger measures) to address his acquisition of goods that help him to further sustain regime objectives of advancing the country’s weapons programs.

Access to the Russian horses is providing Kim Jong Un with two benefits. The first is propaganda domestically to promote a mythical legacy, and the second is that the horses are often gifts for loyal members in Kim’s inner circle. As sanctions tighten and Kim looks for non-sanctioned items to use as potential luxury goods, the horses may be complementary substitutes. However, horses require considerable daily care, especially thoroughbreds, and the care is not inexpensive. Responses to a horse-ownership survey from the University of Maine found that the average annual cost of ownership is $3,876 per horse; the median cost is $2,419. In North Korea, the cost is probably lower but still well above any amount any ordinary North Korean would be able to afford. North Korea showcased at least forty horses during its seventy-fifth anniversary military parade. The horses appear to be healthy and well cared for (image 1).

North Korea imported 128 horses between 2010 and 2019 and spent nearly $600,000 that we know of according to Russian custom data available on UN Comtrade (see figure 1). The UN Harmonized System code used for the horses was 0101. It is extremely difficult to gather data on North Korean trade and the discrepancy among open sources. Identifying patterns when trends are divergent or complementary is informative to help capture North Korean efforts to offset losses from goods that are clearly identified as luxury goods. According to customs data pulled by Reuters, Russia exported twelve horses worth a total of $75,509 to North Korea in 2019, which conflicts with the UN Comtrade data on the numbers of horses exported. The amount, however, is the same. UN Comtrade also reports Russia exported 128 horses during that period; Reuters cites 138. The amount and quantity from Reuters and UN Comtrade mirror each other for 2015. Reuters reports the total during the entire 2010 to 2019 period is $584,304. UN Comtrade reports $584,291.

The value discrepancy is small and therefore not significant. The quantity discrepancy, on the other hand, is large and requires further examination, as well as the whole dataset and what kind of payment schemes Pyongyang could be using. Before 2010, North Korean purchases of horses were less frequent, its last purchase being in 2001, when it imported ten for $15,000 total. Before 2001, the previous purchase was in 1997. As figure 2 makes clear, however, the

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unit cost North Korea paid per horse varied greatly over the period.

The pattern does not differ greatly from other importers of Russian horses (see figure 3). North Korea’s unit value per horse, however, is higher in certain years relative to other noteworthy importers of Russian horses, such as China and Kazakhstan—both of which have imported hundreds of thousands of horses in a given year.

Why did North Korea pay so much more for the Russian horses in 2014 and 2019? Perhaps the payment schemes could provide insight: they may not be entirely legitimate even though the horses themselves were not subject to sanctions; Pyongyang could have violated UN and US sanctions as well as local laws.

Most countries, such as the United States, have caps or reporting requirements on the amount of cash individuals can take out of the country. Russia and China have similar requirements. Travelers can generally take the equivalent of $10,000 of foreign currency out of Russia and $5,000 out of China. China enforces an additional restriction of 20,000 RMB in or out of China. This limit is applicable to local residents and foreigners. Otherwise, both Russia and China require permissions issued by a bank if the amount is higher. The required amount exceeded customs laws in both countries in 2014 and 2019 and would have required special permissions. The money may have never left China or Russia and was possibly paid using local bank accounts held by North Korean individuals abroad, North Korea-linked companies abroad, or foreign nationals abroad with extensive commercial or political relationships with North Korea who operate de facto correspondent accounts for DPRK financial institutions.

The figures for 2014 and 2019 in figure 3 suggest that North Korea paid more per horse than at least two other countries in the region. Given North Korea’s history, it likely paid a premium for the horses to begin with. It would have behooved customs officials to scrutinize the purchase and should prompt additional investigation on the purchase.

