COAL DIPLOMACY:
THE POLITICAL ECONOMY OF NORTH KOREAN COAL

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Executive Summary

The North Korean regime is using coal in tremendously sophisticated and strategic ways to thrive despite economic sanctions, and private Chinese trade companies are knowingly or unknowingly playing a critical role. North Korea is effectively evading sanctions, and coal is their principal vehicle to do so. Coal is a strategic resource for the North Korean regime. In 2013, North Korea eclipsed Vietnam to become the world’s number one exporter of anthracite, the highest ranked type of coal. Coal generated $1.4 billion in revenue for the DPRK in 2013, 10% of the country’s GDP. These profits are providing the hard currency that the regime relies on to procure much of what it most needs. Business elites in a few newly formed state-owned, but privately-controlled trade companies in North Korea are thriving—coal being the most significant income contributor. North Korea’s business elites are highly intelligent economic sharpshooters who methodically take advantage of Chinese decentralization to maximize profits. Until this PAE, no researcher has comprehensively put the pieces together to develop a robust explanation of how the North Korean regime survives through this means.

The commonly held view of the North Korean regime as weak, poor, and on the brink of collapse is proving to be inaccurate. Targeted sanctions imposed by the UN Security Council are creating major unintended consequences whereby the North Korean regime has become more stable, wealthier, and their business practices more durable and sophisticated.¹ The largest source of revenue for the regime—its mineral trade with China—is outside of the scope of targeted sanctions, because such trade does not directly violate current UNSC resolutions.

North Korea’s newly-formed trading companies:

(1) Stockpile refined oil, effectively insulating North Korea from international pressure, allowing the regime to brazenly move forward with its nuclear weapons program,

(2) Leverage the coal trade as a convenient means to keep their money in unregulated individual accounts in the Chinese banking system, or offshore bank accounts elsewhere,

(3) Use their coal as a commodity in a barter system with private Chinese trade partners, and

(4) Set an artificially low price to incentivize private trading firms in China to do business with and procure goods for North Korea.

A group of Chinese private trade broker firms, whose function is similar to that of a U.S.-licensed customs broker in compliance with U.S. Customs and Border Protection Agency regulations, are unknowingly or knowingly facilitating North Korean acquisition of items such as refined oil, cell phones, and dual use items that can be used as weapons components. Sometimes, these Chinese brokers do not know the content of an export item for which they filed the customs report. North Korea exploits many of the opportunities resulting from China’s easing of regulations as part of its accession into the World Trade Organization. The Chinese central government still tightly controls crude oil exports to North Korea. Our research supports this fact. However, over the recent few years Chinese business and

government leaders have overlooked the refined oil trade because North Korea’s national refined oil needs are the equivalent of only one-half of a small city in China. Furthermore, the Chinese central government’s counter-smuggling campaigns are often undermined by its local governments, which are tasked with enforcing these campaigns, but have little incentive to do so.

The DPRK regime’s top economic priority is not dramatically reforming the North Korean economy, but rather strategically using its coal trade with Chinese partners. North Korea’s new trading companies, established by business elites as a result of the economic liberalization over Kim Jong-il’s “market reform” in 2002, siphon coal profits, which create new opportunities to acquire critically needed goods like refined oil and other sanctioned items as documented by the UN Panel of Experts Reports. North Korea exports anthracite which is used for manufacturing steel as a cheaper substitute for coke. North Korea strategically undercuts its main competitors—Russia and Australia—because of what we refer to as “regime advantage.” The centrality of coal to the North Korean regime is much deeper than Western analysts have previously conjectured. In 2003, coal comprised just 3.9% of the DPRK’s total export revenue to China. Last year, in 2013, coal comprised 47% of North Korea’s total export revenue with the PRC. Coal has become North Korea’s national champion industry, which is breathing new life into the regime.

After the failure of the Six-Party Talks, the United States government scaled-back its engagement efforts with the DPRK and seemed to shift toward a de facto policy of “strategic patience.” China, on the other hand, began in 2009 to more proactively shape the security environment vis-à-vis the DPRK by implementing a series of cooperative frameworks in economy, trade, and tourism. These cooperative frameworks between the PRC and the DPRK laid the foundation for the robust increase in trade that followed.

The purpose of this paper is to provide the governments of the United States and China with more informed policy levers that can be implemented to more effectively influence the North Korean regime. Our recommendations fall under the framework of improving U.S.-China relations. We seek to empower Washington and Beijing with new tools in their respective and collective toolkits that can be put in place now to prepare for a future security crisis provoked by North Korea. We endeavor to show readers in both countries that there is room for cooperation between Beijing and Washington in proactively forming operational policies toward the DPRK. We recognize a major obstacle to forming a more effective North Korea policy is the lack of mutual trust between the United States and China.

As a result of our findings, we recommend that:

**Beijing and Washington Jointly**

1. Deepen information sharing between the U.S. Treasury Department’s Office of Foreign Assets Control and the Chinese Central Bank’s Counter Money Laundering Agency in

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2 All four reports are available at: https://www.un.org/sc/committees/1718/poereports.
3 Authors’ calculations based on Chinese Customs as reported to Global Trade Atlas.
regards to trade finance and sanctions evasion, and organize an ongoing monthly meeting at the International Law Enforcement Academy’s Bangkok office.

2. Ensure all four UN Panel of Expert reports are disseminated to and understood by personnel working “on the ground” on export control issues at the following agencies: U.S. Customs and Border Protection, U.S. Coast Guard, U.S. Federal Bureau of Investigation, Chinese Customs, Chinese Ministry of Public Security, and Chinese Coast Guard.

3. Convene an annual executive education program for 100 senior government officials from China and the U.S. to build capacity in addressing money laundering, illicit trade, policy coordination between federal and the state governments, enforcement of export control mechanisms, and sanctions evasion.

4. Commission the Council on Foreign Relations and the China Institute of International Studies to issue an annual research report to review the cooperation and communications efforts between the U.S. and China in the above areas.

**Washington**

1. Continue to implement measures outlined in Executive Orders 13466, 13551, and 13570 regarding the DPRK’s sanctions evasion activities.

2. Incentivize U.S. foreign direct investment into the Chinese provinces of Liaoning and Jilin aimed at ethnic Koreans, providing viable livelihood opportunities that will substitute for activities that support the North Korean regime.

3. Under the auspices of the U.S. Agency for International Development, the UN Development Program, and the Korea International Cooperation Agency, initiate a vocational and education program to improve the living conditions of ethnic Koreans living in China.

**Beijing**

1. Enact an executive regulation enforcing existing Chinese law to force private Chinese companies doing business with North Korea to file their trade contracts with Chinese Customs; prohibiting the use of anonymous cash accounts, forbidding the use of cash in any transaction, and freezing assets in the case of non-compliance.

2. Regulate North Korean coal sellers by forcing them to deposit mineral money into transparent bank accounts monitored and frequently audited by the Chinese government; seizing assets in the event of non-compliance.

3. Create regulatory laws mandating that only qualified banks and bank branches, qualified brokers, and qualified traders be allowed to participate in transactions with the DPRK; entities found in violation will be criminally charged, and in the event of an additional nuclear test, close suspicious accounts.
Introduction

We examined the substantial increase in North Korean coal exports to China in recent years and the ways that this trade helps North Korea get the goods that it most needs despite UN sanctions. We propose a variety of steps that China and the U.S. could take to ensure that this trade proceeds only through legal channels, which could serve both Chinese and U.S. national interests.

Readers should understand current China-North Korea coal trade in the context of recent history. Namely, China’s initial strategy was to offer new incentives to encourage North Korea to denuclearize in the Six-Party Talks setting. However, when the Six-Party Talks failed in 2008, the U.S. significantly scaled-back its attempts to engage with North Korea, while China increased its efforts to stabilize North Korea unilaterally.

In Section 1, we discuss recent developments in DPRK-PRC trade that caused us to ask what was driving the massive increase in cross-border transactions. Implicit in this discussion is how the North Korean regime has adapted to UN and U.S. sanctions in surprising ways. Additionally, this section includes an analysis of China’s recent foreign policies toward the DPRK which have facilitated an increase in trade. Section 2 then goes into the critical role that coal has played in contributing to the increase in trade between China and North Korea. It includes an extensive economic analysis of the energy export market in the DPRK. In Section 3, we delve into the business side of the coal trade, and describe how coal transactions between Chinese and North Korean actors actually take place. Also, questions such as what happens to the coal once it enters China will be addressed. Section 4 discusses why we believe coal is not just a side benefit that aids North Korea, but a strategic resource that is critical for the survival of the North Korean regime. Coal profits enable the DPRK regime to procure refined oil, which is then stockpiled to create the conditions conducive for the regime to conduct nuclear tests without fear of regime collapse-inducing punitive measures. This section shows how North Korean state trading companies use bank accounts in Hong Kong, mainland China, and elsewhere to procure refined oil and other goods. We will also explain how coal is used as a cash equivalent in a barter trade with Chinese partners, and how North Korean trading companies strategically manipulate their coal export prices to undercut their competitors. Finally, Section 5 outlines our recommendations to Washington and Beijing, both on a joint and an independent basis, in areas the U.S. and China can work together closely to influence the North Korean regime more effectively. Readers of this PAE will understand how the current sanctions being implemented by the UN against the DPRK are not relevant to the core interests of the regime.

Sources and Methodology

We obtained the bulk of our data from the UN Commodities Trade website (comtrade.un.org) and Chinese Customs as reported to the Global Trade Atlas database (www.gtis.com/gta/). The Global Trade Atlas is run and operated by Global Trade Information Services, Inc. We primarily based our estimates of North Korea’s internal economy on data obtained from the Bank of Korea. The Bank of Korea issues annual press releases analyzing the North Korean economy on their website (www.bok.or.kr/eng/engMain.action). We examined publicly
available estimates on the DPRK’s economy, its exports and imports, and regional economic statistics. Furthermore, we obtained much of the information used in this paper through analysis of open-source Chinese language websites.

In order to understand PRC-DPRK trade at a local level, the authors interviewed Chinese actors who trade with North Korea as well as several U.S.-based experts on PRC-DPRK trade. We interviewed journalists, government officials, and representatives from six different businesses involved in the DPRK-PRC energy trade in five different cities in northeast China to understand how these transactions work. We interviewed Ambassador Christopher Hill, former Head of the U.S. Delegation to the Six-Party Talks and former U.S. Assistant Secretary of State for East Asian and Pacific Affairs; Dr. Gary Samore, former White House Coordinator for Arms Control and Weapons of Mass Destruction; Mr. Scott Snyder, Senior Fellow for Korea Studies and Director of the Program on U.S.-Korea Policy at the Council on Foreign Relations; Dr. Nicholas Eberstadt, Henry Wendt Chair in Political Economy at the American Enterprise Institute; Director Drew Thompson, Director for China, Taiwan, and Mongolia at the Office of the Secretary of Defense; Deputy Assistant Juan Zarate, former Assistant Secretary of the Treasury for Terrorist Financing and Financial Crimes and Deputy National Security Advisor for Combatting Terrorism; and several other government officials. Finally, to better understand anthracite and the coal market generally, we interviewed Senior Mining Engineer Donald Ewart Jr., a professional engineer at Golder Associates, Inc.

Our analysis of North Korea’s offshore accounts involved investigations of publically-available shipping contracts (including bills of lading and letters of credit), international tax law, and cross-border tax avoidance practices via transfer pricing. We discovered that North Korea’s business innovations include the utilization of a barter trade system and the use of offshore accounts in China and elsewhere. By examining these business practices, it is possible to understand how North Korean trading companies have obtained a useful vehicle to avoid the effects of sanctions. A careful reading of Chinese companies’ experience in North Korea tells the story of how some of these firms were deceived by their North Korean partners. Detailed reports have been published about how Chinese firms designed their investments in North Korea, and how they received their returns (or not).4 By tracking the dealers of coal from North Korea, we were able to further verify the practices of North Korea’s state trading companies. We found that the DPRK-PRC coal trade is not limited to the northeast Chinese provinces of Liaoning and Jilin, which border North Korea. Rather, via shipping and rail, trade routes extend down the Chinese coast to Tianjin, Shandong, Jiangsu, Zhejiang, Fujian, Guangdong, and even Guangxi, China (See Appendix 1, Figure 54. Map of China).

**Terminology**

For the purposes of this paper, the words ‘coal’ and ‘anthracite’ can be used interchangeably. Anthracite is the highest-ranked coal, meaning it has the highest carbon content and the

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lowest volatile matter contents per unit mass when compared to other grades of coal. The UN Comtrade database classifies commodities via Harmonization System (HS) codes. The HS code for anthracite is 270111. Other grades of coal (in rank order from highest to lowest) include bituminous coal, sub-bituminous coal, and lignite. Depending on how broad one’s definition of coal is, peat and graphite can also be considered coal. Coke and coking coal are also commonly used terms in the coal industry and are often used synonymously. However, according to Senior Mining Engineer Donald Ewart Jr., “The terms ‘coke’ and ‘coking coal’ are not synonymous. Coal is a combustible black or brownish rock made from carbon. Coke is the solid material derived from the destructive distillation of bituminous coal. Basically, coke is derived from coal after some chemicals have been removed.”

Generally speaking, anthracite has the highest calorific content (energy per unit mass when burned), the highest carbon content, and the fewest impurities. In China, anthracite is primarily used for steel production, but it is also used in power plants for electricity production. Anthracite can also be used for residential and commercial space heating. Any anthracite used in the steel-making process would normally be classified as metallurgical (or coking coal) while anthracite used for electricity generation or home heating would be defined as steam (or thermal) coal. In the context of the Asia-Pacific coal market, readers should note that in terms of calorific value, coking coal from Australia and thermal coal from Australia and Indonesia are of a higher quality than unwashed Vietnamese and North Korean anthracite. Indonesian and Vietnamese thermal coal is used mainly in power plants in southern China. See Figure 55 and Figure 56 in Appendix 1 for a sense of the global anthracite market.

In 2013, 99.5% of the coal exported to China from North Korea was anthracite. To ensure that this was not a one-time phenomenon in which anthracite composed an unusually large portion of total coal exports in one year, we analyzed the proportion of anthracite and other types of coal over a twenty-two year period from 1992 to 2013 (including the years 1992 and 2013). We found that anthracite composed 99.3% of total coal exports to China over that time period. When analyzed on a year-by-year basis, the lowest proportion of anthracite in North Korea’s annual coal exports to China was 98.7% in 2011. Over a twenty-two year period, the average composition of anthracite was 99.8%. See below for a comprehensive pie chart showing all energy exports from North Korea to China from 1992 to 2013.

