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Exchange Rate Arrangements of Transitional Economies and Their Implications for the Two Koreas

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Since the early 1980s, we have seen the rise and fall of two categories of transitional economies. The first category is due to self-engineered economic reform. China is a specific example of economic reform orchestrated by the government maintaining its own political system: communism. The essence of self-engineered reform is one country with two economic systems: one existing system centrally controlled by the government and the other new system based on a market economy, designating special economic zones to attract foreign capital. Vietnam and Cuba also fall into the self-engineered economic reform category.

The second category is a forced economic reform resulting from a sudden collapse of the communist economic and political system. Russia is a typical example of a transitional economy caused by the demise of its own past system. Many eastern and Baltic European countries fall into this category as well. Although transitional economies tend to encounter similar problems, such as hyper-inflation,[1] we find successful cases with economic stability with growth (for example, China and Vietnam) as well as unsuccessful cases with economic failure or chaos (for example, Cuba).

North Korea, the last Stalinist communist country in the world, has tended to show an interest in self-engineered economic reform. It is well known that North Korea recently attempted to replicate China's economic reform while maintaining the security of its political regime and the stability of its political system. It appears to be a mandate for North Korea to emerge, like China, from a closed and secluded economy to a more open economy, interacting more with neighboring countries and the rest of the world. This suggests that, although North Korea claims that having weapons of mass destruction (WMD) and the means of delivery are for self-defense, the real purpose is to use its abilities as a bargaining chip, securing the governing regime by achieving self-engineered economic reform successfully with more concessionary economic aid from the United States, South Korea, and other interested parties. In fact, the six-party talks, created by the turbulence and unease of North Korea's WMD and missile testing issues, promises more carrots (economic incentives) than sticks (an economic embargo) if it gives up its WMD. Furthermore, the United States delisted North Korea as a terrorist country in 2008 and indicated its willingness for bilateral talks, possibly leading to diplomatic and economic cooperation when North Korea gives up its WMD.

The news media and experts who study the Korea situation have reported that North Korea has tried to replicate China's self-engineered economic reform on several fronts.[2] First, to attract foreign investment, North Korea attempted to create special economic zones separate from its existing communist system, such as the Sinuiju Special Administrative District and the Kaesong industrial complex (KIC).

Second, the government attempted to decentralize the economic decision-making process by adding some components of a market economy. Third, on 1 July 2002 without a public announcement North Korea initiated micro-level economic reforms. Specifically, the reforms included the reintroduction of money for transactions (remonetization). Instead of relying on exchange (rationing or distributing) coupons for food and other consumer goods, the country decided to adopt the concept of price used by the market economy via its currency. To reflect the reality in the transactional exchange of goods and services, the government raised laborers' wages as much as 20-fold, and the price of commodities, using money, increased as much as 30-fold.

Dr. Jeong, Dr. Lee, and Dr. Mukherji's paper is the thirtieth in KEI's Academic Paper Series. As part of this program, KEI commissions and distributes 10 papers per year on original subjects of current interest to over 2,000 Korea watchers, government officials, think tank experts, and scholars around the United States and the world. A public discussion at KEI with the author generally follows in conjunction with distribution. At the end of the year these papers are complied and published in *On Korea*. Volume 3 of *On Korea* will be published in or around February 2010. For more information, please visit www.keia.org/paper_series.php.

Last, one of the most important reform measures was the recognition of the black market exchange rate (effective 1 July 2002), which entailed a drastic devaluation of North Korea's currency against the U.S. dollar.[3] Thus, the official value dropped by as much as 99 percent, from 2.21 *won* per dollar to 153.00 *won* per dollar, as shown in ***Table 1.*** The concept of the exchange rate was nominal, if not useless, because hard currency has not been available for residents in North Korea and the management of foreign currency (or hard currency such as the U.S. dollar and the Japanese *yen*) was completely centralized by the government.