**ARMORED MERCEDES-MAYBACH S600**

In 2013, the United Nations defined automobiles for private transport as a luxury good in Security Resolution 2094, but North Korea continues to acquire them, including high-end luxury vehicles. According to C4ADS, Kim Jong Un appeared in a new Rolls Royce Phantom to meet US Secretary of State Mike Pompeo in Pyongyang during Pompeo’s visit in October 2018. Several months later, KCTV showed Kim appearing in an armored Mercedes-Maybach S600 Guard, which is marketed to heads of state and is valued at more than $500,000. Kim’s fleet of luxury vehicles also appeared

During his meetings with President Donald Trump in Hanoi and Vietnam then with President Vladimir Putin in Vladivostok, Russia, and again with Chinese President Xi Jinping in Pyongyang.\(^\text{10}\)

The Panel of Experts’ investigations over the years show that North Korea retains the ability to obtain luxury automobiles, often through elaborate supply chains, despite the restrictions imposed by most manufacturers’ compliance programs. For example, the Panel and C4ADS obtained information received from one country that in 2020, North Korea continued attempts to import Mercedes-Benz S-Class limousines using companies based in third countries. Other vehicles include Audis and Toyotas. A report from C4ADS found that North Korea imported 803 luxury vehicles from 2015 to 2017, the majority originating from Russian companies.\(^\text{11}\)

C4ADS conducted a study that assessed that North Korea acquires high-end luxury goods using smuggling techniques similar to those of its weapons programs. C4ADS argues that “high-end luxury goods share key features with dual-use goods for North Korea’s weapons program: they are scarce, specialized products with high monetary value and great symbolic importance for the Kim regime. However, unlike dual-use goods, luxury products like armored Mercedes vehicles are easily identifiable on publicly available trade records and at port.”\(^\text{12}\)

Most of these vehicles have appeared in photos or in video footage; other images were obtained directly by the Panel of Experts. Some of these vehicles continue to be armored by a third party. Their origins are difficult to ascertain and the accuracy of the reporting by countries exporting vehicles to North Korea remains spotty, especially in more recent reporting. Countries reporting trade with North Korea capture only the surface of the relationship. It is fair to suspect more going on than the reporting indicates.

Figure 4 offers a snapshot of what countries are reporting in their exports of vehicles to North Korea using HS Code 8703, illustrating which countries are reporting the aggregate value. It is difficult to ascertain how much of this value comes from the export of luxury vehicles to North Korea or whether any of these countries acted as a transshipment hub.

C4ADS reports that North Korea imported at least $191 million worth of luxury goods from 2015 to 2017, sourced from “as many as 90 countries” in violation of United Nations sanctions.\(^\text{13}\)

### Figure 4: Exports of vehicles to North America

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>REPORTER</th>
<th>TRADE VALUE (US$)</th>
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<tr>
<td>2015</td>
<td>China</td>
<td>$21,377,507</td>
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<td>China</td>
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<tr>
<td>2019</td>
<td>United Arab Emirates</td>
<td>$33,764</td>
</tr>
</tbody>
</table>

Source: UN Comtrade

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10. Lucas Kuo and Jason Arterburn, “Lux & Loaded: Exposing North Korea’s Strategic Procurement Networks,” C4ADS, 2019, [https://static1.squarespace.com/static/566ef8b4d8af107232d5358a/t/5d307a43bf42140001877def/1563458128965/Lux+%26+Loaded.pdf](https://static1.squarespace.com/static/566ef8b4d8af107232d5358a/t/5d307a43bf42140001877def/1563458128965/Lux+%26+Loaded.pdf).
here, though, is to review the open-source materials reporting North Korea’s import of two Mercedes-Maybach S600s. This vehicle’s armor protects occupants from steel-core ammo fired from assault rifles and from explosive devices. The vehicle also has leather massaging seats. C4ADS scoured eight months’ worth of customs records, shipping data, bills of lading, and other open-source documents to determine how the vehicles made their way from Rotterdam to Pyongyang.

On June 14, 2018, the two vehicles—which cost about $500,000 each—began their journey in two sealed containers from the Dutch Port of Rotterdam in the custody of China Cosco Shipping Corporation. It is not clear who initially purchased the vehicles. Daimler, the company that owns Mercedes, claimed that it is unaware how the vehicles were delivered and where they come from: “Our company has had no business connections with North Korea for far more than 15 years now and strictly complies with EU and US embargoes. To prevent deliveries to North Korea and to any of its embassies worldwide, Daimler has implemented a comprehensive export control process, which we consider appropriate and effective and which meets all requirements of the export control authorities.”