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7 Email Exchange between Authors and Senior Mining Engineer Donald Ewart, May 2, 2014.
8 Phone interview with Donald Ewart, March 2014.
The word ‘energy’ as used in the graphs and analysis in this paper refers to all commodities that start with HS code 27. HS code 27 includes all mineral fuels, mineral oils and products of their distillation, bituminous substances, mineral waxes, coal products, petroleum products, bitumen, and electrical energy. Below is a breakdown of all DPRK energy exported to China in 2013.

Section 2 uses the term ‘To World’ is used to describe trade flowing from North Korea. This term simply means all countries in the world that the DPRK exports to.
Beginning in Section 3, but through Section 4 as well, are a bag of terms unique to international business transactions that some might not be familiar with. First are the terms ‘free (or freight) on board,’ commonly abbreviated as FOB, and ‘cost, insurance, and freight,’ typically abbreviated as CIF. “Cost, Insurance and Freight (CIF) and Free on Board (FOB) are international shipping agreements used in the transportation of goods between a buyer and a seller. The specific definitions are different for every country, but CIF and FOB have similar uses. They differ in who assumes responsibility for the goods during transit. Both contracts specify origin and destination information that is used to determine where liability officially begins and ends. In CIF agreements, insurance and other costs are assumed by the seller, with liability and costs associated with successful transit paid by the seller up until the goods are received by the buyer. Goods are not considered to be delivered until they are in the buyer’s possession. FOB contracts relieve the seller of responsibility once the goods are shipped. Once goods have passed the ship’s rail, they are considered to be delivered into the control of the buyer. When shipping to the buyer begins, the buyer then assumes all liability. Each agreement has particular advantages and drawbacks for both parties. While sellers often prefer FOB and buyers prefer CIF, some trade agreements find one method more convenient for both parties. A seller with expertise in local customs that the buyer lacks would likely assume responsibility to encourage the buyer to accept a deal, for example. Smaller companies may prefer the larger party to assume liability, as this can result in lower costs. Some companies also have special access through customs, document freight charges when calculating taxation and other needs that necessitate a particular shipping agreement.”

A key term used is ‘letter of credit,’ which is often referred to as just L/C. A letter of credit is a letter from a bank guaranteeing that a buyer’s payment to a seller will be received on time and for the correct amount. In the event that the buyer is unable to make payment on the purchase, the bank will be required to cover the full or remaining amount of the purchase. The following explains how L/Cs work: “Letters of credit are often used in international transactions to ensure that payment will be received. Due to the nature of international dealings including factors such as distance, differing laws in each country and difficulty in knowing each party personally, the use of letters of credit has become a very important aspect of international trade. The bank also acts on behalf of the buyer (the holder of the L/C) by ensuring that the supplier will not be paid until the bank receives a confirmation that the goods have been shipped.”

Next is a certain type of letter of credit known as a ‘transferable letter of credit,’ or “a letter of credit that permits the beneficiary of the letter to make some or all of the credit available to another party, thereby creating a secondary beneficiary. The party that initially accepts the transferable letter of credit from the bank is referred to as the first beneficiary. The bank issuing the letter of credit must approve the transfer. The transfer of credit must be clearly outlined in the documentation of the letter. However, the letter of credit must state expressly

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11 Ibid.
that the credit is transferable. Otherwise, no credit can be transferred regardless of any other factors.”

‘Bill of lading,’ or B/L is a term used throughout Section 3. A bill of lading is “a legal document between the shipper of a particular good and the carrier detailing the type, quantity and destination of the good being carried. The bill of lading also serves as a receipt of shipment when the good is delivered to the predetermined destination. This document must accompany the shipped goods, no matter the form of transportation, and must be signed by an authorized representative from the carrier, shipper, and receiver.”

Section 4.2 will use the term ‘subsidiary.’ A subsidiary is a “company whose voting stock is more than 50% controlled by another company, usually referred to as the parent company or holding company. A subsidiary is a company that is partly or completely owned by another company that holds a controlling interest in the subsidiary company. If a parent company owns a foreign subsidiary, the company under which the subsidiary is incorporated must follow the laws of the country where the subsidiary operates, and the parent company still carries the foreign subsidiary’s financials on its books (consolidated financial statements). For the purposes of liability, taxation and regulation, subsidiaries are distinct legal entities. The purchase of a controlling interest differs from a merger and the parent corporation can acquire the controlling interest with a smaller investment. Additionally, stockholder approval is not required in the formation of a subsidiary as it would be in the event of a merger.”

Finally, the term ‘consignor/consignment’ will come up in Section 4.3 on the barter trade. A consignment is “an arrangement whereby goods are left in the possession of another party to sell. Typically, the consignor receives a percentage of the sale (sometimes a very large percentage). Consignment deals are made on a variety of products – from artwork, to clothing, to books. In recent years, consignment shops have become rather trendy, especially those offering specialty products, infant wear, and high-end fashion items. Consignment arrangements typically are in effect for a set period of time. After this time, the goods are returned to their owner. Selling on consignment is a great option for individuals or businesses that do not have a brick-and-mortar presence, although consignment arrangements can also exist in cyberspace. To a certain degree, online companies like eBay are consignment shops, because, for a percentage of the sale, they offer people a marketplace to exhibit and sell their wares.”

1. Recent Developments in North Korea-China Trade

We first started this project by asking ourselves the following question: what accounts for the spike in DPRK-PRC trade, particularly after 2008? Such a dramatic increase presents a policy puzzle. This trade seemed to be burgeoning at the same time as North Korea’s October 2006, May 2009, and February 2013 nuclear tests, and subsequent sanctions. This is not to mention the sinking of the Cheonan in March 2010, the shelling of Yeonpyeong Island in November of that same year, the failed intercontinental ballistic missile test in April 2012, or the successful long-range rocket launch in December 2012. How is trade increasing dramatically in the midst of destabilizing actions and targeted sanctions? What is driving this trade? What is the relationship between trade with China and sanctions?

This increasing commercial activity is coming at a strategic time. Business opportunities in China are proliferating for all—including North Korean state trading companies. The U.S.’s sanctions-centered policy is evolving into one that, in practice, places the U.S. on the sidelines. China, on the other hand, sees itself as playing a critical stabilizing role. China is taking a more direct approach toward engaging the DPRK because it believes the U.S. and South Korea’s policies for maintaining stability in Northeast Asia are problematic. China will do what is necessary to keep the North Korean regime viable. The Chinese government implicitly attempted a new North Korea policy after witnessing the failure of the 1994 U.S.-North Korea Agreed Framework in 2002, the failure of South Korea’s sunshine policy in 2007, and the failure of the Six-Party Talks in 2009. China’s new policy after 2009 is dominated by China-North Korea trade relations. When the Six-Party Talks failed, the U.S., South Korea, and Japan decreased their attempts at engagement with the DPRK. The intensive lobbying
by Kim Jong-il to China’s top leaders during his three visits in 2010 is also an important factor driving increased PRC-DPRK economic relations.

China’s new policy toward North Korea appears to be a quiet mix of both carrot and stick, namely economic development for North Korea while maintaining a red line on the DPRK’s nuclear and missile programs. Evidence for this claim can be found in the fact that China and North Korea agreed to a series of cooperative frameworks in 2009\textsuperscript{16} and 2010,\textsuperscript{17} while at the same time China and the United States together drafted several sanctions resolutions at the UN Security Council. The Chinese government never offered an official name for this new “sunshine” policy, and the details regarding the economic and trade programs with North Korea have similarly never been disclosed. The words of Confucius shed some light on China’s current policy toward North Korea. China seems to be “requiting injury with virtue” (以德报怨). As Confucius himself wrote, “If the people be led by laws, and uniformity sought to be given them by punishments, they will try to avoid the punishment, but have no sense of shame. If they be led by virtue, and uniformity sought to be given them by the rules of propriety, they will have the sense of shame, and moreover will become good.”\textsuperscript{18} China, however, does not count on the DPRK developing a sense of shame.

Though it is unclear exactly where China has drawn its red line, over the past year since North Korea’s third nuclear test, China has demonstrated a noticeable shift in its position towards the DPRK to include more “stick.” The 2013 Report to Congress of the U.S.-China Economic and Security Review Commission points to four major indicators of this shift. First, China signed UN Resolution 2094 in March of 2013, the most stringent and comprehensive set of sanctions using the most condemnatory language yet. Second, President Xi publically criticized North Korea for the first time at the Boao Economic Forum on April 7\textsuperscript{th}, 2013 when he stated, “No one should be allowed to throw a region and even the whole world into chaos for selfish gains.”\textsuperscript{19} Though not explicit, this was the first time a Chinese President has publically censured North Korea in such a high-profile, international setting. Third, in May of 2013, state-owned Bank of China Ltd. closed its account with the Foreign Trade Bank of North Korea. By May 10\textsuperscript{th}, 2013, the four largest Chinese banks halted money transfers to North Korea, and shut down their business interactions with any North Korean financial institution.\textsuperscript{20} And fourth, several Chinese government ministries issued a joint 236-page report in September of 2013 that outlined in great detail all materials and technologies that


would be banned from export to the DPRK. The focus of the report is on dual use goods in which one of the possible uses is as WMD or ballistic missile components.

The policy-making towards North Korea that is currently at play in the international community is ineffective in three ways: (1) North Korea does not actually need as much food and energy aid as they have led the international community to believe, so the traditional negotiation strategies predicated on incorporating food and energy aid as a means of enticing Pyongyang back to the bargaining table are increasingly unproductive; (2) North Korea does not use trade methods and distribution systems the same way market economy countries do, and therefore the most common targeted sanctions are ineffective; (3) the research methods seeking to understand a black-box country like North Korea are often unsuccessful. The North Korean regime is far more concerned about bolstering its energy security than it is about securing food aid or any other ‘carrots’ offered by the members of the Six-Party Talks. Energy security, particularly oil, is much more critical to the North Korean regime than food aid. This PAE aims to provide an enhanced understanding of new developments in Sino-DPRK trade relations and arm policymakers with a new set of policy tools to utilize when attempting to impact the North Korean regime.

1.1. Sanctions Efforts by the International Community

In January of 2007, David Lague and Donald Greenlees wrote, “Since the end of the Korean War, the United States has been inventive in applying pressure on North Korea. It has imposed an arms embargo, economic sanctions, restrictions on trade and travel, bans on dealing with North Korean companies, and even a bar on U.S. citizens owning or operating ships flying North Korean flags. Most of these measures have led to some pain, but nothing seems to have stung as much as a Treasury Department attack in September 2005 on Banco Delta Asia, an obscure, family-owned bank in the Chinese gambling enclave of Macao.” They continue, “For more than two decades the bank, which now operates under Macao government control, had handled trade and financial transactions, including sales of gold bullion, for a range of North Korean government companies and entities. The U.S. accusation, so far not proven publicly, that the bank was a ‘willing pawn’ in North Korean money laundering and counterfeit-currency trafficking was the catalyst for an informal financial embargo that has gradually tightened around the North, according to international bankers and North Korea

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23 The Six-Party Talks consist of the United States, China, North Korea, South Korea, Japan, and Russia. Chaired by China, the members have previously engaged in multiple rounds of negotiations to effect the peaceful denuclearization of North Korea in return for economic and diplomatic concessions. The Six-Party Talks have been largely inoperative since late 2007.

experts.” The Banco Delta Asia incident of 2005, followed by North Korea’s first live testing of a nuclear weapon the following year, became catalyzing events for not just the U.S., but the international community at large to make more concerted efforts to impose penalties on the DPRK.

Between October 2006 and March 2014, the United Nations Security Council issued eight resolutions and three presidential statements directed toward North Korea (see TABLE 1 below). These resolutions both condemned North Korea’s nuclear tests and called for sanctions to be implemented against the DPRK. UNSC sanctions focus on depriving the DPRK of cash it would otherwise earn from sanctioned activities (e.g. arms sales), and denying North Korea from buying materials for its WMD/missile programs. As we will show, these sanctions are not designed to, and in fact are not depriving the DPRK of cash.

### TABLE 1

<table>
<thead>
<tr>
<th>UNSC Resolution</th>
<th>Date</th>
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<td>Resolution 2141</td>
<td>5-Mar-14</td>
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<tr>
<td>Resolution 2094</td>
<td>7-Mar-13</td>
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<td>Resolution 2087</td>
<td>22-Jan-13</td>
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<td>12-Jun-12</td>
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<td>10-Jun-11</td>
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<td>7-Jun-10</td>
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<td>Resolution 1874</td>
<td>12-Jun-09</td>
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<tr>
<td>Resolution 1718</td>
<td>14-Oct-06</td>
</tr>
</tbody>
</table>


In response to North Korea’s October 6th, 2006 nuclear test, UNSC Resolution 1718 called upon “all member states to cease buying, selling, or transferring large military assets (like tanks and aircraft), nuclear and ballistic missile components, and luxury items to North Korea.” In response to North Korea’s nuclear test on May 25th, 2009, Resolution 1874 expanded the arms embargo to include “all weapons except small arms,” and included a mandate to “actively inspect all goods being transferred to or coming from North Korea.” Resolution 1874 also created an expert panel that would assess the effects of UN sanctions on North Korea. In the aftermath of North Korea’s third nuclear test of February 12th, 2013, Resolution 2094 reaffirmed the previous two resolutions and focused more on targeting the North Korean regime’s finances.