Because of the engagement policy (aka, the Sunshine Policy) initiated in 1997 by South Korea's Kim Dae-jung administration, which was continued by the Roh Moo-hyun administration until early 2008, North Korea has enjoyed a steep increase in inflows of hard currency, mostly in dollars, through interaction with the government, companies, and ventures of South Korea. For example, North Korea has been paid in dollars for exports to South Korea, entry fees for the Mt. Kumgang sightseeing project, and earned wages of workers at the KIC.

The success of any transitional economy is critically dependent on the exchange rate arrangement the country chooses. China, for example, adopted a currency peg to the dollar from the very beginning until 1994, when a managed float was put in place. In fact, this has been so successful that China's exchange rate policy is an ongoing economic issue between the United States and China. A floating exchange rate arrangement was the choice of Russia. Cuba has been using a dual currency system. Vietnam used a combination of currency pegged to the dollar and a managed float.

The purpose of this research is to identify an exchange rate regime that would be suitable for North Korea to achieve its goal of economic reform. To do so, we will examine implications of the optimum currency area,[4] a theoretical groundwork for the implementation of the euro, a single common currency for European Union countries and for transitional economies, including North Korea. We also evaluate the experiences and efficacy of each of four transitional economies (three self-engineered economic reform countries [China, Vietnam, and Cuba] and one forced economic reform country [Russia]), including exchange rate arrangements based on stylized facts. Furthermore, we also discuss the implication of North Korea's exchange rate arrangement for South Korea.

Not many policy papers address exchange rate regimes of emerging transitional economies such as North Korea.[5] This paper will present the pros and cons of alternative exchange rate arrangements for North Korea. The choice may have a significant impact on bilateral relations between the two Koreas in politics as well as in economics. The sudden collapse of the emerging yet destitute transitional economy of North Korea is not desirable for surrounding countries such as South Korea, China, Russia, Japan, and the United States (members of the six-party talks). The success of economic reform for North Korea would be an effective way to make sure that it will join the world community as a peace-loving member and not as a threat to South Korea, the United States, Japan, and the rest of the world.

In the next section, we cover exchange rate theory and recent trends in exchange rate regimes. In the two sections following that, we examine the experiences of relevant transitional economies and North Korea. In the following section, we draw implications of the experiences and theory for North Korea's exchange rate arrangement. In the next section, we also discuss implications of the exchange rate arrangement for South Korea; this is followed by conclusions.

Alternative Exchange Rate Regimes in Theory and Recent Trends

Impossible Trinity

In the framework of the Mundell-Fleming model,[6] the concept of the "impossible trinity" was introduced to dis-

***Table 1: Won*-Dollar Exchange Rates for North Korea and South Korea, 1999–2008**

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
North Korea	2.17	2.19	2.21	153.00	145.00	139.00	140.00	141.00	135.00	130.00
	(n.a.)	(n.a.)	(n.a.)	(600)	(1,500)	(2,500)	(3,200)	(3,600)	(n.a.)	(n.a.)
South Korea	1,189.48	1,130.61	1,290.83	1,251.24	1,191.89	1,144.67	1,024.31	955.51	929.20	1,102.59

Sources: Bank of Korea; Bernhard Seliger, "Monetary and Exchange Rate Policy in North Korea: A Tentative Appraisal" (working paper presented at meeting of the American Economic Association, 2007).

Note: North Korean rates in parentheses show the jangmadang (black market) exchange rate as reported in Seliger, "Monetary and Exchange Rate Policy in North Korea."

cuss the criteria for a good exchange rate regime. The impossible trinity states a conflict in economic policies: a country cannot achieve the following three criteria simultaneously: (1) stability of the value of its currency, (2) autonomy of domestic economic policy, and (3) financial integration with other countries.