Could Daimler have done more? What did it miss? At what point was North Korea able to break the supply chain and obtain the vehicles? “Sales of vehicles by third parties, especially of used vehicles, are beyond our control and responsibility,” Daimler told CNN. “We always investigate the vehicles displayed on the photos in the media thoroughly. However, without the vehicle identification numbers it is impossible to find a concrete trace.” According to open-source research, it has been difficult to ascertain whether these vehicles were used or were imported as new. According to NK News as cited by C4ADS, however, when the vehicles spotted in Pyongyang in January 2019, they had customized wheels, indicating that they were not directly sold by [the manufacturer] but have been modified by a third party.”

They might also have been modified by North Korea for one reason or another, but C4ADS stipulates that because the containers remained sealed between Rotterdam and Busan “any vehicle modifications likely would have been made prior to their departure from the Netherlands or after their plausible arrival in the Russian Far East.”

Daimler says Mercedes runs background checks on potential buyers of the vehicles to ensure that the company is not selling to sanctions violators. What went wrong? Daimler cooperated with the Panel of Experts and told them Daimler is not alone in its poor insight into its distribution chain. These cases may be the exception. Companies need to do a better job of working with distributors and ensuring their supply chains are not compromised. It may have reached Nakodka; it may have not, but the vehicles were consigned to Do Young Shipping, registered in the Marshall Islands and one other ship, the Panama-flagged oil tanker Katrin, which was already implicated in other DPRK-linked sanctions evasions.

According to C4ADS, Russian businessman Danil Kazachuk may own Do Young Shipping. This is not clear, however, because records from the Marshall Islands, being where it had originally disappeared. It took months and thousands of miles through six countries before the vehicles arrived in Pyongyang, having made stops in China, Japan, South Korea, and Russia before being flown to their final destination, Pyongyang, where only Kim Jong Un would benefit from riding them.

C4ADS determined the linkages from Rotterdam to Busan, South Korea. After Busan, the vehicles were placed on the Togo-flagged DNS5505, per the bill of lading. From there, North Korean-linked traders were able to mask its trace. After the DNS5505 left Busan, it reported via its Automatic Identification System (AIS) that it would reach Nakhodka, Russia, on October 5, 2018. It then turned off its transponder and disappeared. When it turned the transponder back on, its AIS identified it as

Daimler is not alone in its poor insight into its distribution chain. These cases may be the exception. Companies need to do a better job of working with distributors and ensuring their supply chains are not compromised.
a secrecy jurisdiction, are not definitive. Documents obtained by C4ADS show Kazachuk as having owned the Katrin for about a month in 2018.\textsuperscript{22} The scheme to purchase high-end luxury goods offers North Korea an opportunity to engage in schemes to export its commodities and mask their origin. C4ADS notes that DN5505 was heading in the opposite direction back to Busan. In this example, Pyongyang was able to mask the origins of its coal while obtaining the vehicles in an elaborate scheme.\textsuperscript{23} On November 2, the DN5505 submitted a bill of lading to South Korean customs authorities that showed that the vessel imported 2,588 metric tons of 'anthracite coal in bulk' allegedly from Nakhodka, where no record exists of its arrival.\textsuperscript{24} North Korea also likely pays a premium for this service.

Nakhodka, however, has no record of the DN5505's arrival and UN Comtrade does not show that Russia engaged in any coal trade with North Korea in 2018. The New York Times reports that Kazachuk acknowledged in a telephone interview his relationship to the DN5505, but provides no further details about the cargo or whether he had transferred the vehicles to North Korea.\textsuperscript{25} What actually happened?

