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Dollarization of the North Korean Economy: Causes and Effects

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Dialogue on the North Korea Economy

March 2020



Dollarization of the North Korean Economy :
Causes and Effects

Dialogue on the North Korea Economy

Dollarization of the North Korean Economy : Causes and Effects

A generalization and the widespread use of foreign currency in North Korea is called dollarization. Opinions are mixed over the backgrounds and the causes of the phenomenon, whether it is peculiar to the North, what it implies about the reality, and what effects it will have on the North's economy.

Dollarization was selected as the topic of the second edition of <Dialogue>, a new KDI series devoted to answer fundamental questions of the study of the North Korean economy based on expert interviews. This edition begins with the economic concept of dollarization and moves on to its features and influences. We hope you find this article informative and useful.

Dialogue on the North Korea Economy



Time and Venue

Seoul, Friday August 8, 2019



Interviewer

Lee, Suk (Senior Fellow at KDI)

—

Interviewee

Lee, Jongkyu (Fellow at KDI)

—

Editor

Kim, Soyoung
(Reporter at the Farmers Newspaper)



LEE. Suk Q.

Researchers who study the North Korean economy point out Dollarization as one of the most distinctive features. Please tell us about the current status of the phenomenon.

Lee. Jongkyu

Dollarization refers to the use of the US dollar (or any other foreign currencies) instead of or in addition to the domestic currency. In the case of North Korea, it would be more appropriate to call it yuanization rather than dollarization as the Chinese yuan is more commonly used than the US dollar. Still, in mainstream economics, dollarization is a term of choice when the dollar is used in parallel with other foreign currencies, and thus, I would like to use the term dollarization for this article.

Dollarization has become a widespread phenomenon in North Korea. It is thus important to understand the causes, features, effects on the economy, and responses from the North Korean government. Also, it is critical to examine the phenomenon in diverse angles to have a deeper understanding of the recent status of the North's economy.

Usually, dollarization occurs to only some parts of an economy and can be categorized by its degree of progression. Lee Seog-ki et al. (2012, p.46) argued, "In most cases, foreign cur-

rencies are first used as a substitute to the domestic currency to store the value of assets, and as the practice moves forward, they substitute the domestic currency as a medium of exchange or a measure of value (see Table 1).

In this regard, the asset substitution level of dollarization signifies that the phenomenon is still in its early stage, and the currency substitution level implies that it reached the late stage. In the later stage of currency substitution, if foreign currencies are used not only for large transactions but also for day-to-day small transactions, dollarization is determined to have reached a particularly higher stage.

Considering the observation that foreign currencies are used for small transactions in North Korea, dollarization is assessed to have reached between the middle and late stages. Table 2 below shows the results of a survey of 1,010 North Korean defectors on the currency they used in North Korea as a main currency. On the whole, most of respondents reported that they had used the North Korean won (81.8%). However, depending on the time of departure from North Korea, their answers varied. Among those who escaped the North before 2002, 93.4% of respondents said they had used

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the asset substitution level of dollarization signifies that the phenomenon is still in its early stage, and the currency substitution level implies that it reached the late stage.

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the North Korean won while only 5.9% said they had used the Chinese yuan. Among those who crossed the border after

Table 1 | Degree of Progression of Dollarization

		Early stage	Middle stage	Late stage
Asset substitution		O	O	O
Currency substitution	Large transactions	X	O	O
	Small transactions	X	X	O

Source: Compiled by the author based on Lee Seog-ki et al. (2012, pp.46-47).

Table 2 | Currencies Used by North Korean Defectors

(Unit: persons, %)

		No. Respondents	KPW	CNY	USD	Others	No answer
Total		1,010	81.8	16.0	1.5	0.1	0.6
Year of crossing the border	Before 2002	288	93.4	5.9	0.0	0.0	0.7
	2003-2009	433	87.5	9.7	1.6	0.2	0.9
	2010-2012	167	74.9	23.4	1.8	0.0	0.0
	After 2013	122	43.4	52.5	4.1	0.0	0.0

Source: Korea Development Institute (2016).

2013, 43.3% picked the won and as much as 52.5%, the yuan. Despite the fact that about 70% of respondents came from the North Korea-China border areas, such reversal in trends seems a major change.

Thank you for offering a clear summary of dollarization in North Korea. Could you please provide us with more detailed explanations for example on how economists explain and analyze the phenomenon and if there are cases of other countries?

“

Among those who crossed the border after 2013, 43.3% picked the won and as much as 52.5%, the yuan.

”

The progression of dollarization in an economy can be measured with the deposit ratio and the debt ratio of foreign currency and other financial indexes. Still, the most widely used of all is the dollarization index (DI). “DI is the ratio of foreign currency deposits in domestic banks to M2 (M1 plus short-term time deposits in banks and 24-hour money market fund¹, and if it goes over 30% is considered to indicate that dollarization is in its late stage” (Lee Seog-ki et al., 2012, p.51).

The index, however, reflects asset substitution only partially and does not include the concept of currency substitution. To fill this gap, a substitute index, called comprehensive dollarization index (CDI), is often used. CDI is defined as the ratio of to-

¹ Dollarization Index (DI) = Foreign currency deposits / M2.



tal foreign currency deposits plus foreign currencies in circulation to total M2 plus foreign currencies in circulation.² This index embraces the concept of currency substitution as well as the concept of asset substitution (Feige, 2003). It is still difficult to accurately measure the degree of currency substitution since foreign currencies in circulation are hard to calculate.

As suggested above, it is challenging to assess the progression of dollarization even for a normal economy. The issue gets even more complicated in the case of North Korea where obtaining proper financial data is next to impossible. This leaves researchers who study dollarization in North Korea with no other options but to use, despite a few limitations, surveys of or in-depth interviews with North Korean defectors. In such survey, North Korean defectors are grouped by their time of departure, the regions they came from, jobs

they had in the North, their income level, social class, and other demographic criteria and are asked questions on the main currency they used, whether they used different currencies for different purposes, and so on.

In economics, there are few established theories or hypotheses focused on dollarization meaning that until today discussions on the phenomenon have not been active. Still, a few researchers have examined the direct causes, effects, and durability of the phenomenon and come out with a couple of important findings.

First, dollarization advances mainly due to rising inflation, a thesis supported by the purchasing power parity theory. Second, as demonstrated in several countries, dollarization tends to continue even after prices stabilize. Researchers call this tendency the ratchet effect or de-dollarization hysteresis³ (Ozsoz and Rengifo, 2016)

² Comprehensive Dollarization = (foreign currency deposits + foreign currencies in circulation) / M2 + foreign currencies in circulation.