Krugman provided an example of the impossible trinity using the case of China: although China has maintained stability of the value of its currency and autonomy of domestic economic policy, it has given up financial integration with other countries by imposing capital controls.[7] In contrast, by adopting an ultimate form of a fixed exchange rate—a single common currency—to maintain stability, members of the euro zone countries have voluntarily given up the autonomy of domestic economic policy.

Another classic example of the impossible trinity is the Bretton Woods system. After World War II, the international monetary system remained in place until 1973. The system was a gold exchange standard system, where the values of all currencies were pegged to either the dollar or to gold. Each country maintained a fixed exchange rate vis-à-vis the dollar or gold. In essence, the system was an example of a fixed exchange regime until its collapse owing to hyper-inflation originating in the United States, induced by the Vietnam War; thus, the devaluation of the dollar occurred in 1973. Beginning in 1973, the value of major currencies began to float, prompted by the inconvertibility of major currencies into gold via the dollar as originally agreed. The main reason other countries were not able to maintain the system was their desire not to import the hyper-inflation generated in the United States. Instead of choosing to have a stable fixed exchange regime, major countries put the autonomy of their domestic economic policies first in order not to import inflation.

Interestingly, Friedman advocated the flexible exchange regime, arguing that, once a flexible regime was in place, countries would be insulated from foreign inflation caused by changes in exchange rates in the market, which would reflect differential levels of inflation in the countries affected.[8] In their empirical research for the Group of Seven countries, however, Eun and Jeong found that transmission of inflation is not prevented even though a flexible regime is in place.[9]

Theory of Exchange Rate: Optimum Currency Area

It is often said that the idea of an optimum currency area is a theoretical justification for the euro, a single common currency for 16 countries in the European Union.[10] Although there are multiple countries in the region, when there exists labor mobility, capital mobility, and common characteristics in economic fundamentals across the region, the region is called an optimum currency area with

Table 2: **North Korea and South Korea Compared According to Aggregate GNI and Per Capita GNI, 1998–2007**

Year	Aggregate GNI (billions of U.S. dollars)		Per capita GNI (U.S. dollars)	
	South Korea	North Korea	South Korea	North Korea
1998	340.4	12.6	7,355	573
1999	440.0	15.8	9,438	714
2000	509.6	16.8	10,841	757
2001	481.1	15.7	10,159	706
2002	547.5	17.0	11,497	762
2003	608.6	18.4	12,717	818
2004	682.4	20.8	14,206	914
2005	790.1	24.2	16,413	1,056
2006	888.7	25.6	18,401	1,108
2007	971.3	26.7	20,045	1,152

Source: Ministry of Unification, Seoul.
Note: GNI = gross national income.

a single common currency.[11] Thus, Mundell, in contrast with Friedman,[12] favored a fixed exchange regime over a flexible exchange regime.

Mundell also argued that a region must be larger than a country.[13] On the Korean peninsula, two sovereign countries are recognized by the United Nations; thus, two local currencies exist. The region is larger than a country. In terms of labor mobility, the region could have almost perfect mobility owing to the countries' geographical proximity and their same language and culture, unlike the euro region. Although capital now moves in only one direction, the region might achieve mobility in capital as North Korea adopts global standards for the flow of capital by establishing a solid monetary system by eliminating a system based on exchange coupons and joining the global financial system for international settlements. Also, when the economic profiles of the two sub-regions or countries are homogenous, implying a high correlation in macroeconomic variables, the two countries in the region might be able to adopt a single common currency.

As seen in ***Table 2,*** the economic profiles—in contrast with the cultural profiles—of the two sub-regions or countries on the Korean peninsula are not at all homogeneous. When there exists an asymmetric shock in macroeconomic fundamental variables originating in a sub-region or country, the shock can be easily adjusted if there is perfect mobility in factors. Although the two sub-regions could be a good candidate for an optimum currency area, it might not be beneficial for South Korea to absorb extreme asymmetric shock resulting from heterogeneity in macroeconomic variables. It appears, however, that the European Union has been successful in implementing the idea of the optimum currency area by adopting the euro—the single common currency—for member countries with heterogeneous economic profiles, culture, and languages across vast continental Europe.