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25 Lague, Greenlees, “Squeeze on Banco Delta Asia Hit North Korea Where It Hurt.”
27 Ibid.
North Korean financial assets that contribute to the DPRK’s nuclear or ballistic missile programs. Resolution 2094 extended the mandate of the Panel of Experts to April 7th, 2014, extended its definition of prohibited luxury goods, froze the assets of two North Korean organizations, and imposed a travel ban on three North Korean officials. Finally, Resolution 2094 welcomed “the Financial Action Task Force’s (FATF) new Recommendation 7 on targeted financial sanctions related to proliferation, and [urged] Member States to apply FATF’s Interpretative Note to Recommendation 7\textsuperscript{30} and related guidance papers for effective implementation of targeted financial sanctions related to proliferation.”\textsuperscript{31}

The Financial Action Task Force (FATF) is an inter-governmental body currently comprised of 36 countries established in 1989 by the Ministers of its Member jurisdictions. The objectives of the FATF are to set standards and promote effective implementation of legal, regulatory and operational measures for combating money laundering, terrorist financing, and other related threats to the integrity of the international financial system. The FATF is therefore a “policy-making body” which works to generate the necessary political will to bring about national legislative and regulatory reforms in these areas.\textsuperscript{32} Recommendation 7 states, “Countries should implement targeted financial sanctions to comply with United Nations Security Council resolutions relating to the prevention, suppression and disruption of proliferation of weapons of mass destruction and its financing. These resolutions require countries to freeze without delay the funds or other assets of, and to ensure that no funds and other assets are made available, directly or indirectly, to or for the benefit of, any person or entity designated by, or under the authority of, the United Nations Security Council under Chapter VII of the Charter of the United Nations.”\textsuperscript{33} Recognizing the non-binding nature of the FATF recommendations, in Section 5 we lay out exactly what China – the most influential economic actor on North Korea – should do to implement FATF’s guidance more specifically.

Concurrent with UN efforts, the President of the United States issued three rounds of sanctions on North Korea to be implemented by the United States Department of the Treasury (see TABLE 2).

\textsuperscript{30} The Interpretive Note to Recommendation 7 can be found on pages 47-51 of the February 2012 FATF Recommendations. See: http://www.fatf-gafi.org/media/fatf/documents/recommendations/pdfs/FATF_Recommendations.pdf.
The Office of Foreign Assets Control (OFAC) at the U.S. Treasury Department issued North Korea Sanctions Regulations to implement Executive Orders 13466, 13551, 13570, and prevent sanctions evasion. Executive Order 13466 declared the existence of weapons-usable fissile material on the Korean Peninsula – and subsequent threat to proliferate such material – a U.S. national emergency. Executive Orders 13551 and 13570 expand the scope of the national emergency and take steps to implement import restrictions. These three executive orders block the property, and interests in property, of individuals and entities found “to be facilitating North Korean trafficking in arms and related materiel, facilitating North Korean procurement of luxury goods, or engaging in illicit activities that involve or support the Government of North Korea or its senior officials, including money laundering, the counterfeiting of goods or currency, bulk cash smuggling, and narcotics trafficking.” Furthermore, U.S. citizens became prohibited from registering vessels in North Korea and importing North Korean “goods, services, and technology” without a license from OFAC. Violations of these Executive Orders place U.S. citizens liable to pay criminal fines ranging up to $1 million, civil penalties of up to the greater of $250,000 or twice the amount of the alleged transaction, and/or serve up to 20 years of imprisonment.

Finally, between February 2010 and February 2014, the FATF issued 11 public statements calling “on its members and other jurisdictions to apply counter-measures to protect the international financial system from the on-going and substantial money laundering and terrorist financing risks emanating from the Democratic People’s Republic of Korea.”

### 1.2. Analysis of Increased Ties between the CPC and the WPK

Next, we looked at who North Korea was trading with. UN Comtrade data reports that North Korea traded with 123 countries in 2012. However, the majority of this trade was with one country—China.

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**TABLE 2**

**North Korea-focused Executive Orders**

<table>
<thead>
<tr>
<th>Executive Order</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>13466</td>
<td>26-Jun-08</td>
</tr>
<tr>
<td>13551</td>
<td>30-Aug-10</td>
</tr>
<tr>
<td>13570</td>
<td>18-Apr-11</td>
</tr>
</tbody>
</table>

*Source: U.S. Treasury Department*
The growth in North Korea’s trade with China is quite striking. Our analysis of bilateral trade statistics revealed that in 2000, China only accounted for 17% of North Korea’s total trade. However, by 2012, 82% of North Korea’s total trade was with China.\textsuperscript{37} According to the Korea Trade-Investment Promotion Agency, after China, North Korea’s next largest trading partners in 2011 were Russia, Germany, India, and Bangladesh in that order.\textsuperscript{38}

\textsuperscript{37}This figure does not include inter-Korea trade. The South Korean Ministry of Unification reported the 2012 inter-Korea trade total at $1.971 billion, 99.5% of which went through the Kaesong Industrial Complex. For a full description of inter-Korea trade, see the 2013 White Paper on Korean Unification at: http://eng.unikorea.go.kr/index.do?menuCd=DOM_000000204001001000.

There clearly has been a deepening of economic relations between China and the DPRK and we wanted to know what was driving this trend.

Figure 5. PRC-DPRK Trade as a Fraction of North Korea’s Total Trade

Source: UN Comtrade

Figure 6. Percentage of the DPRK’s Total Trade that is with China

Source: UN Comtrade
Trade does not just materialize. In order for trade to occur, there must exist a network of city, provincial, and central government officials and active private enterprises, as well as opportunities for profit. Two important factors that have facilitated this bilateral trade spike include (1) Workers’ Party of Korea (WPK) and Communist Party of China (CPC) leaders creating the necessary political infrastructure; and (2) private Chinese companies seeking profits in commercial transactions with DPRK state trading companies operating both inside the DPRK and the PRC. The combination of these two sets of actors, coming together in a symbiotic relationship, accounts for massive increases in the oil and coal trade. Furthermore, please consider that the trade statistics we present here are the officially reported numbers as documented by Chinese customs officials. A significant fraction of actual DPRK-PRC trade is in the form of black market operations that take place across the nearly 900-mile border, including the Tumen and Yalu rivers.

1.3. Strengthening Sino-DPRK Relations

The U.S.’s stance of disengagement with North Korea might help explain the deepening of PRC-DPRK relations. Recent U.S. government policy toward North Korea is essentially one of “strategic patience.” Dr. Gary Samore, former White House Coordinator for Arms Control and Weapons of Mass Destruction, describes the U.S.’s post-Six-Party Talks policy toward North Korea as one of “benign neglect.” He summarizes recent U.S. policy as follows: “I think that for most of the Obama administration, there has been little interest in negotiating with North Korea because the North Koreans have demonstrated that they’re not serious about any agreements they reach on the nuclear and missile programs. And that happened very early on. Right after Obama took office, the North Koreans, in a very blatant and obvious fashion, reneged on the deal they had with Chris Hill, and conducted their rocket and nuclear test. Then they sank the Cheonan, and then they walked away from the Leap Day deal after only a couple of weeks. All of that has sort of built up a sense in Washington that there’s really not much to be gained from negotiating with the North Koreans. Basically Washington has just kind of thrown up its hands and doesn’t think there’s much value in dealing with North Korea, so we’re depending on the Chinese government to apply pressure.” In the U.S.’s absence, China has stepped-up its engagement efforts with North Korea.

Since the health of North Korean leader Kim Jong-il began to wane in 2008, the CPC has been working diligently to improve the organizational viability of the WPK. In the past five years, there has been an accelerating power shift from the military to the WPK. As the new leader Kim Jong-eun continues to consolidate and strengthen the power of the WPK, the North Korean military has experienced a decline in its prior dominance in the economy. The CPC and the WPK are now increasingly working together. One example marking these strengthening ties is Chinese Premier Wen Jiabao’s October 2009 visit to Pyongyang. Policy analysts in the U.S. believe this visit had significant implications in that Premier Wen was accompanied by the Minister of Commerce, the chief of the National Development and Reform Commission, communist party leaders from Jilin, Liaoning, and Heilongjiang provinces, the

40 Interview with authors, Cambridge, Massachusetts, December 2013.
41 Ibid.
director of the CPC’s International Liaison Department, and high-ranking officers from the People’s Liberation Army.\textsuperscript{42} While there, “a collection of landmark Sino-DPRK agreements”\textsuperscript{43} were signed, laying the political foundation that enabled robust economic growth to follow. In graphs representing DPRK-PRC trade presented throughout this paper, pay close attention to the period after October 2009.

Additionally, between March of 2010 and August of 2011, senior Chinese and North Korean officials met for high level meetings on 22 separate occasions.\textsuperscript{44} Kim Jong-il visited China an unprecedented four times between May of 2010 and August of 2011, the last visit occurring just four months before he died.\textsuperscript{45} Following this formative period, the WPK began emulating the CPC in many ways, particularly the manner in which it runs its key state-run enterprises.

Another factor accounting for strengthening Sino-DPRK relations is the Lee Myung-bak Administration in South Korea. What follows is one key perspective from a South Korean government official we interviewed. Starting in 2008, the South Korean government shifted its North Korea policy “to a more principled approach. We linked the Inter-Korean Economic project with the nuclear issue. If North Korea made progress toward denuclearization, we offered economic assistance. But when there was no progress on the nuclear front, we pulled back our relations with the North. North Korea realized there would be less and less economic assistance from the South, but they still needed to improve their economy. That pushed North Korea closer to China.”\textsuperscript{46} This official also noted, that as a result of the Cheonan sinking, the South Korean government responded with the May 24, 2010 bilateral sanctions on North Korea. This sanctions measure essentially stopped all inter-Korea trade except for the Kaesong Industrial Complex. This only further pushed North Korea to strengthen its economic ties with China, which meant redoubling their efforts in producing what China was buying—minerals. “Considering North Korea doesn’t have any industrial base or many other alternatives, they focused more on minerals. When you look at trade data between the North and China, minerals compose a large chunk and are increasing. During the past ten years, when we look at the world economy, especially the Chinese economy, the Chinese economy keeps booming. They needed more and more raw materials and minerals, and North Korea is an ideal supplier – location-wise and price-wise.”\textsuperscript{47}

The combination of a Chinese booming economy with a huge demand for mineral resources coupled with the Lee Myung-bak Administration’s tough measures on North Korea – especially the bilateral sanctions after May 2010 – pushed North Korea closer to China. UN sanctions might also be having the unintended effect of driving North Korea and China closer together. Risk concerns regarding the DPRK’s economic policies have kept potential investors

\textsuperscript{42} Park (2013), p. 18.
\textsuperscript{43} Ibid.
\textsuperscript{46} Interview with South Korean government official, Washington D.C., February 2014.
\textsuperscript{47} Ibid.
from South Korea, Japan, and European Union countries hesitating. Chinese “privately owned companies and provincial, prefecture, and municipal-owned” entities, on the other hand, are showing a willingness to invest in the DPRK despite the risks. Evidence of this claim can be found in the $260 million Yalu bridge project, the $300-$500 million joint special economic zones of Rason, Sinuiju, and Wihwa, as well as the $2 billion Rason port renovation project.

Considering that only four of the 138 known Chinese companies with joint operations in the DPRK are controlled by the central government (only two of which are ranked in China’s top 100 companies), it is clear that growing bilateral trade has come as a result of the involvement of more private Chinese companies. One Chinese company cited the sharp rise in China’s labor costs coupled with North Korea’s “market advantage” as the reason it invested in North Korea. It explains what this ‘market advantage’ is: “good DPRK government support for investment, idle factories, huge market space, preferential income-tax exemption, and hard-working, strong, and disciplined North Korean workers who work six days per week at a per capita wage of 50 euros per month.”

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Local actors, the majority of whom can be found in the northeast provinces of Liaoning, Jilin, and Heilongjiang, are the principal investors in North Korea. These investors contribute to the growing PRC-DPRK energy trade, which has remained outside the scope of UNSC resolutions due to the fact that such trade falls under the innocuous-sounding heading of “economic development,” and thus has never been targeted by sanctions.56

As much of its previous industrial capacity has deteriorated, the northeast is sometimes referred to as China’s “rust belt.”57 To boost economic development in this region, in 2007, the Chinese central government put forward the Northeast China revitalization program. The

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program’s goal is overall economic development by revitalizing the region’s traditional industries. As a regional market player, North Korea has benefitted greatly from this revitalization program. This indicates that indeed, trade with North Korea is driven by local Chinese actors seeking local profits. Despite the large trade deficit (see Figure 8 above), Drew Thompson, author of *Silent Partners: Chinese Joint Ventures in North Korea*, argues that North Korea depends on rent-seeking behavior by local actors in border regions.\(^{58}\) It can be inferred from Thompson’s paper that decentralization combined with local Chinese government incentive structures have played in North Korea’s favor.

On a national scale, China benefits but little from trade with the DPRK. Trade with North Korea accounted for just 0.16% of China’s total trade in 2013.\(^{59}\) In China’s overall coal-related trade, North Korea is just one small piece. It is important for readers to understand the purpose of China’s increasing coal imports from North Korea, and whether China’s efforts to implement UNSC resolutions are being undermined by the increasing coal trade. While coal exports to China are a critical component of North Korea’s overall trade strategy, coal imports from North Korea are just one slice of China’s overall coal production and import markets. A major Chinese trader of North Korean anthracite recently said, “The golden time for high profit has ended. It is now difficult to expand the market share further, and small players are out of the game.”\(^{60}\) The table and pie chart below show the aggregate of all of China’s coal-related imports including coking coal, anthracite, other bituminous coal, other coal, coke and semi-coke in 2013.\(^{61}\)

**TABLE 3**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Metric Tons</th>
<th>Average Price (USD/MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Australia</td>
<td>88,190,517</td>
<td>$113.49</td>
</tr>
<tr>
<td>2</td>
<td>Indonesia</td>
<td>68,023,147</td>
<td>$72.25</td>
</tr>
<tr>
<td>3</td>
<td>Russia</td>
<td>27,215,464</td>
<td>$91.78</td>
</tr>
<tr>
<td>4</td>
<td>Mongolia</td>
<td>17,329,927</td>
<td>$64.98</td>
</tr>
<tr>
<td>5</td>
<td>North Korea</td>
<td>16,535,603</td>
<td>$79.22</td>
</tr>
<tr>
<td>6</td>
<td>Vietnam</td>
<td>13,112,017</td>
<td>$66.88</td>
</tr>
<tr>
<td>7</td>
<td>South Africa</td>
<td>12,742,677</td>
<td>$84.29</td>
</tr>
<tr>
<td>8</td>
<td>Canada</td>
<td>11,966,635</td>
<td>$142.81</td>
</tr>
<tr>
<td>9</td>
<td>United States</td>
<td>8,459,610</td>
<td>$143.13</td>
</tr>
<tr>
<td>10</td>
<td>Others</td>
<td>3,569,274</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>267,144,871</td>
<td>$92.87</td>
</tr>
</tbody>
</table>

*Source: Chinese Customs Coal Import and Export 2013 Statistics*

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\(^{58}\) Thompson (2011), p. 3, 43, 64.