³ This tendency similar to the hysteresis concept in natural science, which refers to the dependence of the ongoing event on its historical patterns. When applied to dollarization, it means that dollarization continues even if prices and exchange rates stabilize because economic agents consistently prefer foreign currencies expecting that the value of their own currency will decrease.

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According to the purchasing power parity theory, if price levels in North Korea and the US are assumed at P and P^* , respectively, the nominal North Korean won-US dollar exchange rate is e (the quantity of the won that can be purchased with 1 US dollar). As the price level in the US is P , the purchasing power of 1 US dollar is $1/P$ in the US and e/P^* in North Korea. In this case, in order for the US dollar to have the equal purchasing power in both countries, the formula below should be true (Gregory Mankiw, 2013, pp.801-802).

$$\frac{1}{P} = \frac{e}{P^*}$$

If prices in North Korea (P^*) escalate, the won-dollar exchange rate should go up as well according to the law of one price. In other words, inflation comes with depreciation of the domestic currency. If prices continue to rise in North Korea, the value of the won will continue to decline, and economic actors will find it much more profitable to hold the dollar than the won. This way, inflation plays a pivotal role as a main trigger of dollarization.

The currency substitution theory provides that hyperinflation is a direct cause of dollarization. However, it is observed in most countries undergoing dollarization that economic actors continue to use foreign currencies even after dollarization reaches a certain level and price stabilizes (the ratchet effect and de-dollarization hysteresis). This suggests that the relation between inflation and dollarization is not completely linear. In this sense, the currency substitution theory is not sufficient enough in describing the inflation-dollarization relation.

Recently, researchers have attempted to fill that gap with new models or hypotheses (Ozsoz and Rengifo, 2016, pp.58-66). One of such efforts is the collective memory hypothesis arguing that the psychological attitude of economic actors who experienced social and economic changes due to inflation—those with foreign currencies make a profit but others without foreign currencies suffer a loss—is hard to change. The hypothesis also provides that if economic agents are accustomed to using for-



eign currencies for day-to-day transactions, it is even harder to change their attitude (Mongardini and Mueller, 1999).

Another effort focuses on institutions as the cause of the ratchet effect. According to the institutions hypothesis, if economic actors have trust in their government, they will reduce their foreign currency holdings when the government adopts a price stabilization policy believing that the policy will ease inflation. If they do not trust the government, however, they will act otherwise. Most countries experiencing the progression of dollarization are developing countries with poor institutions. They thus have a high chance of experiencing the ratchet effect. We should pay attention to the conclusion of transcendental studies that the lower a country's institutional quality,

the higher the probability of its experiencing advancing or continuing dollarization (Galindo and Micco, 2005; Yeyati, 2006; Dehesa *et al.*, 2007; Kutan *et al.*, 2012).

Finally, Ize and Yeyati (2003) argued that a well-diversified portfolio called minimum variance portfolio (MVP) is determined by inflation, exchange-rate pass-through, and the volatility of exchange rates. This suggests that the degree of dollarization is determined not by inflation itself but by the volatility of exchange rates. The MVP theory is useful in understanding the reason why de-dollarization hysteresis appears even after inflation is contained.

Let's move on to the cases of other countries experiencing dollarization. In general, dollarization can be divided into two types: one is official/de jure/full and the other is unofficial/de facto/partial. The former type of dollarization occurs when a country repeals its own currency and recognizes a foreign currency as its legal tender. This happened in Ecuador, El Salvador, East Timor, Panama (which recognized the US dollar as the official currency) and Andorra, Kosovo, Monaco, Montenegro (which recognized the euro as the official currency). The latter type refers to a situation when foreign and domestic currencies are used in parallel and foreign currencies substitute the domestic one only partially. This type of dollarization is observed in many developing or transition countries.

The official dollarization substitutes unstable local currency with stable, major foreign currencies and is thus appropriate for containing inflation rapidly and achieving price stability quickly. The downside is that it restricts central banks' ability to operate

“Dollarization has progressed in North Korea through five periods.”

monetary policy. Meanwhile, if unofficial dollarization is implemented in a country, the country's economic actors who see foreign currencies as an alternative to the unstable domestic currency will be attracted to make deposits in foreign currencies. Still, a too high rate of foreign currencies in bank deposits can destabilize the whole financial system (Ozsoz and Rengifo, 2016).

That was a detailed, but very clear explanation of a highly complex phenomenon. To summarize, “Inflation certainly causes dollarization. It pushes up exchange rates, and a consistent rise in exchange rates makes it more profitable to possess the US dollars rather than the domestic currency. A stick issue is a situation where dollarization continues even after inflation came under control. Researchers offer three models to explain it. Meanwhile, as seen in the cases of other countries, dollarization is classified into two types: one is official dollarization where foreign currencies are recognized as legal tender, and the other is unofficial dollarization where foreign currencies

assume some functions of the local currency. The biggest advantage of the former is price stability, but as an innate drawback, it disables the implementation of the central bank's monetary policy.” I believe this background knowledge is crucial to understanding dollarization in North Korea. Now, let's expand it. How has dollarization advanced in North Korea? What factors have worked in the process?

Dollarization has progressed in North Korea through five periods. The first period from 1953 to the end of the 1980s is marked by a centralized state control of foreign currencies. During this period, the management of foreign currencies was monopolized by the government and all trade and finance-related activities were controlled by state organs.⁴ For instance, Foreign Trade Bank of DPRK founded in November 1959 was the only channel that can be used for transactions such as “settlements related with trade and non-trade transactions, security on foreign currencies required to implement export/import plans, a receipt of foreign currency deposits for the state, extending loans/receiving

⁴ Foreign currency transactions were conducted through Foreign Trade Bank and transactions in the North Korean won, through Central Bank of the of the Democratic People's Republic of Korea (Kim Kwang-jin, 2008).

deposits in foreign currencies, and lending, clearing, settlement, and other financial transactions with foreign banks” (Lee Seog-ki et al., 2012, p.82). Against this backdrop, economic actors’ use of foreign currencies was under a strict state control, and there were no signs of dollarization.