Recent Trend: Fixed Exchange Rate Regime?

Recent trends in exchange rate arrangements appear to favor the fixed exchange rate regime. The manifestation of the fixed rate regime might be in the form of a monetary union, dollarization, a currency peg, or currency boards. Monetary union is the ultimate form of a fixed exchange rate regime, having a single common currency across sovereign countries. The industrialized countries in Europe voluntarily gave up their national currencies and autonomy of monetary policy to adopt a single common currency: the euro, an example of ultimate monetary union, has been in place since 1999 without causing major friction among member countries.

The number of euro zone member countries grew from 11 in 1999 to 16 in 2009. Euro zone countries appear to have coped with the recent global economic downturn better without worrying among themselves about the volatility of exchange rates. The euro is also an anchor currency for the CFA franc, the single common currency of 14 countries in sub-Saharan Africa. Thus, both the industrialized countries in the euro zone and the less industrialized countries in sub-Saharan Africa share an extended monetary union through a fixed exchange regime (CFA655.957 equals one euro).[14]

Another extreme example of a fixed exchange rate regime is a unilateral adoption of foreign currency as a national official currency, thus sacrificing autonomy of monetary policy and currency sovereignty. Ten countries, including Ecuador in 2000 and El Salvador and Guatemala in 2001, adopted dollarization—the dollar has become the circulating legal tender in those countries without those countries issuing any domestic currency. The implementation of dollarization is done unilaterally, usually without most dollarization countries consulting the U.S. government at all. The typical major motivations for dollarization are (1) to facilitate the process of economic reform, as in El Salvador, and (2) to resolve problems in the domestic economy, such as Ecuador's hyper-inflation. The initial performance of dollarization in Ecuador and El Salvador appears to have been successful.[15] Although dollarization countries lose autonomy of monetary policy and the ability to generate seigniorage, the use of the dollar restores confidence, credibility, and stability in the domestic economy, and it controls inflation; thus, it helps make economic reform successful.

Currency pegs—fixing the value of a national currency to another national currency as an anchor—is also a popular form of a fixed exchange regime. As we all know, the value of the Chinese yuan was officially pegged to the value of the dollar until 2004. The currency board system is a peg system—fixed exchange regime—with a guarantee of conversion by legislation. Hong Kong is a good example: the value of the Hong Kong dollar is pegged to the U.S. dollar with a guarantee. Argentina was successful with the currency board until 2002, when the government returned to a currency peg to the dollar, thus eliminating the guarantee during a liquidity crisis.

Experiences of Transitional Economies in the Exchange Rate Regime

In ***Table 3,*** exchange rate arrangements of transitional economies are summarized in the context of the impossible trinity. In addition, the recent movements in exchange rates of transitional economies are shown in ***Figures 1–3***.

We can observe three distinctive patterns clearly in movements of exchange rates. The Chinese yuan shows the most stable pattern with a predictable trend, whereas the Russian ruble shows the most volatile pattern with a less predictable trend. The Vietnamese dong shows a stable pattern with a predictable depreciation trend. Recently, however, the magnitude of depreciation has been accelerated, but it has stabilized since 2009.

China

China, the most successful transitional economy, has been aware of the importance of the stability of its currency value from the outset of its economic reform (see ***Figure 1***). By pegging its currency to the dollar until 2004, the low cost of labor in China has been directly translated into the inexpensive dollar price of Chinese