\(^{59}\) Authors’ calculations based on Chinese Customs as reported to Global Trade Atlas.


Ambassador Christopher R. Hill, chief negotiator representing the U.S. at the Six-Party Talks from 2005 to 2008 substantiates this point. He stated, “Xi is no dictator who can impose his will on China. Indeed, for all the characterization of China as a despotic state that one hears from the political right in the United States, its president enjoys fewer powers than his American counterpart. Gaining consensus in China is a glacial process that will not be accomplished in a single speech.”

In an interview with Ambassador Hill for this PAE, he stated the same point more bluntly, “The Chinese are not able to clamp down on these things [trade with the DPRK] as much as they would appear. For several centuries, the Chinese center has pretended that it rules the provinces and the provinces pretended that they are being ruled by the center, but there is a lot of decentralization that goes on in China. So the assumption that Beijing can clamp down on things happening in northeast China is probably dubious.”

Responding to the DPRK’s most recent nuclear test, Hill stated, “The Chinese government continues to have trouble controlling all its trade regimes.”

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64 Telephone interview with Ambassador Christopher Hill, November 22, 2013.

In summary, Chinese foreign direct investment in the DPRK is on the rise—most of the investors being private actors. The coal trade is not dissimilar. Most of the Chinese actors purchasing coal from North Korean state trading companies are indeed private entities. Only the crude oil industry is dominated by the central government on the Chinese side. Drew Thompson continues in his February 2011 report, “Chinese aid, trade, and investment are critical to North Korea’s social stability and economic productivity, and a key source of technology and hard currency. Presumably, without this trade and investment, Kim Jong-il would lack the means to secure the allegiance of elites that support his rule, making trade and investment with China particularly important for ensuring the regime’s survival.”"66 Thus, North Korea’s trade with China provides the cash that feeds the 1%—regime elites—in Pyongyang. Coal is a key component to that trade.

1.4. 2002 Market Reform in North Korea

In July 2002, North Korea announced a fundamental shift in its economic policy “as epochal as the land reforms of 1946” to include reforms of the price system, decentralization of decision-making, and increases in the flexibility of developmental targets.67 This fundamental shift came to be known as the July 1st reforms. One factor that might help to explain the explosion of growth in North Korea’s mineral and ore industries is the July 1st Reforms. Indeed it is after 2002 that the most of the growth in these industries can be observed.

TABLE 4
North Korean GDP Growth (%)

<table>
<thead>
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</thead>
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<tr>
<td>GDP Growth (%)</td>
<td>-4.3</td>
<td>-4.4</td>
<td>0.4</td>
<td>3.8</td>
<td>1.2</td>
<td>1.8</td>
<td>2.1</td>
<td>3.8</td>
<td>-1.0</td>
<td>-1.2</td>
<td>3.1</td>
<td>-0.9</td>
<td>-0.5</td>
<td>0.8</td>
<td>1.3</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Source: Bank of Korea68

The mining sector increased from 7.8% in 2002 to 14.0% in 2012, more than any other single industry. According to the *Economist Intelligence Unit*, with a total GDP of $14.4 billion, “Mining & Utilities” comprised 17.6 percent of North Korea’s total GDP in 2012.

Extrapolating the Intelligence Unit’s estimate of North Korea’s GDP to 2013, revenue from coal exports to China comprised almost 10% of North Korea’s total GDP in 2013. At first brush, one-tenth may not seem that significant. However, Section 4 will explain why and how this trade can be considered strategic based on what it allows the regime to do.

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69 Accurate and up-to-date estimates of North Korea’s annual GDP are difficult to determine outside of North Korea, and vary widely by source. The Bank of Korea places North Korea’s real GDP in 2013 at $30.24 billion (See Footnote 67’s reference). The CIA World Factbook rounds its estimate of North Korea’s GDP to the nearest $10 billion. The CIA maintains that the GDP of North Korea was $40 billion in 2010, 2011, and 2012 (See: https://www.cia.gov/library/publications/the-world-factbook/geos/kn.html).


71 Author’s extrapolated calculation based on UN Comtrade’s reported figure of the DPRK’s 2013 Coal Export Revenue to the PRC, divided by the Economist Intelligence Unit’s 2012 estimate of the DPRK’s GDP times one hundred percent: ($1,379,994,149 ÷ $14,400,000,000)*100% = 9.58%.
Since the economic reform measures of 2002, GDP growth has averaged +0.97% through 2013. Domestic coal production began to skyrocket beginning in 2008, increasing from 17.1 million metric tons in 2007 to 41 million metric tons in 2010. Coal partly explains why, in 2008, while the rest of the world’s economies were undergoing crises, North Korea enjoyed +3.1% GDP growth. +3.1% is a remarkably high growth rate for North Korea (See Table 4). The final chart we wish to show here in Section 1 is the DPRK’s domestic coal production capacity growth since the July 1st Reforms, and the percent of that total production which was exported. Since 2002 and more dramatically after 2009, North Korea began exporting to China increasing proportions of its total anthracite production.
As can be seen above, up through 2005, there is a steady increase in the fraction of coal exported to China. Then it drops in 2006 and 2008 (perhaps as a result of the financial crisis), but turns around again in 2009. We now wish to transition into demonstrating more definitively the dramatic uptick in coal exports which took place.

2. The Role of Coal in the Trade Spike with China

In 2013, North Korea eclipsed Vietnam to become the world’s top anthracite exporter. Total domestic anthracite production in Vietnam has not changed significantly. What has changed in both countries is the percentage of total anthracite production that is being exported. Since 2002, North Korea has exported an increasing percentage of its total production (see Figure 12). Meanwhile since 2007, to meet increasing domestic demand as a result of recent power plant construction, Vietnam has been decreasing its anthracite exports and selling what it previously exported domestically.\textsuperscript{73} North Korea continues to be ranked third globally in total anthracite production.\textsuperscript{74}

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Metric Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>North Korea</td>
<td>16,494,470</td>
</tr>
<tr>
<td>2</td>
<td>Vietnam</td>
<td>15,640,044</td>
</tr>
<tr>
<td>3</td>
<td>Russia</td>
<td>11,161,335</td>
</tr>
<tr>
<td>4</td>
<td>Ukraine</td>
<td>6,388,115</td>
</tr>
<tr>
<td>5</td>
<td>China</td>
<td>2,592,592</td>
</tr>
</tbody>
</table>

Source: Global Trade Atlas

In the investigation of what was accounting for the recent trade spike between the DPRK and China, coal immediately stood out. In a December 2013 \textit{Yonhap News} report\textsuperscript{75} comparing the economies of North and South Korea—including trade volume, Gross National Income, kilometers of road, power generating capacity, and social overhead capital spending—South Korea soundly outperformed its northern neighbors, often hundreds of times over, in every category except one. North Korea significantly outperformed South Korea in coal production. This led us to ask why and how. We examined North Korea’s expanding coal trade with China and found that it is bringing large revenues and large opportunities to purchase goods—possibly including sanctioned ones—which are playing a substantial role in sustaining the North Korean regime.

\textsuperscript{73} Phone interview with Senior Mining Engineer Donald Ewart, March 2014.

\textsuperscript{74} Multiple Sources, Compiled by Senior Mining Engineer Donald Ewart Jr., March 2014.

Figure 13. DPRK Anthracite Exports to China (quantity)

Source: Chinese Customs as reported to Global Trade Atlas, UN Comtrade

Figure 14. DPRK Anthracite Exports to China (revenue)

Source: Chinese Customs as reported to Global Trade Atlas, UN Comtrade
The following several charts are an attempt to put coal in perspective to show how coal fits in to the larger DPRK energy export economy. First consider that coal is the largest percentage of all energy exported to China from the DPRK. As a clarification of Figure 1 and Figure 2 from the Introduction, Figure 15 below looks at the DPRK-PRC energy trade over just the last decade in terms of metric tons.

*Figure 15. Total DPRK Energy Exports to China from 2003-2013 (quantity)*

Coal comprised 98% of total energy exports from 2003-2013. The ‘other’ section includes petroleum gas, mineral tar, and refined oil. Figure 16 looks at the DPRK-PRC energy trade over the last two decades in terms of revenue.

*Figure 16. Total DPRK Energy Exports to China from 1992-2013 (revenue)*

Source: Chinese Customs as reported to Global Trade Atlas, UN Comtrade
Coal comprised 96% of total energy exports from 1992-2013. Next, we looked at coal in terms of total DPRK exports.

Figure 17. Coal as a Fraction of Total DPRK Exports (revenue)

Figure 18. Coal vs. Other Energy in DPRK Energy Exports to China (revenue)

Source: UN Comtrade

Source: Chinese Customs as reported to Global Trade Atlas, UN Comtrade
Once we understood where coal fits in to the overall energy trade picture, we isolated only coal in the PRC-DPRK trade relationship.

*Figure 19. Coal as a Fraction of Total DPRK Exports to China (revenue)*

Here is the same graph looking only since the 2002 economic reforms.

*Figure 20. Coal as a Fraction of Total DPRK Exports to China (revenue)*

Source: Chinese Customs as reported to Global Trade Atlas, UN Comtrade
As can be seen below, in the year 2000, anthracite comprised just 0.2% of North Korea’s export revenue to China. By 2013, that number rose to 47%.

Figure 21. Coal as a Fraction of Total DPRK Exports to China (percent)

The following graph shows the same trend, but including iron ore and mineral revenue.

Figure 22. Percent of Total DPRK Exports to China (revenue)

Source: Chinese Customs as reported to Global Trade Atlas, UN Comtrade
Below are charts describing the Chinese import prices of North Korean anthracite.

Figure 23. North Korean Anthracite Exports to China with Import Prices (quantity)

Source: Chinese Customs as reported to Global Trade Atlas

Figure 24. China’s Import Price of North Korean Anthracite

Source: Chinese Customs as reported to Global Trade Atlas

It is not just the coal export sector that has resin in recent years. Other mineral exports—particularly iron ore—have grown as well.

2.1. Iron Ore

The ore trade also contributed to the increase in DPRK-PRC trade. In 2013, 72% of the ore trade revenue came from iron ore, while lead, precious metals, copper, zinc, molybdenum, titanium, tungsten, and others accounted for the other 28%.\textsuperscript{76} As can be seen in the graph

\textsuperscript{76} Authors’ calculations based on data provided by Chinese Customs as reported to Global Trade Atlas.
below, in 2003, the ore trade generated a mere $15 million. Just ten years later, by 2013, ore exports brought in $415 million in revenue.\textsuperscript{77} We found reason to believe that North Korea has dramatically improved its mining infrastructure. A key example is the border town of Musan, the largest open-pit iron mine in Asia. One news report mentioned that North Korea has built a special coal railway from Musan to the Chinese border at Jilin Province.\textsuperscript{78} This helps to explain the large volume of Jilin’s iron ore imports from North Korea. In 2012, Jilin province alone imported 1.92 million metric tons of iron ore at a value of $227 million.\textsuperscript{79} The figures below show how total Chinese iron ore imports from North Korea have grown since 2002.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure25.png}
\caption{DPRK Iron Ore Exports to China (quantity)}
\end{figure}

\begin{figure}[h]
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\includegraphics[width=\textwidth]{figure25.png}
\caption{DPRK Iron Ore Exports to China (quantity)}
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\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure25.png}
\caption{DPRK Iron Ore Exports to China (quantity)}
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\begin{figure}[h]
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\includegraphics[width=\textwidth]{figure25.png}
\caption{DPRK Iron Ore Exports to China (quantity)}
\end{figure}

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\caption{DPRK Iron Ore Exports to China (quantity)}
\end{figure}

Authors’ calculations based on data provided by Chinese Customs as reported to Global Trade Atlas.\textsuperscript{77} “6.28 方针, 考虑五加工资上调 100 倍” (North Korean Official to Carry Out ‘Policy 6.28,’ Consider Five Plus Wage Increases 100 Times), \textit{Daily NK}, November 7, 2013, https://www.dailynk.com/chinese/read.php?cataId=nk00100&num=12934.\textsuperscript{78} Authors’ calculations based on Chinese Customs as reported to Reuters.\textsuperscript{79}
Seeing national trade statistics can be informative as to what is happening from a 30,000 foot view. However, we felt that to truly understand the coal trade between China and North Korea, we needed more granularity. Therefore, we went to primary sources. We then performed a forensic analysis of the financial intelligence we collected. The following section is what we discovered.
3. How Coal is Traded

Understanding the coal trade structure will help explain how the North Korean regime continues to survive despite the increasing application of a comprehensive set of national and UN Security Council sanctions. Understanding this trade structure will inform where, when, and how to more effectively disrupt North Korean goods-procurement networks. In this section, we attempt to reveal the nuts and bolts of how coal transactions actually take place. We reviewed publically available business contracts to assemble a business map showing how coal is traded. We also interviewed multiple senior officials from Chinese firms doing several millions of dollars a year in business with North Korea. Below is a graphic outlining the flow path of coal from where it is mined in North Korea to the steel manufacturers and power plants in China where it is ultimately consumed.

Figure 27. The DPRK-PRC Coal Trade

The trade contracts we reviewed indicated that in most cases, anthracite is shipped from North Korea to China Free/Freight on Board (FOB), and not Cost, Insurance, and Freight (CIF). In terms of PRC-DPRK trade, this means that the North Korean trading company (which we refer to as KTC) only pays to transport the coal from the mine onto the cargo ship at the nearest port, like Nampo or Dandong. The Chinese buyer, on the other hand, must cover all transport costs from there. The Chinese buyer (which we refer to as PRC Company A) pays the ocean freight costs to ship the coal across the Yellow Sea to a port such as Qingdao or Rizhao. Furthermore, PRC Company A pays for the fees to get the coal into China including customs clearance fees, import duties, docking charges, etc. In FOB trading, all risk passes to

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the buyer once the goods are loaded onto the vessel, so insurance would also be paid for by PRC Company A.

Recent infrastructure development in North Korea and in the neighboring areas on the Chinese side of the Yalu River increases the market competitiveness of commodities coming from North Korea. North Korean state trading companies clearly know where the market is. The top three hot spots for North Korean coal imports in China are Jingtang Port at Tangshan, Hebei; the collective ports of Shandong province (Rizhao, Qingdao, and Longkou); and Dandong, Liaoning (see Figure 28 below). The North Korean coal inventory stored in these three locations in June 2013 was 800,000 metric tons, 450,000 metric tons, and 610,000 metric tons respectively. These three places also have the strongest steel production capacity as coal from North Korea is mainly used for steel making and not for electricity generation.