Over time, such state control eased as the privileged class, trade-related workers, and people receiving remittances from overseas were allowed to possess a certain amount of foreign currencies. The loosening of control further accelerated along with the founding of sectoral banks such as Dae-song Bank (1978), Koryo Bank (1988), and Changgwang Credit Bank (1989), all of which belonged to Office 39 (Kim Kwang-Jin, 2008, pp.26-27). The state control became unsustainable on the growing use of foreign currency exchange notes⁵ that can be officially paid for goods and services at

foreign currency stores and foreign currency checks⁶ that can be used instead of cash for transactions between organizations or enterprises. Moreover, an excessive printing of these special notes and checks and the resultant drop in their value provoked economic actors’ preference for foreign currency cash over the special notes and checks, making it more difficult to control the use of foreign currencies in North Korea.

In general, decentralized control of foreign currencies and the devaluation of special notes and checks that can be used in lieu of foreign currencies for transactions created a demand for foreign currencies. A growing number of members of the privileged class, trade-related workers, and people receiving overseas remittances started to possess foreign currencies. Still, it is too early to say that dollarization started in



⁵ The notes could be exchanged with foreign currency cash at Foreign Trade Bank or currency exchanges.

⁶ “An enterprise can request a payment at a trade bank with foreign currency checks it received from other enterprises. Then, the bank deposits the requested amount of money at the requesting enterprise’s account. This is a typical Socialist method of payment that can be done with no cash exchanged” (Lee Seog-ki et al., 2012, p.86).

full swing in this period as the abovementioned practice was confined to only a few select group of people.

Early signs of dollarization began to appear in the beginning of the 1990s through 2001. During this period marked by a loosening of state control of foreign currencies, North Korea faced new challenges from inside and out. Externally, it had to address the fallout from the collapse of the Soviet Union and other socialist states in Eastern Europe. Internally, an expansion of the informal sector (markets) posed a new challenge.

In particular, the time from mid-1990s to early-2000s called the Arduous March saw the centrally planned economy and the state rationing system fall down. Also, opportunities were created for economic agents to trade in foreign currency cash, a practice that could not be uniformly reg-

ulated. In addition, not only Russia (1991) but also China (1993) began to demand the North to make settlements in hard currency,⁷ pushing up economic actors' demand for foreign currencies. The supply of foreign currencies in North Korea further increased with institutional changes such as the decentralization of trade authority, the introduction of joint venture system in North Korea, and the allotment of foreign currency earning businesses to a larger number of organizations. These changes intensified as the so-called 'Royal court economy' took up an increasing share of the total economy after former Chairman Kim Jong-il had seized power (Kim Kwang-Jin, 2007). Economic actors' demand on foreign currency cash also increased as the reckless printing of foreign currency exchange notes and checks lowered their value even further (Lee Seog-ki



⁷ After signing the DPRK-USSR Agreement on Changes to the Trade Settlement System in November 1990 and the DPRK-PRC Trade Agreement in January 1992, North Korea began using hard currency for foreign trade and cross-border financial transactions based on international market prices. The two agreements ended barter trade and friendship pricing systems North Korea had enjoyed in trade with other Socialist states, introducing a hard-currency settlement system (Choi, Soo Young, 2007, p.8).

et al. 2012; Yang Moon Soo, 2016a).

To sum up, in North Korea, the demand on foreign currencies increased owing to internal and external changes. The demand entailed institutional changes and eventually a growing supply of foreign currencies. The depreciation of special notes and checks originally introduced to regulate foreign currencies solidified the social preference for foreign currency cash. As a result, the use of foreign currencies became a common practice not only among a small group of privileged people but among the wider population of North Korea.

The third period of dollarization (2002-2009) arrived with the implementation of the Economic Management Improvement Measures (July 1 Measures). Along with the changes that arose inside and out, North Korea's economy faced an unknown type of challenge. The expansion of markets (the informal sector) in contrast to the weakening of the centrally planned economy (the formal sector) during the Arduous March put a great burden on the authorities. Against this backdrop, the July 1 Economic Management Improvement Measures brought changes to foreign currency-related sectors.

For instance, trading companies were now permitted to directly sell imports to the ordinary people, institutions and enterprises were granted to possess foreign currencies, and business-to-business transac-

tions in cash were legalized (Lee Seog-ki et al. 2012, p.102).⁸ Along with the July 1 Measures, special notes such as foreign currency exchange notes⁹ were abolished for reasons such as “inflation, depreciation, harmful effects due to dual pricing.” These changes further boost the demand for foreign currency cash (Kim Kwang-Jin, 2008, pp.28-29)

The central purpose of the July 1 measures was to increase official pricing & exchange rate to the similar level of market pricing & exchange rate. Despite the North Korean government's announcement that it raised prices 25 times on average, the inflation across the board turned out to rise 80 times (Moon Sung-min, 2008). Also, with the improvement measures, the North Korean won-US dollar exchange rate that had been pegged at 2.15 for decades was adjusted to 150, a 70-fold hike. These measures, however, fell short of ceasing the expansion of the informal sector leading to inflation in market prices and a consistent decline in the value of the North Korean won. Compared to the third quarter of 2002 when new economic measures were introduced, prices surged about 32.4 times and the won-dollar exchange rate rose 12 times in the third quarter of 2009 (the price of rice per kilogram surged from 68 won to 2,200 won and the exchange rate, from 320 won to 3,840 won). These trends drove up economic actors' preference for

⁸ With the enactment of the Foreign Exchange Management Act of 2002, possession of foreign currencies was partially allowed for enterprises.

⁹ “With the use of foreign currency exchange notes gradually dwindling and being restricted from the mid-1990s owing to depreciation and lowered confidence, the withdrawal of the notes was first announced in the Rajin-Songong free trade zone in June 1997. Thereafter, the notes had been continuously used in other areas before they were officially abolished by the North Korean government's notifying foreign missions in Pyongyang of using hard currency for settlement from March 1, 1999.” (Kim Kwang-Jin, 2008, p.29).

foreign currencies, a classic example of the currency substitution model where a high inflation boosts the demand of economic actors for foreign currencies. In this sense, it is fair to say that from this point of time, inflation began to function as a driving force of dollarization in North Korea.

The fourth period (2010-2012) began with the fifth currency reform. Contrary to the North Korean government's expectation, marketization gained more speed, and market prices and exchange rates rose higher. In addition, as markets' ability to absorb capital grew stronger than originally planned by the regime, a growing amount of money flew into the informal sector through issuing of money or fiscal spending did not return to the formal sector (Lee, Jongkyu, 2016, p.24). To address

this, the North Korean government implemented the fifth currency reform (redenomination) on November 30 to December 6, 2009. The conversion rate between old money and new one was 100:1 for cash and 10:1 for bank deposits, and the conversion limit was capped at 100,000 won (old currency) per household.