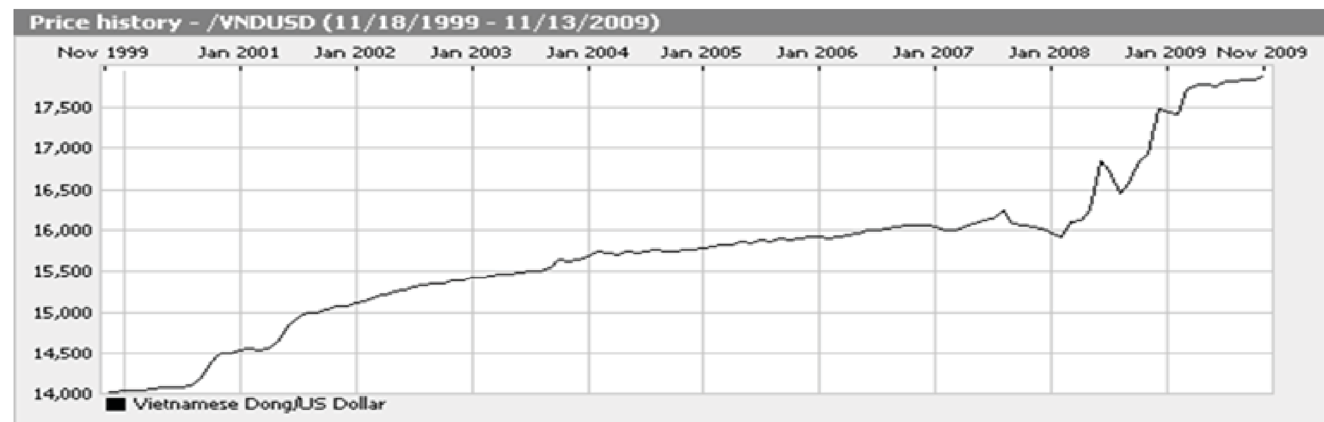
Figure 1: **Exchange Rate for Chinese Yuan and U.S. Dollar, 1999–2009**

Source: Microsoft Network, www.msn.com.

Figure 2: **Exchange Rate for Russian Ruble and U.S. Dollar, 1999–2009**

Source: Microsoft Network, www.msn.com.

Figure 3: **Exchange Rate for Vietnamese Dong and U.S. Dollar, 1999–2009**



Source: Microsoft Network, www.msn.com.

Table 3: **Experiences of Selected Transitional Economies**

Country	Impossible trinity			Trends	Remarks
	Stability	Autonomy of monetary policy	Financial integration (free flow of capital)		
China	Yes (initially); somewhat Yes (currently)	Yes	No (initially); somewhat No (currently)	Managed float; steady appreciation of the value of yuan; exchange rate: most complex issue in domestic economic policy because of export-driven economy with manufactured goods	Ongoing dispute between China and United States owing to alleged intentional undervaluation of yuan; degree of capital control appears to be lessened; trade-off between stability and capital control
Russia	No	Yes	somewhat Yes	Easy target for currency speculation; additional risk: serious currency risk that hampers international trade	Main items for export: natural resources; export of natural resources does not create many jobs
Vietnam	Yes	Yes	No	More volatile than yuan because of limited size of foreign currency reserve; consistent policy, however	Not easy to compete against China in the cost of manufactured goods; less bureaucratic intervention
Cuba	No	Yes	No	Dual conversion rates; widening diversion between official rate and black market rate owing to lack of hard currency	Raw agricultural products and tourism; no manufacturing base
Some East Europe countries	Yes	No	Yes	Single common currency system (e.g., East Germany, Slovakia, and Slovenia)	Homogenize with other member countries; advantage in labor and capital mobility
North Korea	No	Yes	No	No coherent exchange regime	Workers' remittance; possibility of default without aid from South Korea

Source: Authors' concept.

products in the United States. This stability has reduced currency risk.

Specifically, U.S. importers and Chinese exporters have enjoyed no uncertainty in a change of exchange rates, eliminating the need for currency hedging or costs related to hedging. Thus, China has accumulated a huge trade surplus with the United States owing to the imperfections in the labor market and fixed exchange rate. China's export-driven economy, by generating employment opportunities in manufacturing in China's coastal areas, has contributed to the success of economic development in China.