On October 7, two days after the estimated arrival of DN5505, three Ilyushin-76 cargo jets operated by North Korea’s Air Koryo reportedly flew from Pyongyang to Vladivostok. The jets are often known to be used by North Koreans to transport armored vehicles used by North Korea’s elites. According to C4ADS, they are rarely spotted in Vladivostok. Four months later, on January 31, 2019, the same vehicles were seen on the streets of Pyongyang.\textsuperscript{26} South Korea’s Enermax was listed as the consignee on a bill of lading for a shipment of 2,588 metric tons of coal from Nakhodka to Pohang port on November 1, 2018, aboard the DN5505 on the return trip from shipping the two Mercedes-Benz vehicles that reportedly ended up in North Korea. The consignor was Do Young Shipping, a Marshall Islands shell company that is also the owner and ship manager for the DN5505. South Korea had previously detained the DN5505 in Pohang for importing North Korean coal from Nakhodka in February and referenced the DN5505’s coal import in November 2018. Enermax claimed in a press interview that it had taken another local broker at his word that the coal originated in the Russian Federation. Enermax never responded to the Panel’s inquiries.\textsuperscript{26}

Failure of the South Korean firm Enermax to respond to the Panel of Experts is problematic because it sends the wrong message to other countries. If anything, South Korea should have encouraged Enermax to respond.

The failure to respond enables North Korea to continue its illicit activities, abusing countries’ territories and their companies.

Smuggling high-end vehicles is nothing new for North Korea. Mercedes seems to be a preferred brand. Four Mercedes-Benz S-600 limousine conversions were observed during military parades in Pyongyang on April 15 in 2012, 2013, and 2014, and again in October 2015. The Panel of Experts reported in February 2016 that three shipments of such limousines were allegedly diverted to North Korea in 2010 and 2011. The vehicles, which originated in Europe, were armored and customized in the United States before transshipment to North Korea via China. The Panel had obtained correspondence between Chinese businessman Young Ma, also known as George Ma, who organized and financed the shipment of the Mercedes from the United States, and a US-based freight forwarder who agreed to facilitate the transaction.

UN sanctions not only prohibit North Korea’s development of its weapons proliferation programs but also ban individuals and entities from selling any luxury goods to the country. Yet Kim Jong Un is usually seen being chauffeured in what is believed to be a $1 million Mercedes-Maybach Pullman Guard armored limousine.

As the end user, North Korea uses complex, constantly evolving schemes to circumvent sanctions and export controls as it obfuscates its origins to obtain illicit goods. It constantly reverts itself to that end and often pays premiums for such service, making the goods costlier than their retail value.

Understanding how North Korea smuggled goods is not easy. Complex and constantly evolving, the schemes become more and more difficult to unravel. North Korea obtains luxury goods, weapons-related materials, commodities all through well-planned, orchestrated overseas illicit networks. It uses similar networks for weapons smuggling.\textsuperscript{27}

Understanding the patterns and trends to North Korea’s schemes may not be difficult but identifying the country’s networks and catching players in the act before the transactions are finalized has seen mixed results. North Korea has demonstrated that it is able to acquire both advanced weapons systems and gear as well as luxury goods. It has learned how to work with licit channels to obfuscate its illicit networks, making it even more difficult for authorities to trace the origins of goods. This makes it all the more import for manufacturers, companies, banks, and suppliers to understand their supply chains and know their customers’ customers.

**ANALYSIS**

The techniques used to smuggle high-end luxury goods, as mentioned, are much the same as those to smuggle materials for its weapons programs. The techniques are not new but involve a constantly evolving, elaborate scheme

of handlers, front companies, ship-to-ship transfers, and banking channels—
which often start with what appears to be a legitimate transaction. When countries
tighten sanctions enforcement, the schemes become more elaborate and intricate, making a successful transaction more difficult but not necessarily
impossible. Nonetheless, countries need to tighten and enforce sanctions.

In one year (2019–2020), the Institute for Science and International Security
identified more than 250 alleged North Korean sanctions violations involving
sixty-two countries, an increase of six countries over the previous year.28

Thirty-nine of the sixty-two were allegedly responsible for multiple (two or
more) documented sanctions violations. A dozen countries were involved in
more than five allegations. “China alone had over 60 alleged violations, representing almost 25
percent of the total number of alleged violations” during this period.29 “Hong Kong followed with over 20 violations,
and Sierra Leone, Russia and Indonesia each had a total of 10 or more alleged violations.” Several countries prevented
violations, for example, through interdiction and seizures of goods.