The influence of the reform was extensive across the economy, particularly for the stability of prices and exchange rates. Compared to the first quarter of 2010, just after the currency reform, prices rose about 13 times and the won-dollar exchange rate, nine times in the fourth quarter of 2012 (the price of rice per kilogram surged from 473 won to 6,228 won and the exchange rate, from 777 won to 7,088

Figure 1 Trends of Prices and Exchange Rates after the 2002 Economic Management Improvement Measures

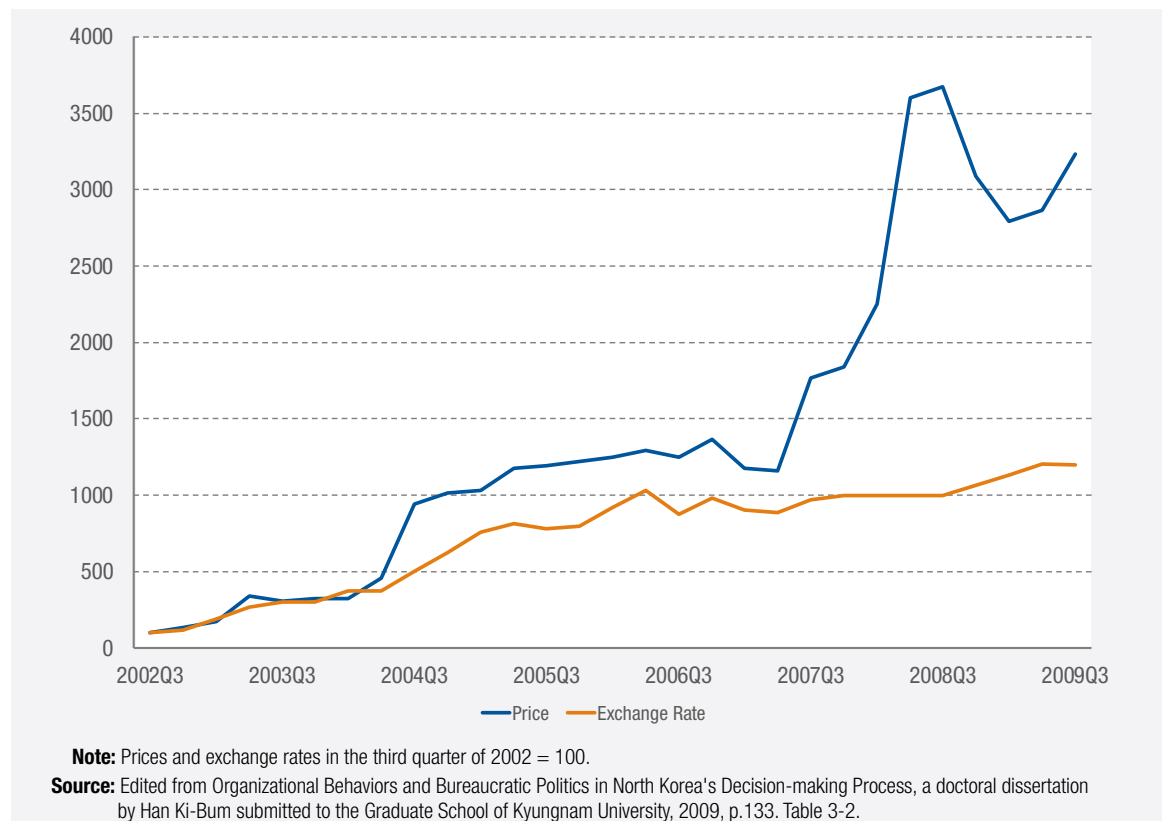
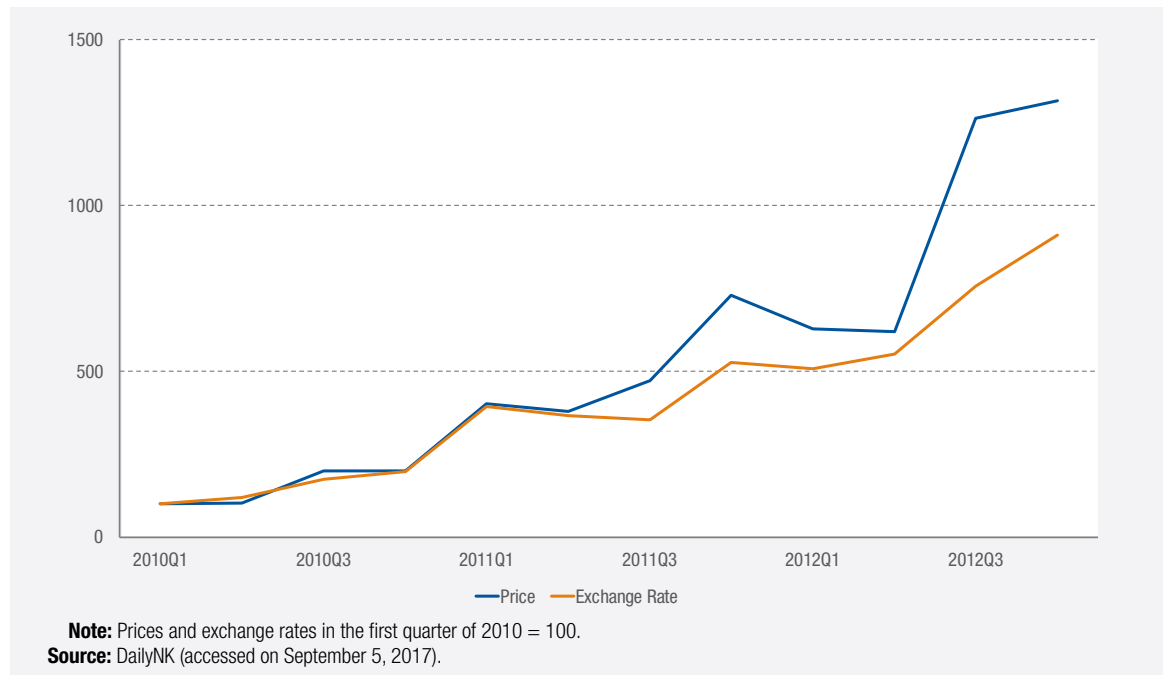


Figure 2 | Trends of Prices and Exchange Rates after the 2009 Currency Reform

won).¹⁰

Researchers including Kwon Young-kyung (2012), Lee Young Hoon (2013), and Lee Suk (2017) have cited an increased money supply as the cause of the inflation that had continued after the currency reform. According to Lee Young Hoon (2013, pp.197-198), “During the one month following the reform, in addition to the money officially converted, a huge sum of extra money was released in the name of ‘Kim Jong-un’s solicitude money’ and with the amount as much as the previous level.”¹¹ He also points out that a rise in the

price of rice was steep in the North Korean won, but relatively stable when expressed in the US dollar.¹² Citing this, he concludes, “A prolonged inflation was almost completely a monetary event caused by a growing supply of money.”