North Korean trade firms and their agents are extremely sophisticated in their understanding of the Chinese demand for coal. North Korean firms analyze patterns in the market price of coal, and then actively use their price advantage to maintain their coal sales when the competition gets fierce. Due to the high level of political and economic centralization, North Korean coal exports prices are not strictly market driven. Agents of coal trading companies strategically determine price and quantity to undercut competitors (See Section 4.4). As we

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81 “金银岛:朝鲜无烟煤价格维稳 成交情况大幅下滑” (Jinyindao Information: North Korean Coal Price Stable, Sales Fall).
explained in the previous paragraph, North Korea’s traditional coal market is north China. However, when competition in north China stiffens or the demand shrinks due to economic downturns, North Korea expands its market by selling its coal in south China. One of China’s most southern ports, Qinzhou, Guangxi (very close to Vietnam) welcomed its first coal shipment from North Korea in the summer of 2013, since the price was set at $35-$50 per metric ton lower than the market price.82

Figure 29 below provides an overview of how coal transactions take place. Refer back to the ‘Terminology’ section of the Introduction for a review of terms unique to international shipping.

*Figure 29. PRC-DPRK Coal Trade Letter of Credit Wholesale + Retail Model*

<table>
<thead>
<tr>
<th>STAGE 1</th>
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<tbody>
<tr>
<td>• PRC Company A (Co. A) signs a coal contract with a DPRK trade company (KTC)</td>
<td>• KTC gives B/L to PRC Bank when coal leaves North Korea, and PRC Bank provides a confirmation of 98% payment within 100 days of departure</td>
<td>• PRC Co. A pays PRC Bank for B/L</td>
<td>• PRC Co. A signs a contract with PRC Co. C</td>
</tr>
<tr>
<td>• A 10-30% deposit is made in a PRC Bank by Co. A</td>
<td>• KTC gives CIQ report to PRC Bank when coal arrives in China, and PRC Bank confirms 2% payment within 100 days of arrival</td>
<td>• Settlement: (1) 80% will be immediately settled by a telegram from PRC Co. A to PRC Bank based on sample inspection. (2) 20% will be settled based on the Société Générale de Surveillance (SGS) urine determination within 90 days</td>
<td>• PRC Co. C pays the first 50% with the receipt of B/L</td>
</tr>
<tr>
<td>• PRC Bank issues two Transferable Letters of Credit (L/C) to KTC, payable respectively on Bill of Lading (B/L) and China Inspections and Quarantine (CIQ) report</td>
<td></td>
<td>• PRC Co. A uses B/L as collateral for financing</td>
<td>• PRC Co. C pays the other 50% with the receipt of the CIQ report in its prescribed retail port</td>
</tr>
</tbody>
</table>

A KTC representative and the coal ship driver would have to sign the bill of lading after the coal is loaded onto the cargo ship in North Korea. Once the coal is delivered to the buyer in China, the coal ship driver must have the Chinese buyer sign the B/L as well.

For the terms of the transferrable letter of credit shown in Figure 29, PRC Company A could reject to receive the cargo and expire the letter of credit. SGS S.A. (formerly Société Générale de Surveillance) is an international firm based in Geneva, Switzerland which delivers inspection, verification, testing, and certification services. Chinese government customs officials located at importing ports like Dandong and Qingdao will inspect incoming cargo and

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issue China Inspections and Quarantine (CIQ) reports. PRC Company A purchases coal from KTC, then sells that same coal to PRC Company C at a marked-up price. The letters of credit issued by PRC Bank are transferrable, meaning PRC Company A acts as a middleman between KTC and PRC Company C. The following describes how a transferable letter of credit works in practice:

- A transferable letter of credit is a special type of L/C which is suitable for triangle trade.
- Triangle trade is a type of international business transaction in which a middleman sits between an exporter and importer.
- Middlemen or trade brokers like PRC Company A have limited financial resources. As a result they have to rely on their buyers’ (PRC Company C’s) financial support.
- The middleman’s buyer (PRC Company C) opens a transferable letter of credit in favor of the middleman (PRC Company A). Then the middleman transfers a part of this L/C to his supplier (KTC). The difference between the two L/C’s is the net profit margin of the middleman.
- Banks play a key role on transferable letters of credit in that the bank must approve the transfer.83

We now wish to show how the utilization of the business model shown above is keeping the North Korean government viable and debunking the myth that the regime is on the brink of collapse.

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4. Why Coal is Strategic

Coal is like oxygen to the North Korean regime. In other words, the coal industry as utilized by the Kim Jong-eun regime is the lifeblood that keeps the whole DPRK establishment afloat. The purpose of this section is to substantiate these statements by explaining how the DPRK regime utilizes the coal trade in four innovative ways, namely (1) stockpiling, (2) offshore accounts, (3) bartering, and (4) price manipulation.

We started by asking ourselves the following questions: why and how did trade between China and North Korea increase after the U.N. passed several rounds of sanctions? It is well known that the 2009 nuclear test was offensive to China’s leaders. In his official state visit to the DPRK in October of 2009, Chinese Premier Wen Jiabao questioned the rule of law and lack of investor protection mechanisms surrounding Chinese investor difficulties in the largest copper mine in North Korea. Also in that same year, North Korea’s attempt at currency reform fell flat on its face. Why did the combination of international sanctions and the massive failure of a sweeping currency reform not lead to the collapse of North Korean power and economy, but to tremendous increases in exports to China? The beginning of an effective sanctions regime or nuclear negotiation should be based upon a better understanding of North Korea’s state capability and economic situation. Foreign aid might be an effective incentive to denuclearization only if the economy fueling the 1% regime elites in North Korea is weak. If the regime’s elite economy is strong, sanctions and aid strategies will likely fail. The following four sub-sections will show that in spite of international sanctions, the 1% in North Korea are thriving, allowing the regime to maintain a secure grip on political power.

4.1. Stockpiling

We have reason to believe that North Korea has become increasingly immune to sanctions as a result of stockpiling crude and refined oil from formal trade with Chinese national oil companies and illegal smuggling. While likely the most provocative claim of this paper, conclusively proving the practice of oil stockpiling by the North Korean regime in an unclassified report is simultaneously the most challenging. This is due to the highly clandestine nature of the practice and the very significant policy implications if indeed stockpiling is occurring. But before we go on, we first wish to place our stockpiling claims in the appropriate context.

North Korea has become increasingly dependent on China to meet its energy needs, particularly crude and refined oil. As Figure 30 shows below, in 2007 just 31% of the DPRK’s international energy imports were coming from China. By the end of 2012, that number climbed to 88%, peaking at 95% in 2011. Figure 31 shows Chinese energy exports to the DPRK within context of China’s overall increase in exports. Figure 32 shows the role that crude oil plays in Chinese energy exports to North Korea. North Korea’s increasing reliance on China for energy is important considering the fact that the Chinese central government uses its oil exports as a “stick” to reprimand North Korea. By stockpiling oil, however, the regime in Pyongyang has made itself impervious to such Chinese pressure.

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84 The currency was redenominated in November 2009 at the rate of 100 old won to 1 new won.
Figure 30. Chinese Energy Exports as a Percentage of Total DPRK Energy Imports

Source: UN Comtrade

Figure 31. Energy as a Fraction of Total Chinese Exports to North Korea (revenue)

Source: Chinese Customs as reported to Global Trade Atlas, UN Comtrade
A report by the Korea Trade-Investment Promotion Agency (KOTRA) shows that in 2011, North Korea’s largest import was petroleum and other fuels ($810 million), followed by machinery ($300 million) and electronics ($270 million). 

The stockpiling of refined oil, which North Korea purchases from private Chinese firms, alleviates the pressure from the restricted sales of crude oil, which is controlled by China’s central government. This is important because (1) North Korea meets almost all of its crude and refined oil needs through international purchases, (2) since 2011, China controls roughly 90% of North Korean energy imports (see Figure 30); and (3) the crude oil export industry in China is tightly controlled by the central government. As Figure 33–Figure 36 reveal, we have observed that the Chinese central government periodically cuts off its crude oil exports to North Korea following nuclear tests. Such a lever could only be effective if North Korea does not have a strong stockpiling capability.

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85 Lee, “North Korea Keeps Doing Business in Spite of Isolation.”
86 Interview with senior official of Chinese trading company with substantial experience doing business with North Korea, Northeast China, January 2014.
Following Pyongyang’s first nuclear test on October 9th, 2006, the New York Times wrote “China cut off oil exports to North Korea in September, amid heightened tensions over that country’s nuclear and missile programs...North Korea tested ballistic missiles in July, defying sharp warnings from Beijing. China supported a United Nations resolution condemning the missile tests. It urged North Korea in the ensuring weeks not to take any steps that might ‘worsen tensions’ in the region.”

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Figure 34. Chinese Crude Oil Exports to DPRK (quantity)-Second Nuclear Test

Source: Chinese Customs as reported to Global Trade Atlas

Figure 35. Chinese Crude Oil Exports to DPRK (quantity)-Third Nuclear Test

Source: Chinese Customs as reported to Global Trade Atlas
There are two methods of estimating North Korea’s oil stockpiling capability. One is to estimate the size of the DPRK’s reserve tanks, and the other is to estimate real oil consumption. The oil reserves facility is located at Sonbong (formerly called Unggi), part of Rason Special Economic Zone, and is open to foreign investors and Chinese tourists.88 The oil port facility and refinery plant built in the Soviet era is part of a two-day tour openly available to Chinese tourists.89 This port is also where North Korea received heavy oil aid packages from South Korea in the past. As Rason is open to foreign investment, the refinery plant is often included in the market environment introduction tour offered by investment advisory companies, such as the “Investment in DPR Korea.”90 Various sources conclude that the annual North Korean oil holding capacity is around 2.5 million metric tons, and could be expanded to 4 million metric tons/year.91 Based on the numbers provided by Chinese customs, we calculated that the annual crude oil export to North Korea is around 500,000 metric tons.

The irregular monthly oil supply from China to North Korea helps us to better estimate North Korea’s reserve capability. For most of 2012 (a year without any nuclear tests), the average monthly quantity of crude oil exported from China to the DPRK was about 35,000 metric tons. We believe 35,000 metric tons to be North Korea’s normal monthly crude oil demand. A key assumption we make is that North Korea can satisfy its energy needs with just 35,000 metric tons of crude oil per month. The maximum amount of crude oil North Korea is typically able to accept in one month is 100,000 metric tons, which we accept to be a good indicator for its reserve capability. This leads one to ask, “What is North Korea doing with the additional energy it imports above the 35,000 metric tons it needs?”

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90 Several investment advisory companies with projects in North Korea are publically listed on the website idprkorea.com.
A key piece of evidence suggesting that North Korea is stockpiling energy resources can be seen in the refined oil trade. China’s total gasoline exports to North Korea in 2009 were 45,598 metric tons,\footnote{“[表格] 中国 12月成品油出口分项数据” (China Customs, China Refined Oil Import and Export 2009), \textit{Reuters}, January 21, 2010, http://cn.reuters.com/article/companyNews/idCNnCN103005020100121?sp=true.} and 53,904 metric tons in 2013.\footnote{“表格: 中国 2013年12月成品油出口分项数据” (China Customs, China Refined Oil Import and Export 2013), \textit{Reuters}, January 21, 2014, http://cn.reuters.com/article/companyNews/idCNI3S0KV1VB20140121.} Assuming North Korea both (1) has a refining capacity, and (2) refined oil (i.e. gasoline) can serve as a substitute for gasoline imports from China, this indicates that North Korea could have reduced roughly 60,000 metric tons of crude oil imports from China, and still met their basic energy needs. However, the annual total crude oil supply remained stable. Therefore, we theorize that the additional energy imported was not used immediately, but in fact stockpiled for later use. The regime in Pyongyang strategically plans its military provocations, and ensures it has the energy resources necessary to ride out any punishments that it might incur.

Furthermore, Chinese customs reports document several smuggling cases in which oil ships with refined oil from Russia first anchored off the coast of North Korea, then transported refined oil to shore. Oil was transferred to reserve tanks or oil trucks via small fishing boats and underwater soft rubber hoses.\footnote{“大连海关在《国门利剑》专项行动中又破获一起成品油走私大案” (Dalian Customs Special Action Uncovers Refined Oil Smuggling Case), \textit{Liaoning Counter-Smuggling Office}, November, 24, 2011, http://www.lndsb.gov.cn/xxgk/jsdt/201111/t20111124_755353.html.} Utilizing such methods, the remainder of North Korea’s oil needs (those not being met through official channels) could be met by oil smugglers. Smugglers often avoid customs inspections by mislabeling containers.

### 4.2 Offshore Accounts

Offshore accounts give North Korea the freedom to acquire products that are sanctioned. North Korean state trading companies are embedding themselves within China and selling their products, particularly coal, for profit. The North Korean regime deploys profits derived from its state trading companies selling coal in China to procure goods from its offshore accounts. The regime does this by maintaining a robust global network of shell companies. European, Chinese, Southeast Asian, and other corporations who trade with such shell companies may very well not know they are selling to a North Korean firm. By examining current trade flows, we discovered two key loopholes that could be utilized by North Korea to set up anonymous bank accounts. The money in these types of accounts can be used to procure virtually anything, as it is extremely difficult to track the purchases. Additionally, our interviews indicated that after the Banco Delta Asia money laundering incident of 2005, North Korean trading firms principally use RMB or EURO vice USD to conduct transactions.

The first major loophole is what is known as transfer pricing. The coal trade between North Korea and China is highly indicative of a transfer pricing scheme. The scale of the trade deficit (as officially reported by Chinese customs) as presented in Figure 8 might not be
completely accurate because (1) the majority of China-North Korea trade is operated by small Chinese trade companies, and (2) it is common that North Korean trade firms do not honor their contracts. Upon interviewing several Chinese trade firms, we discovered that their standard business practice is to require North Korean partners to pay cash in order to make purchases. In order for this to happen, the trade import has to be settled within China. For this reason, the North Korean company needs to “sell” something to its subsidiary in China at a marked-down price, and this subsidiary will then sell the commodities purchased from the North Korean company to its normal trade partner in China at the market price. In the international tax system, this practice is known as transfer pricing. The implication is that the export quantity figure and the export price looks very low, but ultimately the huge profit is kept in the subsidiary in China. The North Korean firm engaging in transfer pricing would not use real information in the incorporation of its subsidiary in China. In the counter-transfer pricing practice used by taxation bureaus in many countries, the most important evidence that a transfer pricing scheme is occurring is the artificially low price in the trade contract.