China was listed as not having taken action. Some instances were identified in
which Chinese entities made purchases on behalf of North Korea to obtain luxury
goods, as well as dual-use nuclear and missile components, to avoid sending
dollars back to North Korea. This scheme helped Pyongyang avoid issues with US
banking channels.30 Sanctions on luxury goods have not slowed North Korea’s ability to acquire
them. Instead, it has prompted Pyongyang to adopt more creative practices and
elaborate networks. The value of the

smuggled goods varies but is always significant. Sometimes affiliates, front
organizations, and third parties are complicit, not always necessarily wit-
tingly. When an actor is operating illic-
ily, they know what they are doing and
therefore do not always ask questions.
Their goal is to process the transaction,
deliver the goods, and take their cut.

Despite sanctions, North Korea continues
to access the international financial
system through joint ventures, offshore
accounts, and shell companies, using
a network of smaller banking channels
throughout Asia to circumvent sanctions
and widen its access to global

markets and supply chains. Most
foreign companies are likely participat-
ing unwittingly, and their negligence in
more careful compliance has created
a permissive environment. They lack
the resources, commitment, or skills to
adequately address appropriate com-
dience and due diligence to counter
North Korea’s access to their networks.
This is concerning.

C4ADS reviewed national implementa-
tion reports submitted to the Security
Council and identified thirteen jurisdic-
tions that have defined luxury goods in
any terms and of those thirteen, only a
few had invoked standardized commod-
ity codes. For each export control
regime, C4ADS matched product
descriptions to specific codes from the
HS Code.31 The user-to-user transaction
was entirely explicit in the trade, so
the only way to prevent the transaction
from taking place is to engage the sup-
do, they might not care as long as they
get their cut. As the cargo gets closer
to North Korea, however, the identity of
the end user is likely clear.

North Korean diplomats and represen-
tatives of overseas branches of North
Korean companies continue to facilitate
such transactions while working with
 correspondent entities and individuals
in third countries. The Panel of Experts
has documented numerous cases. From
the C4ADS report “Lux & Loaded,” it
was difficult to ascertain the points at
which North Koreans were involved
or the exact collaboration took place.
“Lux & Loaded” distinguishes between
luxury goods acquired through general
regional trade for broader consumer
markets and procurement of high-end
specialized goods for limited custom-
ers. C4ADS recommends that sanctions
practitioners look at how North Korea’s
domestic economic policy changes.

over time and how firms make purchases domestically and abroad.

The additional challenge with luxury goods that are not specifically identified by the UN 1718 Sanctions Committee (DPRK) or by member states is the definition. As noted, the UN defined all automobiles for private transport as a luxury good but horses as livestock. When in 2006 the UN first banned the export of luxury goods to North Korea in Resolution 1718, it delegated the responsibility of defining what constitutes a controlled luxury good to member states. Subsequent resolutions added items to the list, automobiles among them. The distinction was clear for vehicles. It was not for horses, for which no definition exists.

C4ADS and the Panel of Experts, meanwhile, argue that luxury goods need clear categorization. Between 2015 and 2017, North Korea was able to smuggle luxury goods from as many as ninety countries. Product descriptions of controlled items need to be better matched to HS codes, particularly for goods not clearly identified in any of the annexes.

An additional challenge is North Korea’s ability to procure foreign goods despite sanctions. North Korea maintains access to a vast array of luxury goods, procuring them from Western suppliers and through third-party facilitators. C4ADS makes the distinction, however, between general cross-border trade and high-end luxury items requiring a sophisticated procurement network.

C4ADS argues that enforcement has been inadequate because of unclear definitions for luxury goods, inconsistent implementation across jurisdictions, and the limited utility of current export control regimes to screen for luxury shipments. The UN has made some distinctions, such as automobiles, for which enforcement is lacking, but other luxury items need clearer categorization. Member states need more robust export control regimes to address the problem. In addition, member states need to agree to automatically implement UN mandates if they have not already limited domestic authorities, laws, and regulations to capture UN mandates on identified items.