Given that the currency reform brought major changes to the economy and the society of North Korea, it seems reasonable to conclude that the extreme volatility in prices and exchange rates that appeared after the reform was taken as a result of complex interactions among “an increased issue of money above the appropriate level, surging in demand for foreign currencies

¹⁰ If compared to December 2009 just after the reform, the fluctuations would be much wilder because the surges at that time were explosive in a short time.

¹¹ “It seems that in December just after the currency reform, extra wage payment for workers and cash distribution for farmers were made, increasing the amount of cash in money circulation above an appropriate level. In addition, as people increasingly complain of the reform, the regime gave away 500 won per person in the name of Kim Jong-un’s solicitude money.” (Choi, Jiyoung and Jung, Seung Ho, 2016, p.166).

¹² The price of rice expressed in the US dollar rose from US\$0.61 per kilogram in the first quarter of 2010 to US\$0.88 per kilogram in the fourth quarter of 2012. This represents a 44.5% rise, but is relatively stable compared to the 1,216% hike when calculated in the North Korean won.

due to less confidence in the domestic currency, shrinking supply of foreign currencies due to temporary shutdown of markets, rising inflationary expectations, and other economic factors” (Choi, Jiyoung and Jung, Seung Ho, 2016, pp.165-166).

The Economic Management Improvement Measures in 2002 and the currency reform in 2009 created an extreme volatility in prices and exchange rates, intensifying economic agents’ appetite for foreign currencies. The currency reform in particular dealt a heavy blow to small-scale merchants and ordinary people who have a large portion of their assets in won. The cap on the amount of old money subject to conversion acted like a confiscation order of assets for people who had extra cash over the limit. The currency reform was a critical turning point when the North Korean people lost their confidence in the North Korean won (Yang Moon Soo, 2016a, p.121). In this regard, not only inflation, but also institutions and collective memory all seem to have accelerated dollarization in North Korea.

Until the currency reform was taken, economic actors had tended to possess assets in foreign currencies (asset substitution), but passing the reform, they became more inclined to use foreign currencies for day-to-day transactions (currency substitution). This tendency became apparent not only for buying and selling expensive items such as house but for small transactions

such as living necessities and groceries.

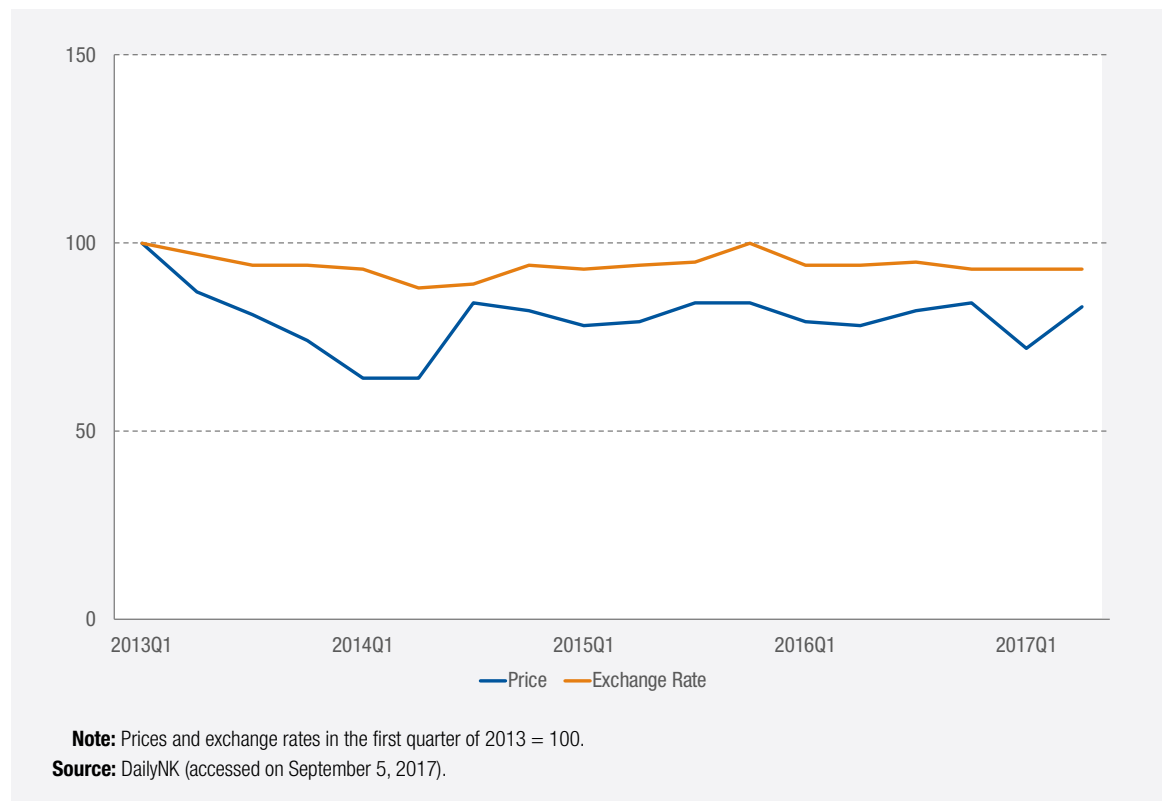
The final period of dollarization began in 2013 along with the introduction of the “Economic Management Method of Our Style.” Until then, the high volatility in prices and exchange rates had been the fuel of dollarization, but it has stabilized since the introduction of the new economic policy. Looking into details, compared to the first quarter of 2013 (6,442 won per 1 kilogram of rice, 8,665 won to 1 US\$), prices declined 17.4%, and exchange rates rose 7.2% in the second quarter of 2017 (5,342 won per 1 kilogram of rice, 8,040 won to 1 US\$).¹³

Among a few hypotheses on the reasons behind the stability, the most convincing one focuses on the fact that since Kim Jong-un came into office, the North Korean government has not introduced unreasonable policies.¹⁴ This somewhat eased people’s trauma toward the value of North Korean won. Until then, policies such as the Economic Management Improvement Measures in 2002 (conversion of formal prices into market prices) and the currency reform in 2009 (conversion of market prices into formal prices) had created confusion for economic agents regarding day-to-day transactions, asset value, and measurement of value. This time, the absence of action for policy changes itself helped ease inflationary expectations among people.