The second major loophole being exploited by North Korean trading companies is the Letter of Credit model. This is considered a loophole because customs agents typically do not check who or where the receiving account is. We created the following chart based on several actual letters of credit we came across while conducting interviews in northeast China.

*Figure 37. How Coal Money is Transferred into Offshore Accounts*

<table>
<thead>
<tr>
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<td>• KTC gives B/L to PRC Bank when coal leaves North Korea, and PRC Bank provides a confirmation of 98% payment within 100 days of departure</td>
<td>• Price, quantity, and quality are reviewed every 3 months; adjusted with CIQ and/or Societe Generale de Surveillance (SGS) report</td>
<td>• PRC Co. A signs a contract with PRC Co. C</td>
</tr>
<tr>
<td>• A 10:30% deposit is made in a PRC Bank by Co. A</td>
<td>• KTC gives CIQ report to PRC Bank when coal arrives in China, and PRC Bank confirms 2% payment within 100 days of arrival</td>
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<td>• PRC Bank issues two Transferable Letters of Credit (L/C) to KTC, payable respectively on Bill of Lading (B/L) and China Inspections and Quarantine (CIQ) report</td>
<td>• Settlement: (1) 80% will be immediately settled by a telegraph from PRC Co. A to PRC Bank based on sample inspection; (2) 20% will be settled based on the SGS umpire determination within 90 days</td>
<td>• Settlement: (1) 50% with the receipt of the CIQ report in its prescribed retail port</td>
<td>• PRC Co. C pays the other 50% with the receipt of the CIQ report in its prescribed retail port</td>
</tr>
</tbody>
</table>

Source: Author’s compilation based on analysis of business contracts
Figure 37 is identical to Figure 29, except here we point out in red text a key difference in the wholesale process. In many cases, when PRC Bank issues the L/C to KTC, guaranteeing that KTC will be paid upon proper shipment of the goods, the receiving bank account on the L/C is not physically in North Korea. North Korean trading companies frequently utilize shell companies that exist outside of North Korea in mainland China, Hong Kong, Macau, and even the British Virgin Islands. But whether shell companies are utilized or not, the bottom line is the money from coal transactions stays in China. In other words, once PRC Company A pays KTC, KTC can then use that money to buy virtually anything – including sanctioned goods – and ship those goods back to North Korea. KTC can also transfer that money to one of its subsidiaries in China or elsewhere, then buy its desired goods from that shell company. The seller of those goods may not know the true identity of its new buyer. KTC or its subsidiary could pose as a Chinese company and come across (on paper at least) as totally innocuous. It is also common for shell companies to change names after major transactions, so as to make tracking them down nearly impossible. In summary, the money from the original coal sale transaction between KTC and PRC Company A never directly enters North Korea; only the physical goods procured with that money actually cross international borders.

4.3 Barter Trade

North Korean private-run state-owned trade enterprises are resourceful, strategic, and adept at maximizing limited opportunities to make and deploy profits. Profits from North Korean coal exports are used to purchase Chinese crude and refined oil. There is a group of Chinese private trade brokerage firms located in Dandong, China (right across the Yalu River from North Korea) that facilitates the coal trade business. These professional trade broker firms act as middlemen by arranging barter trades as shown in Figure 38 below. With these Chinese middlemen in place, North Korea no longer needs to pay Chinese trade partners in the traditional money-for goods-fashion. Rather, North Korean trading companies can rely on professional trade broker firms to settle payment by a purchase of the equivalent minerals and goods from North Korea. In other words, the strong market demand power for cheap commodities from North Korea is automatically converted into the same power to purchase whatever North Korea wants from China.

Through interviews and analysis of trade contracts, we attempted to trace several deals involving machinery procurement by North Korean trading companies operating in China. We discovered a new business model in which:

1. The Chinese machinery manufacturer sells machinery to a North Korean trade firm;
2. The North Korean trade firm pays the Chinese manufacturer in coal over a two year period;
3. In some cases, the buyer of the machinery is a Chinese private investor in North Korea.

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On the bill of lading and customs files, PRC Company D or its representing agency could be a buyer or a seller, and the name of the KTC is not shown. The implication of this model is very significant in that the officially reported trade deficit does not account for the products entering North Korea via non-traditional procurement methods. More importantly, we observed that the North Korean economy has evolved into a growing economic cycle:

1. Coal money is used to purchase oil and machinery.
2. Oil and machinery are used to improve production and infrastructure of the coal industry.
3. Increased production utilizing better infrastructure generates more coal money.
4. Some coal money goes back to Step (1), and much of the rest is used for the establishment of new trade firms.

As noted in a 2006 *Financial Times* report, “the effects of the economic reforms of 2002 are becoming increasingly apparent in Pyongyang. The most obvious consequence of the changes – which included allowing greater price and wage flexibility – is the triple-digit inflation that has made rice unaffordable for many North Koreans. But a handful of company managers who were given greater autonomy are prospering.”[^97] We believe this to still be the case today.

North Korean coal industry leaders used the machinery and energy imports to expand anthracite production from 17 million metric tons in 2002\textsuperscript{98} to 41.5 million metric tons in 2012.\textsuperscript{99} Trade contracts revealed North Korean trade firms have purchased machinery equipment with the best manufacturers in China, including the China National Coal Mining Equipment Company, Sichuan Neijiang Coal Mining Equipment Company, and Shandong Tai’an Coal Mining Machinery Company. North Korean trade company representatives have attended the international coal training course sponsored by China National Coal Mining Equipment Company. They have also organized a group visit to China’s coal producers in Sichuan and Inner Mongolia. From 2008 to 2013, Beijing Coal Mining Equipment Company made eight deals in coal mining machinery with North Korea.\textsuperscript{100}

In 2012, North Korea proposed a joint venture with a Jilin company to gain the rights to use Terminals 3 and 4 in Chongjin port for 30 years, in which the Chinese firm promised to invest in the port facility.\textsuperscript{101} The Chinese and Russian investors also obtained three port terminals in Rason. Rason has become a port for the transportation of coal to southern China since 2011.\textsuperscript{102}

Once exported to China, coal is used in one of two ways. The first is that coal is used as a de facto currency in that it is directly bartered for refined oil, machinery, food, and electronics. The second is that coal is sold in China, and the money from that transaction enters and remains in the banking system in China. There is a close tie to Section 4.3 here. In barter trade, the money often does not enter North Korea, but rather remains in anonymous bank accounts in China or Hong Kong.\textsuperscript{103} The North Korean trade firms then use the money from these accounts to purchase in China what they want, and these purchased goods are shipped back to North Korea. It is important to note that crude and refined oil are not sanctioned goods under the UNSC resolutions, but rather represent levers pulled by the Chinese government from time to time in an effort to push North Korea back to the negotiating table.

This business “innovation” of bartering was originally utilized by North Korean trade managers living in China in the 1990s who needed to hide their income revenue and keep trade profits in their own pockets. At the time, North Korean state trading firms faced a serious shortage of foreign currency and lost much of their credibility in China. They needed to develop a way that their individual assets in China could not be identified by the authorities in North Korea.

\textsuperscript{100} Business deals with North Korean firms are not done in secrecy. These Chinese firms reported their dealings with North Korean trading companies on their official company websites such as http://www.chinacoal-cme.com/.
\textsuperscript{101} Interview with port official, Northeast China, January 2014.
\textsuperscript{102} Ibid.
The use of barter and offshore accounts is important in terms of access and confidentiality. Access, because it seems North Korea essentially gains access to everything being traded through China – within the constraints of export controls of course. And confidentiality, because those selling goods to North Korean firms think they are selling to a Chinese buyer. Chinese customs brokers could be taken advantage of by North Korean trading firms in that DPRK trading firms falsely declare cargo, and use scant, false or altered information on the consignor forms. It is also possible that Chinese middlemen are knowingly helping North Korean trade firms ship illicit goods into the DPRK. The 2014 UN Report of the Panel of Experts lays out in more detail how this practice works.\textsuperscript{104}

\textit{Figure 39. UNSC Panel of Experts 2014 Report I}

\begin{table}[h]
\centering
\begin{tabular}{|l|l|l|}
\hline
False declaration of the items & Actual items seized & Date/year of seizure \\
\hline
Construction material & Ballistic missile-related items & October 2007 \\
Generator parts & Rocket fuses & March 2008 \\
Returning oil boring equipment (see figure 20.a) & Rocket fuses, TBG, etc. & July 2009 \\
Spare parts of bulldozers & Spare parts for tanks & November 2009 \\
Mechanical parts & Conventional arms and munitions & December 2009 \\
Lead pipe (see figure 20.b) & Graphite cylinders (ballistic missile-related items) & May 2012 \\
Generator & Military cargo (see annex VIII) & July 2013 \\
\hline
\end{tabular}
\caption{False cargo declarations}
\end{table}

\textit{Figure 20: False descriptions on bills of lading}

\begin{enumerate}
\item False description of “RETURNING OIL, BORING MACHINE (SPARE PARTS)”
\end{enumerate}

Source: unsc.org

The most difficult part for Chinese brokers is that the majority of goods North Korean trading companies barter for are considered normal trade goods. These goods typically include cellphones, DVDs, food, construction materials, fiber, and machinery. All such trade is completely legal, and a relationship of trust develops between North Korean trading companies and Chinese brokers. However, North Korean trade firms often take advantage of this trust and mix some illegal items into the mostly legal cargo. To add an additional layer of complexity, it is legal for any business in China to purchase and transport refined oil and rice. Chinese harbor facilities, like elsewhere in the world, are mixed with domestic and international maritime services. It is difficult for brokers to check if vegetable oil is actually refined oil, or if common bean as declared by the consignor is actually rice. Furthermore, when one considers the sheer volume of goods going through a harbor like Dandong on a daily
basis, it is very difficult to detect an illegal item embedded within a large quantity of legal goods.

In summary, North Korean trading companies maintain anonymous capital accounts in China and elsewhere. Their global procurement networks operate as follows: (1) they incorporate shell companies to secure goods; (2) the cargo with false information is transferred to private customs brokers in Dalian or Dandong, China where it can be found mixed in with other items in two of the busiest harbors in East Asia; and (3) the cargo is delivered to North Korea, all the while customs officials remain blind to the true nature of the contents. The UN Panel of Expert Reports show that North Korea utilizes a global procurement network. North Korean trade companies typically separate the process of procurement from the process of customs filing, particularly for sensitive materials with relevant implications for North Korea’s national security interests.

4.4 Price Manipulation

North Korea is not merely a passive economic actor being forced to take the only price it is offered. On the contrary, North Korean state trading companies are savvy market tacticians who methodically and strategically outplay their competition to secure their desired fiscal objectives. For the final portion of this section, we theorize that North Korea participates in strategic price manipulation, utilizing limited opportunities and unconventional business tactics, to maximize its market share. Our evidence for this claim is drawn from what we refer to as “regime advantage,” which – when viewed through the lens of recent economic data – becomes increasingly plausible.

First it is important to gain a perspective of the anthracite market in East Asia. The figures below show how China’s demand for North Korean anthracite has changed over time. It is clear that North Korea increasingly relies on its anthracite export to China. It is also clear that North Korea is just one small player in China’s overall demand for all types of coal (See Table 3). However, what is not as apparent is that China is importing a greater proportion of its anthracite more and more exclusively from North Korea. As Figure 41 below shows, until as recently as 2006, almost 90% of China’s anthracite needs were met by Vietnam, and only 11% were supplied by the DPRK.
But this has changed. By the end of 2013, a full 42% of China’s anthracite was being imported from North Korea. China has been importing more and more of its anthracite from North Korea. Vietnam on the other hand, as was mentioned in Section 2, began exporting less of its anthracite to China, as more is being consumed domestically.
In Figure 43 and Figure 44, pay attention to how North Korea seems to be systematically eating up a larger market share than its competitors, particularly after 2008.

**Figure 43. Percent by Country of Chinese Anthracite Imports (revenue)**

**Figure 44. China’s Total Anthracite Imports (by country)**

Source: Chinese Customs as reported to Global Trade Atlas
North Korea’s most recent trading companies, established by business elites as a result of the economic liberalization over Kim Jong-Il’s “market reform” in 2002, pay close attention to the regional price of coal—Australia and Russia being two key exporters—and deliberately set their coal prices just below their competitors so as to be the most attractive candidate to Chinese coal buyers. The rapidly growing volume of coal traded with Chinese partners offsets the lower prices. North Korea strategically undercuts its main competitors because of what we refer to as “regime advantage.” Compared to Australia and Russia, North Korean coal trading companies are controlled much more tightly by the state. Regime advantage is the ability of state trading companies to set export prices and quantities not solely based on traditional market forces. North Korean coal producers are playing by a different set of rules than are their Russian and Australian counterparts. Reduced labor costs are a key example. Many North Korea coal mines utilize the slave-labor of political prisoners to mine coal.105 Such political prisoners are not compensated in comparable ways to Australian or Russian miners. As a result, North Korean labor costs are much lower than their competitors, partly enabling export price undercutting.

Figures 45 through 47 below focus on China’s imports of anthracite, and illustrate the DPRK’s regime advantage. For a fuller picture of China’s total coal106 (including all types of coal) imports, Table 3 confirms that North Korea’s biggest competitors are (in order) Australia, Indonesia, Russia, and Mongolia. In 2013, North Korea’s principal competitors in just the anthracite market were (in order) Vietnam, Russia, and Australia (See Figure 42).

![Figure 45. China’s Import Prices of Anthracite](image)

Source: Chinese Customs as reported to Global Trade Atlas107

106 In this case, the coal we are referring to is not synonymous with anthracite.
107 Australia’s 2007 and 2008 price data have been deliberately disregarded due to being significantly out of trend. We considered these years to be anomalies.
Figure 46 provides a sense of the global anthracite market. Figure 55 and Figure 56 in Appendix I show some of these same trends in a map-style format.

**Figure 46. Global Anthracite Export Prices**

As can be seen in Figure 47 especially, North Korea senses the market and deliberately sets its prices below its two main competitors.