**RECOMMENDATIONS**

Enforcement of Security Council resolutions requires member states to do their part. Countries need to bolster their enforcement mechanisms to prevent North Korea from taking any advantage of their territories. Doing so requires resources, time, and consistent commitment—and often sustained pressure from the United States because sanctions are not self-enforcing. This is challenging and usually requires US political capital because other bilateral issues may crowd the agenda. If companies, financial institutions, and authorities take steps to preempt illicit activity from taking place, it could potentially save hundreds of millions if not billions of dollars in North Korean illicit financial transactions. Pyongyang relies on front companies and illicit channels abroad to help it to trade sanctioned commodities and import luxury goods.

North Korea’s abuse of jurisdictions creates a permissive environment for other illicit behavior, eroding democratic freedoms and trust in institutions. Democratic freedoms may be less important in some of these countries but all of them want to build up their institutions. To ensure the integrity of their finance and trade flows, it would be in their interest to enforce robust measures to counter North Korean illicit behavior in their territories. The following recommendations will hopefully assist authorities, regulators, and manufacturers to implement more effective compliance:

- **Member states need to create robust export control regimes to categorize luxury goods appropriately.**
- **Member states should abide by UN mandates and scrutinize vessels with suspicious behavior, following the example of the Chong Chon Gang when Panamanian officials detained the ship. The actions that set in motion this success story may likely require foreign partners to work closely with US officials or the UN 1718 Sanctions Committee.**
- **Financial institutions should adopt artificial intelligence models to help combat the hidden codes of money laundering. Although not infallible, AI helps detect cryptic and suspicious SWIFT messages, erroneous invoice numbers, duplicate or linked addresses, and other money laundering clues buried in the terabytes of transactional data that financial institutions are responsible for monitoring. AI has the capability to process faster and analyze data tirelessly for actionable intelligence 24/7. Its cost efficiency will benefit financial institutions in the long run. Instead of training a staff of fifty to discern patterns of money laundering, institutions pay a small team of five developers to code. Financial institutions have already been using AI and other machine-learning tools for almost three decades in fraud detection.**

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**North Korea’s abuse of jurisdictions creates a permissive environment for other illicit behavior, eroding democratic freedoms and trust in institutions.**
management. They need to be widely adopted to prevent money laundering. This would capture suspicious transactions worldwide, not only in high-risk jurisdictions involving North Korea.

- US financial institutions should scrutinize clearing requests for US dollar transactions from correspondent banks for shipments of high-end luxury goods involving freight forwarders in high-risk jurisdictions, particularly in locations in China and Russia that are contiguous with North Korea. US financial institutions need to be more diligent about following up on any red flag requests.

- US financial institutions should be more diligent about knowing their correspondent bank relationships as well as the patterns and trends of finance and trade in those networks to better familiarize themselves with the red flags that may pop up. This will help maintain the speed of the US clearing system if they are more familiar with the challenges in specific regions while ensuring the integrity of the US financial system.  

- Insurers and reinsurers should include contractual language requiring consistent AIS transmission, as required by the International Maritime Organization, to acquire and maintain protection and indemnity insurance and reinsurance.

- Sanctions should be adopted as information becomes available rather than only after the next Security Council resolution. Member states should also adopt the long overdue recommended set of designations proposed.

- C4ADS and the Panel of Experts recommend that the Security Council “delineate specific commodity codes for export-controlled luxury goods and require member states to include export control lists for luxury goods in their national implementation reports. In order to facilitate information sharing among member states, the UN Panel of Experts should resume the practice of consolidating export control lists from member states and reproducing those lists in an appendix to each annual report. Member states should promulgate the aggregated export control list to relevant local authorities for harmonization with domestic export control systems, like the U.S. Department of Commerce Export Control Classification Number system.”

- C4ADS recommends “the intelligence and defense communities should consider the utility of publicly available information (PAI) for both the real-time identification of North Korean sanctions evasion and the production of analytical products that can be rapidly shared with partner agencies or governments, including participants in the Proliferation Security Initiative. Relevant stakeholders should identify opportunities to scale and accelerate collection and integration of PAI with traditional intelligence sources.”