Despite stabilized prices and exchange

¹³ This period coincides with the period of the Kim Jong-un regime as well as the period when the Economic Management Method of Our Style was implemented. The method has never been officially announced.

¹⁴ According to speculations, the economic management method “had included plans for wage increase, currency reform, and other similar measures. But North Korea which had to worry about possible side effects may have given up the plans in the consideration stage given its past failure with similar plans, sensitive responses from the people, and other factors” (Lee, Jongkyu, 2016).

Figure 3 | Trends of Prices and Exchange Rates after the Economic Management Methods of Our Style**Table 3** | Stages and Causes of Dollarization in North Korea for Each Period

Periods	Stages	Causes
Centralized state control of foreign currencies (1953-the 1980s)	Pre-asset substitution (A few members of elites preference for the US dollar)	Some members of the privileged class were given the authority to manage foreign currencies
Weakening of the state control of foreign currencies (the 1990s-2001)	Asset substitution (Preference for the US dollar)	Markets expanded and market prices rose due to internal/ external factors
After the Economic Management Improvement Measures (2002-2009)	Asset substitution (USD/CNY) Currency substitution (a few large transactions)	Despite the measures, markets continued to grow, market prices soared
After the fifth currency reform (2010-2012)	Asset substitution (USD/CNY) Currency substitution (most large transactions, a few small transactions)	The reform pushed up market prices rapidly, eroding public confidence in institutions and policies, giving psychological shock
Economic Management Method of Our Style (2013-present)	Asset substitution (USD/CNY) Currency substitution (most transactions, large and small)	Despite stabilized prices, the ratchet effect and the de-dollarization hysteresis sustain the preference for foreign currencies

rates, however, dollarization rather intensifies. In a survey of North Korean defectors who cross the border during the final period, a high percentage of respondents reported that they had used the Chinese yuan more frequently than the North Korean won for day-to-day transactions (Yang Moon Soo, 2016a; Lee Jongkyu, 2016; Mun

and Jung, 2017). This suggests that like institutional hypothesis or collective memory theory, other factors are more influential than inflation on North Korean economic actors' sustained preference for foreign currencies. Thus, it seems that the ratchet effect and the de-dollarization hysteresis manifest themselves in the final period.

“

This suggests that like institutional hypothesis or collective memory theory, other factors are more influential than inflation on North Korean economic actors' sustained preference for foreign currencies.

”

You explained periods of dollarization in North Korea with its main drivers for each stage. I wonder how the phenomenon has been different from those of other countries particularly since 2013 when Kim Jong-un came into office.

As for dollarization in North Korea, several causes are pointed out. Kim Kwang-Jin (2007, p.9) cited an aggressive supply of the US dollar to support the so-called 'Royal Court Economy' in North Korea, a special form of economy used to manage the secret funds of Kim Jong-il when he was solidifying his position as the most prominent successor. The economy was formed by unionized and grouped institutions that were out of the influence of the cabinet control or the state planning but came under a direct control of Kim Jong-il through party offices, and were capable of conducting transactions in foreign currencies for themselves through their own foreign currency banks.” Owing to its nature, the Royal court economy required inflows of the US dollar. Dollarization also could not but accelerate because the economy was concentrated on foreign trade

and foreign currency earning businesses.

Kwon Young Kyong (2012), Lee Young Hoon (2013), and Lee Suk (2017) pointed out seigniorage (profits made by issuing currency) as a principal cause of dollarization in North Korea. Lee Suk (2016, pp.12-13) argued that North Korea issued new currency in a large scale to earn seigniorage. “The North Korean government wanted to enjoy the difference between the cost of minting new currency in a massive scale while repealing the old one and the actual value carried by the new currency.” He continued to argue, “the government regarded seeking seigniorage as a good way to rebuild its fiscal soundness that has been a total fiasco and to regain the state control of the national economy.”

Meanwhile, a good number of studies have pointed out that dollarization has been advanced not by a single cause, but by a mix of several causes (Lee Seog-ki et al. 2012; Yang Moon Soo, 2016a; Choi, Ji-young and Jung, Seung Ho, 2016; Mun et al., 2017). They believe, in the case of dollarization in North Korea, it is impossible to single out only one cause, and all of the relevant factors mentioned above have played a role in an interconnected way. Lee Seog-ki et al. (2012, pp.53-56) and Yang Moon Soo (2016a, pp.126-128) analyzed the causes of dollarization in three aspects.

First, in the aspect of currency demand, dollarization was caused by inflation (the depreciation of the North Korean won), the side effects of the currency reform in 2009 that worked to confiscate assets from

ordinary people, enforced demand for foreign currencies from economic actors by the government (e.g. the royal court economy), degradation of the formal sector, and marketization. Second, demand for foreign currencies alone was not sufficient in moving dollarization forward; a constant supply of foreign currencies from outside also played a pivotal role. Sources of supply of foreign currencies included official channels such as foreign trade and migrant workers sent to foreign markets as well as unofficial channels such as smuggling. Finally, dollarization was also accelerated by decentralized state control of foreign currencies and enterprises allowed to possess foreign currencies. To sum up, several factors worked to create the demand for foreign currencies, an ample supply of foreign currencies met the demand, and institutional changes followed. This demonstrates that policy played a major role in the progression of dollarization.

To verify a hypothesis that the dollarization phenomenon remarkably changed depending on policies, a chi-square test was conducted to see the relation between dollarization and several factors such as the most recent year when they were in North Korea, the regions they lived, their educational backgrounds, jobs, and social class.¹⁵

The test was first conducted to statistically verify the difference North Korean defectors exhibit in their rate of using foreign currencies when in the North depending on their time of departure. As shown in Table 4 below, the null hypothesis

¹⁵ If a null hypothesis—no statistically significant relation exists between two independent factors—is rejected with some significance level, the two variables may have a statistically significant relation.