**Figure 47. China’s Import Prices of Anthracite**
It may appear that North Korea is being undercut by Vietnam. However, it must be remembered that North Korea and Vietnam are servicing two different coal markets in China. North Korea provides the coal for the steel production plants, mostly located in the north. Vietnam provides the coal for China’s older power plants using low-rank coal, mostly located in the southern province of Guangdong. Baoxin Energy Company is an example of low-priced Vietnamese coal being used in southern China. Baoxin is a publically-listed company with 60% of its coal being imported from Vietnam. The company claims that its profits come as a result of its ability to acquire energy from the lowest-rank coal.\(^\text{108}\)

The best comparison is thus to focus on North Korean and Russian coal of the same type. Coal prices in the northern Chinese province of Jilin were recently shocked by the quick growth of cheap coal coming in from Russia and North Korea.\(^\text{109}\) North Korea is even undercutting Chinese domestic coal producers and winning a larger market share as a result. Chinese coal producers are beginning to find it very difficult to sell their coal. For high-ranked coal, the sales price in the Liaoyuan Minerals Group, a state-owned enterprise in Jilin, is 680 yuan/metric ton excluding logistics fees. The retail price for Russian and North Korean coal, however, is around 600 yuan/metric ton including the logistics fees. In 2012, annual revenues at Liaoyuan’s subsidiary located in Longjiabao exceeded 1.4 billion yuan. However, after the first half of 2013, revenues fell to only 410 million yuan.\(^\text{110}\)

The quality of North Korean coal could be one reason explaining why China pays North Korea less for its coal. We compared various types of coal from relevant countries in order to determine if it is the quality of coal that is making the difference in price. The following three charts are primary source documents, the latter two of which are in Mandarin. Figure 48 compares coal quality from Australia, Indonesia and Vietnam – some of North Korea’s biggest competitors – in terms of calorific value per unit burned. Sadadekar Group is an independent import/export company based in Mumbai, India. Accordingly, Figure 48 provides a valuable third-party assessment regarding the quality of North Korea’s competition.


\(^{110}\)“吉林煤企普遍出现经营困难” (Jilin Coal Producers Faces Difficulty for Imported Coal Competition).
Figure 48. Coal Quality Chart (by country) from 2012

As a quick review from the terminology section of the ‘Introduction,’ any anthracite used in a steel-making process would normally be classified as metallurgical (or coking coal) while anthracite used for electricity generation or home heating would be defined as steam (or thermal) coal. North Korean anthracite is used in China primarily for steelmaking (coking), but is also employed in power plants (steam/thermal), and for home heating.

Figure 49 and Figure 50 are based on Société Générale de Surveillance’s (SGS) independent inspection report, and reveal the quality of unwashed North Korean anthracite. The first column from top to bottom reads: Item, Total Moisture ($M_t$), Air Dried Basis Moisture ($M_{ad}$), Ash (A), Volatile Matter (V), Cinder/Combustion Characteristics (CRC), Fixed Carbon (FC), Total Sulfur ($S_t$), Hydrogen (H), Gross Calorific Value ($Q_{gr,v}$), and Net Calorific Value ($Q_{net,v}$). The first row from left to right reads: Item, Symbol, Unit, Arrived Basis (ar), Air Dried Basis (ad), Dried Basis (d), Dried Ash Free Basis (daf), and Relevant Code Standard.111 The Relevant Code Standards are established by the Chinese government and represent import quality specifications that the coal must meet in order to enter the country.

111 For a full description of these terms, visit SGS’s website at: http://www.sgs.com/Mining/Analytical-Services/Coal-and-Coke/Coal-Calculations.aspx.
Figure 49. North Korean Coal Quality Testing Report from 2012 – I

![Figure 49](image1)

Source: Société Générale de Surveillance (SGS) as reported at hengyuanchangsheng.cn.alibaba.com

Figure 50. North Korean Coal Quality Testing Report from 2012 – II

![Figure 50](image2)

Source: Société Générale de Surveillance (SGS) as reported at hengyuanchangsheng.cn.alibaba.com
As a benchmark for comparison, we also include this chart compiled by industry expert Donald Ewart comparing various coal qualities by country. Depending on the precise application, any or all of the quality attributes in the green column below could impact price.\(^{112}\)

**Figure 51. 2004 Anthracite Quality Chart (by country)-Washed and Sized Products**

<table>
<thead>
<tr>
<th>QUALITY PARAMETER</th>
<th>CHINA</th>
<th>NORTH KOREA</th>
<th>RUSSIA</th>
<th>SOUTH AFRICA</th>
<th>UKRAINE</th>
<th>UNITED KINGDOM</th>
<th>UNITED STATES</th>
<th>VIETNAM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Shanxi Jincheng (adb)</td>
<td>Taisi (adb)</td>
<td>Tokchon (adb)</td>
<td>Kuznetsk Basin (adb)</td>
<td>Nkomati (adb)</td>
<td>Zululand (adb)</td>
<td>Donetsk Basin (adb)</td>
<td>Group 1 (adb)</td>
</tr>
<tr>
<td>Total Moisture (wt %)</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>3.0%</td>
</tr>
<tr>
<td>Inherent Moisture (wt %)</td>
<td>1.0%</td>
<td>1.0%</td>
<td>2.0%</td>
<td>2.0%</td>
<td>1.4%</td>
<td>2.8%</td>
<td>2.0%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Ash (wt %)</td>
<td>14.0%</td>
<td>6.0%</td>
<td>10.0%</td>
<td>11.0%</td>
<td>15.8%</td>
<td>7.7%</td>
<td>11.5%</td>
<td>4-5%</td>
</tr>
<tr>
<td>Volatile Matter (wt %)</td>
<td>6-8%</td>
<td>8.0%</td>
<td>8.0%</td>
<td>3.5%</td>
<td>7.9%</td>
<td>5.3%</td>
<td>3.5%</td>
<td>6.5%</td>
</tr>
<tr>
<td>Fixed Carbon (wt %)</td>
<td>78.0%</td>
<td>85.0%</td>
<td>80.0%</td>
<td>83.5%</td>
<td>74.9%</td>
<td>84.2%</td>
<td>83.0%</td>
<td>85.5%</td>
</tr>
<tr>
<td>Total Sulfur (wt %)</td>
<td>1.0%</td>
<td>0.35%</td>
<td>0.50%</td>
<td>0.30%</td>
<td>0.35%</td>
<td>0.72%</td>
<td>0.80%</td>
<td>0.75%</td>
</tr>
<tr>
<td>Calorific Value (kcal/kg)</td>
<td>7,000</td>
<td>7,800</td>
<td>6,600</td>
<td>6,500</td>
<td>7,243</td>
<td>7,664</td>
<td>7,170</td>
<td>7,612</td>
</tr>
<tr>
<td>Grindability (HGI)</td>
<td>45</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>42</td>
<td>44</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Size (mm)</td>
<td>0-25</td>
<td>25-50</td>
<td>0-30</td>
<td>45x25</td>
<td>45x20</td>
<td>45x20</td>
<td>n/a</td>
<td>45x22</td>
</tr>
<tr>
<td>Phosphorus in Coal (wt %)</td>
<td>n/a</td>
<td>0.03%</td>
<td>n/a</td>
<td>0.03%</td>
<td>0.02%</td>
<td>0.03%</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Dry-MMF Fixed Carbon (wt %)</td>
<td>93.4%</td>
<td>92.0%</td>
<td>91.9%</td>
<td>97.1%</td>
<td>92.0%</td>
<td>95.0%</td>
<td>97.3%</td>
<td>93.6%</td>
</tr>
</tbody>
</table>

As a general rule when interpreting Figures 48 - 51, moisture, ash, and sulfur should be as low as possible; the higher these levels are, the less valuable the coal. Higher calorific values are better because more energy can be gained per unit burned. It is also important to note that Australia does not produce or export a “true” anthracite but rather a meta-anthracite product.\(^{113}\) Additionally, it should be remembered that coking coal, thermal coal, and anthracite are all priced differently. Coking coal commands a significant price advantage to thermal coal – as of March 2014 about $45 per metric ton – but the differential has been in excess of $100/ton. Consequently, it is difficult to compare pricing between the different types of coal without noting these price differentials. The pricing differential between steam and coking coals is not only due to differences in heat contents, but also due to the special characteristics of coking coals required for the steelmaking process.\(^{114}\) In judging how North Korean anthracite compares with its competitors, different conclusions can be drawn depending on which parameters are compared. Based on both the ash and calorific content numbers in Figures 48-50, it can generally be concluded that North Korean anthracite in 2012 was of a poorer quality than its competitors. Considering the calorific content numbers in

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\(^{112}\) A more detailed description of some of the ‘Quality Parameters’ in Figure 49 and Figure 50 is available: “Coal Analytical Services,” Coal Analysis, Energy, SGS, accessed March 14, 2015, http://www.sgs.com/en/ Energy/Energy-Sources/Coal/Coal-Analysis.aspx.

\(^{113}\) Email exchange between authors and Mr. Ewart, May 2, 2014.

\(^{114}\) Ibid.
Figure 51, it can generally be concluded that North Korean anthracite in 2004 appears to be of a poorer quality than all but one of its competitors. These differences in quality may also impact pricing. Figure 48 reveals that at over 7,000 kcal/kg, Australian coking coal is the best in terms of energy per unit burned. Next is thermal coal from Australia and Indonesia at 6,900 kcal/kg and 6,400 kcal/kg respectively. Unwashed anthracite from Vietnam is similar to thermal coal from Indonesia. Washed anthracite from Vietnam is similar to semi-soft coking coal from Australia. In comparing Figure 48 with Figures 49 and 50, it can be observed that the total moisture of North Korean anthracite is 10%, similar to that from Vietnam, but the ash content is very high at around 15-20%. As a result, the burning value of North Korean coal is only around 5,600 kcal/kg. This helps to understand why in 2013, the average price of Australian coal was much higher than coal from Indonesia, the DPRK, and Vietnam.

The following chart ranks anthracite quality by country using dollars per kilocalorie as the standard. The data itself is a composite of Mr. Ewart’s calorific values and Chinese customs. For 2012, we assume the same calorific values as in 2004, excluding Australia and Indonesia, for which we use the thermal coal calorific values from Figure 48. The prices and quantities are true to name in that for 2012, we use 2012 prices and quantities, and for 2004, we use 2004 prices and quantities.

In conclusion, because of regime advantage, we believe that North Korean firms are participating in strategic price manipulation. However, we feel it necessary to mention that it is difficult to definitively prove that North Korea is always undercutting their competitors and thus winning for itself a larger share of the Chinese coal market. This is because there are several other factors affecting price. One such factor is risk, and as we alluded to in the
Introduction, doing business in North Korea is risky.\textsuperscript{115} Thus, we would expect rational market actors to account for this inherent risk in setting prices. Furthermore, as was mentioned in Section 4.1, North Korean coal traders participate in transfer pricing schemes which make comparison difficult. In Figure 45-Figure 47, we calculated price by dividing the value – in dollars – for the transaction, by the quantity sold as recounted by official Chinese import statistics. These prices do not necessarily reflect logistics fees like FOB and CIF. Each country and each company has its own individual arrangement with Chinese buyers regarding who pays customs clearance fees, import duties, docking charges, etc.; making a true comparison across countries difficult. Logistics fees themselves vary widely depending on the coal shipment’s point of origin, how it was shipped, its entry and exit ports, its final destination, etc. Figures 45-47 provide a general idea of prices, but may not fully reflect local price levels felt by individual actors operating at specific points in the supply chain. What we can report is that from our analysis of shipping contracts, North Korean coal is typically shipped FOB. If all Chinese anthracite imports were FOB, then China’s coal buyers would have to raise their prices for coal from more distant countries simply due to the higher transport costs. This might explain why Australia’s coal prices tend to be higher.

The final section of this PAE is our recommendations for the governments of China and the United States to address the recent developments in the political economy of North Korean coal discussed in this paper.

\textsuperscript{115} Perlez, “China-Korea Tensions Rise After Failed Venture.”
5 Policy Recommendations

We started this project by asking ourselves: how can the U.S. and China work together to more effectively influence the North Korean regime? We know that any policy vis-à-vis North Korea can be much more effective if the U.S. and China work as partners and not competitors. In fact, we view the largest barrier to developing an effective North Korea policy to be the nature of the U.S.-China relationship itself. The process of drafting UN Security Council Resolutions following DPRK nuclear tests illustrates this point. When we asked why the U.S. did not punish North Korea more severely for the DPRK’s constant destabilizing actions, Dr. Gary Samore replied, “The main reason why we don’t punish North Korea is because China won’t allow it. Every time there’s a U.N Security Council resolution, we go in with a draft that has many really tough, sharp teeth. And the Chinese diplomats take out their pencil, and they take the teeth out. They water it down. And then you end up with a compromise which is weak. That’s how it always happens.”

We recognize that there are differences in policy objectives between the U.S. and China in regards to North Korea, but such differences need not stymie collaboration. In response to the question, “Why hasn’t there been more cooperation between the U.S. and China in regards to North Korea policy?” Dr. Samore responded, “That has a lot to do with the basic relationship between Washington and Beijing. I think both sides see it as a competitive relationship for who will be the dominant power in Asia. Korea is sort of one piece of that bigger rivalry between Washington and Beijing. So it’s hard for the U.S. and China to cooperate because they’re viewing each other with suspicion.”

Our two countries may have different opinions regarding the role of international interventions, border disputes and maritime law in the South China Sea, etc. However, the U.S. and China share one thing in common: both countries want a stable northeast Asia that promotes economic development, and a Korean Peninsula free of nuclear weapons.

Policymakers in both Beijing and Washington are hungry for new policy levers with respect to North Korea. That is why we believe cooperation in each country’s respective North Korea policies is possible. Any policy will be much more effective when the two countries are working together synergistically rather than unilaterally. That is why first and foremost, we are submitting joint recommendations to be implemented by Beijing and Washington together. The spirit of our recommendations is to foster personal relationships and trust between Chinese and American government officials. We need to help each other understand the differences in how both countries operate in the diplomatic arena. We also need to help one another understand how foreign policy decisions are made in each other’s countries.

In general, we recommend better utilization of existing frameworks in multinational organizations and intergovernmental agreements. Considering the current fiscal environments in both the U.S. and China, rather than create an entirely new governmental body or entity, we recommend utilization of existing frameworks. However, nothing we recommend here will be effective without increased cooperation and an overall spirit of

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116 Interview with authors, Cambridge, Massachusetts, December 2013.
117 Ibid.
understanding between the United States and China. There exist a litany of possible ways to respond to the recent developments in North Korea’s political economy which we presented in this paper. Amongst these, we chose to make the following policy recommendations (and not other more aggressive actions) because we assess the following to be achievable, measurable, and specific. Furthermore, pursuing the following policy actions will place little additional financial or political burden on either country. Put more bluntly, the following actions, if taken, have the most substantial bang for the U.S. and China’s collective buck.