Russia

Russia adopted a flexible exchange regime. Thus, the value of its currency has not been stable, and the country experienced a financial crisis in 1998 (***Figure 2***). Whereas China focused on the export of manufactured goods, Russia focused on the export of natural resources, including natural gas. Thus, the creation of new job opportunities in Russia has not been as successful as in

Figure 4: **Trade with North Korea by Major Trading Partners, 1999–2006,** *in thousands of dollars*

Countries		1999	2000	2001	2002	2003	2004	2005	2006
China	Imports	41,722	37,214	166,797	270,863	395,546	582,193	496,511	467,718
	Exports	328,634	450,839	570,660	467,309	627,995	794,525	1,084,723	1,231,886
	Total	370,356	488,053	737,457	738,172	1,023,541	1,376,718	1,581,234	1,699,604
	Balance	286,912	413,625	403,863	196,446	232,449	212,332	588,212	764,168
Japan	Imports	202,564	256,891	225,618	235,840	174,390	164,299	132,277	76,418
	Exports	147,839	206,760	1,064,519	132,645	91,445	88,743	62,505	43,860
	Total	350,403	463,651	1,290,137	368,485	265,835	283,042	194,782	120,278
	Balance	-54,725	-50,131	-838,901	-103,195	-82,945	-75,556	-69,772	-32,558
Russia	Imports	7,208	7,633	14,664	10,317	2,903	4,575	6,862	20,076
	Exports	48,507	35,631	56,099	47,404	112,343	204,665	224,402	190,563
	Total	55,715	43,264	70,763	57,721	115,246	209,240	231,264	210,639
	Balance	41,299	27,998	41,435	37,087	109,440	200,090	217,540	170,487
South Korea	Imports	121,604	152,373	176,170	271,575	289,252	258,000	340,300	519,563
	Exports	211,832	272,775	226,787	370,155	434,969	439,000	715,500	830,198
	Total	331,436	425,148	402,957	641,730	724,217	697,000	1,055,800	1,349,761
	Balance	90,228	120,402	50,617	98,580	145,713	181,000	375,200	310,635
United States	Imports	29	154	26	15	0	1,495	3	0
	Exports	11,265	2,737	650	25,012	7,977	23,750	5,757	3
	Total	11,294	2,891	676	25,027	7,977	25,245	5,760	3
	Balance	11,236	2,583	624	24,997	7,977	22,255	5,754	3

Source: Ministry of Unification, Seoul; CRS(Congressional Research Service) Report for Congress, U.S. (www.nautilus.org/fora/security/07045CRS.pdf)

China. The volatility of the exchange rate coupled with a significant amount of foreign currency reserves obtained from exporting natural resources have possibly made the Russian ruble an easy target for currency speculators.

Vietnam

Like China, Vietnam has focused on an export-driven economy with manufactured goods and with a currency pegged to the dollar. Unlike China, Vietnam, as seen in ***Figure 3,*** has steadily depreciated the value of Vietnamese dong to compete against manufactured goods produced with the same kind of cheap labor that China uses. Until early 2008, the exchange rate against the dollar was very stable and predictable, with little fluctuation. Since early 2009, the value appears to remain stable, although the fluctuation was volatile during the peak of the global economic crisis in 2008.

The volatility might be a reflection of the limited size of Vietnam's trade surplus and its foreign currency reserves. Because of the consistent depreciation of its currency, domestic manufacturers have to bear the currency risks, reducing their net profit in local currency. Thus, Vietnam's economic reform appears to be not as successful as China's.

Cuba

Cuba adopted a dual exchange system with a peg to the dollar in principle, and it imposed capital controls. The dual exchange rate system has a rate for domestic residents and another rate for foreigners. The purpose was to mitigate the problem of a shortage of hard currency. The dual system has created a significant divergence between the official rate of exchange and the black market rate. In fact, the divergence generated a significant distortion in the economy and had a negative impact on Cuba's self-engineered economic reform.