Table 4 | Testing of the Relation between Dollarization and the Time of Departure

		Use of foreign currencies	Use of North Korean won	Total
The 1990s	Observed frequency	10	195	205
	In-category ratio	(4.9%)	(95.1%)	(100%)
	Expected frequency	36.2	168.8	205
2000-2005	Observed frequency	23	260	283
	In-category ratio	(8.1%)	(91.9%)	(100%)
	Expected frequency	49.9	233.1	283
2006-2010	Observed frequency	39	239	278
	In-category ratio	(14.0%)	(86.0%)	(100%)
	Expected frequency	22.0	28.9	278
2011-2015	Observed frequency	105	132	237
	In-category ratio	(44.3%)	(53.7%)	(100%)
	Expected frequency	41.8	195.2	237
Total	Observed frequency	177	826	1,003
	In-category ratio	(17.7%)	(82.3%)	(100%)
	Expected frequency	177.0	826.0	1,003

Note: Chi-square statistics (significant probability): 159.03(0.000).

was rejected with some significance level, meaning that the hypothesis that the year of departure is related with dollarization is significant. In contrast, the test with other factors such as region, educational background, jobs, and party affiliation did not provide any notable results.¹⁶ Therefore, it seems plausible that policies implemented in a particular period affected dollarization during that period.

You just made an important point. “There have been two divided trends on the causes of dollarization in North Korea: one focusing on individual factors and the other considering several factors together. On one side, researchers have argued that

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¹⁶ For the results, see the annex.

the privileged upper class of North Korea who prefers the US dollar brought about dollarization or the large-scale issue of currency by the North Korean government in economic distress sparked inflation and eventually dollarization. On the other side, researchers have argued that dollarization was caused not by a single factor but by multiple factors interacting with each other.” While recognizing these all, you seem to think that the North Korean government’s policy played a major role in dollarization based on the results of the technical test showing a particularly high correlation between dollarization and the time of departure of North Korean defectors. I understand this as follows: since different policies were taken in each period, dollarization must have been strongly affected by different policies in different periods. In this regard, dollarization in North Korea seems an intriguing topic. I would like to go further with that point, but I won’t as this interview is intended to explain an overview of the phenomenon. For those of you who are interested in the policy aspect of dollarization, please see his research papers. Now, let’s turn to the effects of dollarization on the North Korean economy



and how much it has changed under the influence of the phenomenon.

One of the most distinctive features of the North Korean economy these days is the high stability in prices and exchange rates. The stability is easily demonstrated by examining the coefficient of variation of the two indicators (see Table 5)¹⁷. The coefficient of variation of prices which

Table 5 | Coefficients of Variation of Prices and Exchange Rates by Period

	After July 1 Measures (2002-2009)	After the currency reform (2010-2012)	Recent period (2013-2017)
Prices	75.5	76.5	10.3
Exchange rates	46.5	61.1	3.2

Note: 3Q 2002-3Q 2009; 1Q 2010-4Q 2012; 1Q2013-2Q 2017.

¹⁷ The coefficient of variation (CV), or the relative standard deviation (RSD), is the ratio of the standard deviation to the mean. The CV is useful for comparing results with different measures, and the higher a CV is, the larger the variation is.

stood at 75.5 after the implementation of the July 1 measures and 76.5 after the currency reform tumbled to 10.3 after 2013. Also, that for exchange rates shows a similar trend, sliding from 46.5 and 61.1 in the two previous periods respectively, to 3.2 after 2013. Yang Moon Soo (2016b, p.12) assesses the stability in prices and exchange

rates in recent years as “exceptional in a 26 year history of the North Korean economy after the economic crisis”

Statistics and observations suggest that dollarization in North Korea seems to have contributed to the stabilization of prices and exchange rates with foreign currencies increasingly substituting the North Korean won and heightening public confidence in government policies. In other words, economic actors in North Korea now believe that when foreign currencies are available they can lower their risks by using the currencies for transactions, and even if they do not use the currencies, they can still lower the risk of loss due to inflation or rising exchange rates by measuring value in foreign currencies

Considering the stages which dollarization has continued through in North Ko-

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rea or the close association between the North Korean won and prices expressed in the Chinese yuan, the hypothesis that an increasing substitution of the won by foreign currencies brought stability to prices seems valid. In other words, by using foreign currencies as a measure of value, the psychological anxiety of economic actors has eased quite a lot.

Moreover, the North Korean government's refrainment from issuing money due to lower profits gained through seigniorage, although unintended, contributed to increase public confidence in the government's economic policies in the mid-to long-term. The July 1 Economic Management Improvement Measures in 2002, and the currency reform in 2009 served as an opportunity for the North Korean government to realize how destructive reckless price adjustment policies can be to the economy and become aware of the huge burden such policies may put. The North

Korean government seems to have thought that losses due to reckless manipulation of prices exceed profits gained from the issuance of currency. This belief paradoxically helped reduce the uncertainty and the volatility of the North Korean economy, the two chronic maladies of the economy.

Thanks to your explanation, I now understand that dollarization has had positive effects on the North Korean economy to a certain degree. If I understand correctly, dollarization can be said to have helped stabilize the North Korean economy. What is particularly interesting is the fact that the North Korean government's inaction to take unreasonable measures on prices and exchange rates eventually raised public confidence in its policies. This raises a question over the perception and responses of the North



Korean government toward dollarization.

After Kim Jong-un came into office, the North Korean government has responded to dollarization in three ways. First, it has refrained from issuing money recklessly as it did in the past. Second, recognizing the dollarization of the North Korean economy, it has acquiesced in the people's use of the US dollar or any other hard currencies. Finally, it has not regulated people's participation in market activities, but actively utilized it as another source to secure dollars.

It seems difficult for Pyongyang to reverse the current stance toward dollarization. The North Korean government

is likely to attempt to secure more dollars from the people not by taking such a dramatic action like the currency reform but through a more sophisticated approach.

Nevertheless, acquiescing in dollarization will pose a huge burden on the North Korean government in the long run. If dollarization further expands, North Korea's economic system could become unsettled by volatile prices and exchange rates, and its economic self-reliance doctrine would be undermined. At the current significant level of dollarization, sudden fluctuations in the won-yuan exchange rate can destabilize the economy. Also, as foreign currencies are mainly used in the informal sector by the people, they are likely to undermine the regime's foundation of governance ul-

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timately posing a threat even to the regime's survival. Thus, in addition to the hands-off stance on dollarization, the regime seems to have been paying much attention as well to regulating the phenomenon.¹⁸

The North Korean government emphasizes preemptive responses to fluctuations in prices and exchange rates in the short term and that the central bank and commercial banks should do their part for absorbing idle or foreign currencies in the long term. In line with this, articles ran in economics journals in North Korea such as *Economic Studies* have rushed to argue, "We should utilize the central bank and commercial banks" or "Commercial banks should function properly." Also on the rise are recommendations such as, "Banks should offer higher interest rates" and "People should be given more diverse incentives including permit to open a foreign currency account." Although it is too early to assess how influential these moves are in the real life of the North Korean people, it is a remarkable change that the North Korean government begins to think in such way.