5.1 Jointly to Beijing and Washington

1 Deepen information sharing between U.S. Treasury Department’s Office of Foreign Assets Control and the Chinese Central Bank’s Counter Money Laundering Agency in regards to trade finance and sanctions evasions generally. To operationalize this, we recommend both countries establish a joint database based on UN Security Council resolutions and organize an ongoing monthly meeting at the International Law Enforcement Academy’s Bangkok office. We recommend this information sharing be part of a broader framework of anti-terrorism, drug financing, smuggling activities, and illicit trade. The database will include names, addresses, and bank account information similar to Annex A.3 of the UN Panel of Expert Report S/2010/571 of November 5th, 2010.118 This information sharing should take place according to Recommendation 7 of the FATF cooperative framework, particularly the June 2013 FATF Guidance on the Implementation of Financial Provisions of United Nations Security Council Resolutions to Counter the Proliferation of Weapons of Mass Destruction.119

2 Greater dissemination of all four UN Panel of Expert reports, namely, S/2014/147 of March 6th, 2014 pursuant to resolution 2094 (2013), S/2013/337 of June 11th, 2013 pursuant to resolution 2050 (2012), S/2012/422 of June 14th, 2012 pursuant to resolution 1985 (2011), and S/2010/571 of November 5th, 2010 pursuant to resolution 1874 (2009); to relevant law enforcement agencies in the United States and China. Relevant agencies include U.S. Customs and Border Protection, U.S. Coast Guard, the Federal Bureau of Investigation, Chinese Customs, Chinese Ministry of Public Security, and China Coast Guard. Critical to this recommendation is that dissemination of these reports extends throughout each Agency to reach personnel working “on the ground” on export control issues. Once disseminated, better policy ideas regarding how best to improve in areas 3.1.1 – 3.1.5 below can be solicited and passed up each organization’s chain-of-command from the bottom up. Joint Recommendation number 2 ties in directly with Joint Recommendation number 3.

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3 Convene a two-week executive education program for 100 senior officials each year from the following agencies in both countries (for a total of 200): Customs, Commerce, Counter-Money Laundering Office, Justice, and Drug Enforcement that focuses on case studies for capacity building in the following areas:

- 3.1.1 Money laundering
- 3.1.2 Illicit trade
- 3.1.3 Policy coordination between the federal and the state governments
- 3.1.4 Enforcement of export control mechanisms (i.e., export violations)
- 3.1.5 Sanctions evasion

Each agency from each country should send 20 officials. Breakout sessions will then be conducted by agency by topic area, creating small group sessions of five American and five Chinese officials. A group size of ten is small enough to foster the development of personal relationships, which is one of the main objectives of the executive education program. In the event of a future DPRK-related crisis, it is these personal connections that could be critical to solving the problem. Recommended host locations, alternating years, include Harvard University John F. Kennedy School of Government in Cambridge, Massachusetts, and Tsinghua University in Beijing, China. One of the main objectives of this executive education program should be to discuss how each country’s agencies can better implement the four UN Panel of Expert reports and share lessons learned from their officials working “on the ground.” Armed with these ideas, officials can then go back to their respective countries and put into practice new policies which they feel will best address areas 3.1.1 – 3.1.5.

4 Commission the Council on Foreign Relations and the China Institute of International Studies to issue an annual research report to review the cooperation efforts of the two countries in the above areas. This Commission will consider possible secondary effects of these new policy levers, champion any progress made, and make recommendations for how to improve capacity and coordination in this sensitive policy arena.

By following these steps, the U.S. and China will be able to proactively shape the security landscape of Northeast Asia to better respond and even preclude future destabilizing actions by the DPRK regime.

5.2 Washington

1 In response to the DPRK’s sanctions evasion efforts, the U.S. should continue to implement measures outlined in Executive Orders 13466, 13551, and 13570. Sanctions evasions are a U.S. national security emergency. Given future North Korean violations of UNSC resolutions, the U.S. could consider if there is further room to expand the application target of the executive orders and global targeted financial sanctions. Such an expansion translates to pursuing more aggressively North Korean offshore accounts outside of the Chinese banking system, which the U.S. Treasury can more effectively
target. Much like it did with Banco Delta Asia in 2005, U.S. Treasury Department initiated freezes can be very effective tools in disrupting North Korean procurement networks. We recommend the U.S. Treasury Department work hand in hand with the Chinese Banking Regulatory Commission to implement FATF Recommendation 7. As was discussed in Section 4.2, North Korea keeps a significant amount of its cash in offshore accounts utilizing shell companies in the Caribbean, Hong Kong, Macau, and elsewhere in Southeast Asia. This money is often transferred to accounts in mainland China. As informed by the UN Panel of Experts Report, North Korea’s offshore accounts outside of the Chinese banking system are financing the DPRK’s global procurement network in violation of UNSC resolutions. By tracking the designation of these connected bank accounts’ money from China to third-parties, the U.S. Treasury Department could help Chinese authorities close North Korean suspicious accounts directly. The general improvement of the customs inspection capability in implementing FATF Recommendation 7 would impede North Korea from proliferating WMD. The successful inspections of the North Korean shipping vessel in Panama on July 15th, 2013 and the cargo plane in Thailand on December 13th, 2009 prove there is room for future implementation.

2 Incentivize American companies to inject U.S. foreign direct investment (FDI) into the Chinese provinces of Liaoning and Jilin aimed at ethnic Koreans. An estimated 2 million Koreans live in the northeast Chinese provinces of Jilin, Liaoning, and Heilongjiang. Many living in the border area with North Korea are recruited for their language skills in Korean and Mandarin Chinese, and end up getting involved with economic activities that support North Korean enterprises. The construction of U.S. factories and other investments will provide ethnic Koreans in the region viable livelihood opportunities that will not involve doing business that supports the North Korean regime. By providing an alternative source of income, U.S. FDI in northeast China will encourage local economic actors to substitute trade with North Korea for sustainable linkages with U.S. firms. As a simple example, the U.S. government could provide targeted tax breaks to a company like Goodyear Tire to build a tire factory in Dandong, China.

3 Under the auspices of the U.S. Agency for International Development, the UN Development Program, and the Korea International Cooperation Agency, initiate a vocational and education program to improve the living conditions of ethnic Koreans living in China. This program will include financial support and vocational training for those of Korean descent. Under the endorsement by China’s Ministry of Education, this program will be aimed at providing ethnic Korean students with increased opportunities in higher education in the form of scholarships, and lay the groundwork for the construction of a new international cooperative higher education institution in China.

5.3 Beijing

1 As the use of bank accounts under other peoples’ names in China by North Korean trade firms is in direct violation of existing Chinese law, enact an executive regulation by the People’s Bank of China and the Chinese Banking Regulatory Commission which enforces the China Anti-Money Laundering Law Section 16.26, and the People’s Bank of China’s Financial Institution’s Anti-Money Laundry Regulation, Section 9(b), which prohibits the use of anonymous cash accounts. The law reads, “financial institutions shall know the purpose and nature of any transaction, and effectively identify the beneficiary of the transaction,” and can be implemented as follows: for any trade with a sanctioned country by order of the Chinese government, any payer and receiver accounts have to directly belong to the trade firms as described by the trade contract filed to Chinese Customs. Cash is not allowed in any transaction. All the assets of any corporate account in the Chinese banking system shall be frozen if the account is connected to any transaction not documented with a direct trade contract. As offshore accounts give North Korea the freedom to acquire products that are sanctioned, monitor those accounts closely. All the assets of any individual account in the Chinese banking system shall be frozen, if it is (1) a receiver of an import from North Korea to China, (2) a payer of an export from China to North Korea, or (3) dealing with any transaction not documented with a direct trade contract. We predict it will be easy to implement this measure because officials can identify violations by checking the bank account along with customs reports, bills of lading, and enclosed trade contracts. When the information technology system in Chinese Customs is linked with the banking system, the customs inspection will automatically include a due diligence process that cross-checks all trade transactions with approved accounts on the white list. As a result of this measure, most barter trade will be converted to normal trade.

2 Regulate North Korean coal sellers by forcing them to deposit mineral money into transparent bank accounts monitored and frequently audited by the Chinese government. In the event of non-compliance—i.e., money is transferred to finance the procurement of any good on the embargo list—seize all the assets owned by the North Korean trade company in violation. This lever is better than a temporary oil cutoff for a few months, which is the current alert signal the Chinese central government uses with North Korea. China’s use of restricting oil exports to North Korea as a policy lever can only be used to a certain extent. If North Korea’s oil supply does not return to normal levels within three months, the risk of economic collapse increases dramatically. Oil stockpiling may extend this timeline some, but the collapse of North Korea’s domestic economy is not in China’s interest. More importantly, this measure is consistent with China’s position in the international community and also in its previous engagement with North Korea: (1) China supports North Korea’s economic development, and (2) China expects economic development will help to achieve the ultimate goal of the denuclearization of the Korean Peninsula.

3 Create regulatory laws mandating that only qualified banks and bank branches, qualified brokers, and qualified traders be allowed to participate in transactions with the DPRK;
any violation by the qualified entities is to be criminally charged. As a punitive measure in the event of an additional nuclear test, close all suspicious accounts. This measure is critical because a full implementation on all branches of commercial banks is expensive and inefficient. To put the Chinese banking system in perspective, the Industrial and Commercial Bank of China operates 22,000 offices and branches in China, while Bank of America runs 5,300 branches in the United States. The franchise scale of China’s four largest banks is much larger than any bank in any other country. Therefore, it is vital to limit the number of qualified banks with business operations for North Koreans and North Korean companies to 20 municipal-level branches. Qualified entities would have to meet a requirement showing that they have the capacity and IT infrastructure to fully implement counter-money laundering measures. The scope of counter-money laundering should expand from financial institutions to trade related areas. The implications of mandating qualified banks, brokers, and traders will extend to future implementation efforts of UNSC resolutions. Qualified entities shall be formed with a new incentive, namely, that the remaining players need to take more responsibility for the relatively higher profit margins and less competition. Most importantly, compared with other alternative trade regulation measures, this method will likely not meet significant resistance from local trade associations and local governments. In the application to become a qualified trader, Chinese customs inspectors will regularly ensure firms trading with the DPRK do not participate in export violations.
Appendix 1: Maps and Figures

Figure 53. Map of North Korea

Figure 54. Map of China

Source: http://www.ezilon.com/maps/asia/china-physical-maps.html
Figure 55. Global Anthracite Production in 2006

Source: Richard Marston and Don Ewart Jr., Golder Associates

Figure 56. Global Anthracite Importers and Exporters in 2006

Source: Richard Marston and Donald Ewart Jr., Golder Associates

122 Ibid.
## Appendix 2: List of Acronyms and Final Note

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B/L</td>
<td>Bill of Lading</td>
</tr>
<tr>
<td>CIF</td>
<td>Cost, Insurance, and Freight (Shipping Term)</td>
</tr>
<tr>
<td>CIQ</td>
<td>China Entry-Exit Inspection and Quarantine Bureau</td>
</tr>
<tr>
<td>COMTRADE</td>
<td>Commodities Trade</td>
</tr>
<tr>
<td>CPC</td>
<td>Communist Party of China</td>
</tr>
<tr>
<td>DPRK</td>
<td>Democratic People's Republic of Korea</td>
</tr>
<tr>
<td>FDI</td>
<td>Foreign Direct Investment</td>
</tr>
<tr>
<td>FOB</td>
<td>Free/Freight on Board (Shipping Term)</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>HS</td>
<td>Harmonization System</td>
</tr>
<tr>
<td>KOTRA</td>
<td>Korea Trade-Investment Promotion Agency</td>
</tr>
<tr>
<td>L/C</td>
<td>Letter of Credit</td>
</tr>
<tr>
<td>OFAC</td>
<td>Office of Foreign Assets Control (U.S. Treasury Department)</td>
</tr>
<tr>
<td>PAE</td>
<td>Policy Analysis Exercise</td>
</tr>
<tr>
<td>PRC</td>
<td>People's Republic of China</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>UNSC</td>
<td>United Nations Security Council</td>
</tr>
<tr>
<td>U.S.</td>
<td>United States</td>
</tr>
<tr>
<td>SGS</td>
<td>Société Générale de Surveillance</td>
</tr>
<tr>
<td>WMD</td>
<td>Weapons of Mass Destruction</td>
</tr>
<tr>
<td>WPK</td>
<td>Workers' Party of Korea</td>
</tr>
</tbody>
</table>
Final Note

Dear Readers,

Since the original writing of this work one year ago, we have recently had the opportunity to incorporate some of the feedback we received. While doing so, we felt compelled to include an interesting new development in the China-DPRK coal trade. If you look at Figure 49 and Figure 50 in Section 4.4, you will notice that the Relevant Code Standard column on the far right. The standards set are the minimum specifications incoming coal must meet in order to enter China. The standards represented in Figure 49 and Figure 50 had no requirement regarding mercury content, or a strict bar on sulfur. A new regulation has since been established by the Chinese government.

On October 10th, 2013, China signed the Minamata Convention on Mercury. One of the convention’s obligations required large coal-fired power plants to control mercury emissions from burning coal. China signed with hopes to reduce the higher than normal rates of lung cancer in northern China and the severe air pollution in cities like Beijing. Chinese state media reported on November 26th, 2014 that Beijing would impose fines on individuals and companies that burn coal which exceeds 0.5 percent in sulfur content. Then on January 1st, 2015, China issued new legislation – GB13223-2011 – which states that mercury levels in coal must remain below 30 micrograms per cubic meter (µg/m³). The law also states that any coal import not in compliance with this new standard is to be automatically rejected at Chinese ports, and sent back to its sender nation without exception.

Thus far in 2015, North Korean coal has not met this new environmental standard and North Korean coal exports to China have plummeted. We will be watching closely as this new situation continues to unfold, paying particular attention to the DPRK’s increasing textile exports to Russia and China, which again shows the creativity of North Korean regime against sanctions.

Thank you for reading.

Very respectfully,

Greg & Jin
Saratoga Springs, New York & Beijing, China