- The Panel of Experts recommends that member states and relevant shipping and transportation companies adopt a thorough system for checking consignees, bearing in mind the risk of transshipment.

In conclusion, given how important luxury goods are to the regime, robust sanctions enforcement in this space offers a powerful legal instrument for law enforcement, regulators, companies to prevent abuse from North Korean illicit activity. Efforts to disrupt the operational networks that the North Korean regime requires to maintain its strategic procurement capability will personally frustrate Kim Jong Un, whose access to luxury goods, including well-tailored suits (image 2), likely acquired in Singapore or Hanoi during a meeting with President Trump, will be hampered as he prioritizes the development of the country’s weapons programs above the needs of North Koreans.

NOTE: The views and opinions expressed in this paper are solely those of the author and do not reflect the official policy or position of the State Department or any other agency.

34. Kuo and Arterburn, “Lux & Loaded.”
Biographies

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Yonho Kim is an Associate Research Professor of Practice and the Associate Director of GW Institute for Korean Studies. He specializes in North Korea’s mobile telecommunications and U.S. policy towards North Korea. His research focuses on North Korea’s cell phone usage, mobile money transfers, private transportation services, marketization, information control and circulation, and changing media environment. He is also interested in US domestic politics and the Korean peninsula, US-ROK relations, and nuclear negotiations with North Korea. Kim is the author of North Korean Phone Money: Airtime Transfers as a Precursor to Mobile Payment System (2020), North Korea’s Mobile Telecommunications and Private Transportation Services in the Kim Jong-un Era (2019), Foreign Media into North Korea: Finding Synergy between Pop Culture and Tailored Content (2016), and Cell Phones in North Korea: Has North Korea Entered the Telecommunications Revolution? (2014). Prior to joining GWIKS, he was Senior Researcher and the editor of the USKI Washington Review of the US-Korea Institute at Johns Hopkins University School of Advanced International Studies. From 2008 to 2015, he was Senior Reporter for Voice of America’s Korean Service where he received a “Superior Accomplishment Award,” from the East Asia Pacific Division Director of the VOA. From 2003 to 2008, he was a broadcaster for Radio Free Asia’s Korean Service. From 2001 to 2003, he was the Assistant Director of the Atlantic Council’s Program on Korea in Transition. He holds a B.A. and M.A. in International Relations from Seoul National University, and an M.A. in International Relations and International Economics from Johns Hopkins University School of Advanced International Studies.

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Neil Watts, formerly a Captain with 33 years’ service in the South African Navy, specialized in surface warfare and weapons systems, serving nearly 20 years at sea. Neil has served as the Maritime Expert on the United Nations Security Council Panel of Experts (POE) for North Korea from 2013 to 2018. He investigated sanctions evasion, illicit shipments and networks, tracking suspect vessels worldwide and uniquely boarded several North Korean and North Korea-controlled vessels, starting with the Chong Chon Gang in 2013. Neil was also responsible for monitoring North Korea’s navy, which included the Sea Launched Ballistic Missile (SLBM) program. He co-authored seven reports for the UN Security Council and authored the Maritime Sanctions Handbook for the DPRK. Prior to joining the Panel, he served on the South African National Maritime Security Advisory Committee, the Priority Committee for Maritime Security, and as a member of the Southern Africa Development Community (SADC) Counter-piracy Assessment Group. Until 2013, he was responsible for developing and executing the national counter piracy strategy. Neil obtained an MA in International Security and Global Justice at Brooklyn College CUNY, is a graduate of Stellenbosch University, the South African Executive National Security Program (First place and best academic paper) and the Joint Senior Command and Staff Course. He is a Senior Contributor, Maritime Security for Compliance and Capacity Skills International (CCSI), and a Senior Research Associate for Kings College London, United Kingdom - Project Alpha. 

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This series analyzes issues and developments related to the North Korean economy, offering contributions that are relevant for both academic audiences and policy specialists. Papers within this series will cover a broad range of relevant topics, from North Korean economic history, to North Korean foreign trade and the impact of sanctions, to the dynamic interactions between markets and central planning in North Korea. Prospective authors who wish to publish in this series should contact the editor.