It is not difficult to see the North Korean government emphasizing principal concepts of Capitalism or mainstream economics rather than traditional Socialist approaches. For instance, in 2018, *Journal of Kil Il Sung University* and other economics journals introduced recommendations to heighten their predictability by ac-

tively using statistical software packages for data-analysis, citing specific products.¹⁹

In the mid to long-term, the North Korean government will try to avoid making the same mistakes such as the reckless issuance of currency and returning to the formal price system, and find out policies to reduce the excessive use of foreign currencies by economic actors. Such policies will include reasonable measures to absorb foreign currencies from the people such as offering high interest rates to attract deposits and facilitating collective accounts, long-term savings products, and the use of electronic payment methods.

What draws out attention in this regard is the move that the North Korean government shows to promote the use of electronic payment methods such as debit and credit cards. Credit card-based payment works based on a certain amount of bank deposit, and thus functions to attract capital into banks (Ri Sun, 2013; Kim Yong Nam, 2014; Yun Gwang Hyok, 2015). The move of the regime to promote the use of credit cards reflects its intention to heighten the transparency of foreign currencies in circulation. The most widely used credit card in North Korea at present is Narae Card that can be issued for a registration fee of only 2 euros or US\$3. The card was designed in a way to attract users' demand by protecting their anonymity and being applied with the latest market exchange rates. The design reflects the policy direc-

¹⁸ Lee, Suk (2017, p.14) summarized the North Korean government's responses as follows: "First, it has refrained from issuing money recklessly; second, recognizing dollarization of its economy, it has acquiesced in people's use of the US dollar or any other hard currencies; and finally, it has not regulated people's participation in market activities, but actively utilized it as another source of dollars.

¹⁹ Ho Kwang Rim, "Important Issues in Renewing Economic Plans and Leadership in a Way to Meet the Demands of the Reality for Development," *Journal of Kil Il Sung University*, 2018 Vol.4, pp.143-149.

tion of the North Korean government not to coercively regulate dollarization but to make better use of the phenomenon in an appropriate manner.

We had an extensive discussion on dollarization in North Korea from its concept and current status to its features, causes and process, effects on the economy, and policy responses from the North Korean government. I believe some of the readers interested in the topic may have learned many things. Please give us your assessment on the phenomenon.

Before making an assessment, I would like to tell you that the research would have been more informative if a keyword/text analysis was conducted on the recent North Korean literature.

As for the assessment, I would like to show you Tables 6 and 7 instead, which are drawn from the results of another study. Although the data have a small sample size and regional bias, the tables provide an opportunity to comprehend the dollarization phenomenon in North Korea at a glance. The results, similar to those of the survey performed by KDI of 1,010 North Korean defectors, provide a more detailed picture thanks to a little more specific questions used.

Table 6 | Currency as a Means of Transaction

(Unit: %)

	Until 2009		After 2009	
	Border regions	Non-border regions	Border regions	Non-border regions
North Korean won (KPW)	76.7	71.8	42.1	61.3
Chinese yuan (CNY)	22.1	5.7	57.4	8.6
US dollar (USD)	1.1	22.5	0.5	30.1

Note: 161 people responded.

Source: Mun and Jung (2017), p.90 <Table 6>.

Table 7 | Currency for Transaction by Item

(Unit: %)

	North Korean Won (KPW)		Chinese Yuan (CNY)		US Dollar (USD)	
	Until 2009	After 2009	Until 2009	After 2009	Until 2009	After 2009
Rice	94.4	59.1	5.6	39.6	0	1.3
Flour	90.0	57.6	8.6	42.4	1.4	0
TV	61.1	21.4	24.1	65.8	14.8	12.8
Refrigerator	63.4	18.2	19.5	63.6	17.1	19.2
Loan	68.2	33.3	22.7	55.6	9.2	19.2

Note: 231 people responded.

Source: Mun and Jung (2017), p.91, <Table 7>.

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This indicates that foreign currencies are widely used in North Korea even for small transactions.

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In Table 6, among respondents who crossed the border before 2009, 76.7% reported that they “had mainly used the North Korean won for transactions” in border regions. The rate tumbles to 42.1% among those who escaped North Korea after 2009. During the same period, the rate of respondents who chose the Chinese yuan as their main means of transaction jumped from 22.1% to 57.1%. This reversal in trends signifies the substitution of the North Korean won by foreign currencies taking place in border regions. Still, in non-border regions, although the use of foreign currencies increased, the degree of changes falls short of demonstrating an intensified currency substitution.

Table 7 shows the progression of dollarization in North Korea by item. Until 2009, the North Korean won had been the main currency of transaction for most items including rice; but, after 2009, the rate of the North Korean won used as the main currency of transaction shrank dramatically. This downward trend was apparent across the board from loans, TV sets, and refrigerator to rice and flour. In the meantime, the Chinese yuan was more used in the transaction for TV sets and refrigerator. As for the purchase of rice and flour, the

rate of the yuan, although lower than that of the won, was significant. This indicates that foreign currencies are widely used in North Korea even for small transactions. These results are similar to those of other major surveys by Byung-Yeon Kim and Yang Moon Soo (2012). Recently, there have been some reports that transactions are increasingly made in the North Korean won thanks to stable exchange rates. In-depth interviews and other channels, however, indicate that the general preference for the Chinese yuan as the main currency of transaction has not changed.

The tables above provide us a brief summary of your assessment of dollarization in North Korea. This edition of Dialogue seems to provide a useful opportunity to understand the dollarization phenomenon from a broad perspective. If you have any comments, please let us know.

Dollarization in North Korea has become a universal phenomenon and a topic that requires in-depth analysis to have a

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multi-faceted understanding of the economy as it relates to the macroeconomic stability, the most distinctive feature under the Kim Jong-un regime. An accurate analysis of the phenomenon may be an ambitious goal because at present it is not easy to attain finance-related materials of the North. Nevertheless, alternative approaches should be continued to understand the

flow of changes in North Korea. Examples may include in-depth survey of or interview with North Korean defectors who recently crossed the border and keyword/text analysis of the latest literature from North Korea.

Responses from the North Korean government to the dollarization phenomenon show the direction in which the North Korean economy is heading. With international sanctions on North Korea going on, the responses are closely associated with the assessment of the sanctions regarding their effectiveness and efficacy. Therefore, a close monitoring of the North Korean government's reactions and policy changes may be critical not only for researchers but also for policy makers.



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KDI¹ Korea Development
Institute