The divergence has induced anxiety among residents in their economic activities, and it has led to chaos in international trade. It is clear that Cuba's exchange rate

arrangement has been doing more harm than good to Cuba's self-engineered economic reform. In sum, it appears that Cuba's economic reform has not been successful.

Experiences of North Korea

Macroeconomics and External Economic Relations of North Korea

As shown in Table 2, there exist stark differences in the performances of the two economic systems on the Korean peninsula, one of capitalism based on democracy and the other of communism based on a totalitarian regime. For the past six decades, the ideology of self-reliance has been the banner for North Korea, promoting autarky rather than international trade. North Korea used to have some limited international trade with the Soviet Union, former eastern European communist countries, and Japan prior to the collapse of the Soviet Union. With the collapse of the communist regimes in eastern Europe, including the Soviet Union, the members of the leadership in North Korea have had to find a way to secure their own survival in economics and politics.

While the ordinary residents of the country have suffered on account of the lack of basic staples and consumer goods as well as the lack of adequate housing, the leadership has focused on the development of nuclear weapons and missiles. To rectify North Korea's behavior, the United Nations imposed very restrictive sanctions on the international trade activities of North Korea. Thus, recently, the external economic activities of North Korea have been limited to accepting humanitarian aid and foreign aid and exporting to South Korea primitive consumer goods produced in the KIC.

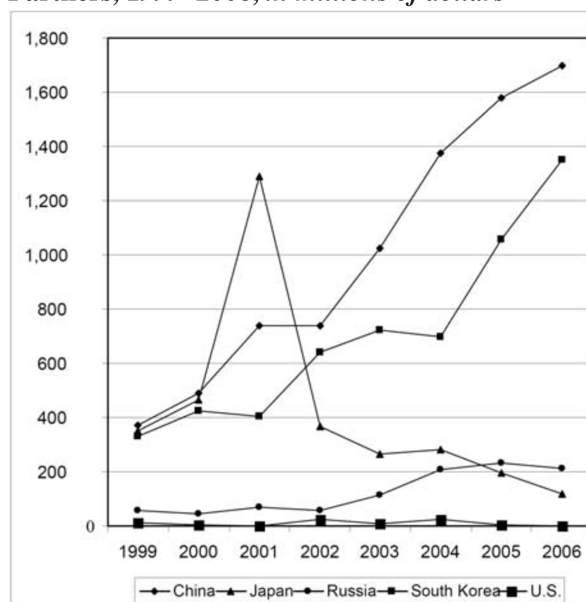
Major Trading Partners and Trade Balances

Overview. Major trading partners of North Korea are member countries of the six-party talks. North Korea's top three trading partners—China, South Korea, and Russia—accounted for more than 60 percent of its total trade in 2006.[16] North Korea has also had trade relationships with Thailand and India. ***Table 4*** shows the size of North Korea's trade with five members of the six-party talks. North Korea has a chronic trade deficit with all its major trading partners except Japan. North Korea's total trade is also shown graphically in ***Figure 4.***

China. Since the collapse of the Soviet Union, China has been North Korea's largest trading partner and supplier of concessionary assistance: subsidized trade and direct transfers. In 2006, North Korea ranked 65th among China's export markets. As a source of imports, North Korea ranked 64th. Since 1999, except for 2001, North Korea's largest trading partner has been China. China has been one of the largest donors of food to North Korea. China also provides most of North Korea's fuel oil at prices that are lower than world market prices.

South Korea. South Korea was North Korea's second-largest trading partner in 2006. The major types of goods imported from North Korea include primitive agriculture

Figure 4: **Trade with North Korea by Major Trading Partners, 1999–2006,** ***in millions of dollars***



Source: Ministry of Unification, Seoul; CRS(Congressional Research Service) Report for Congress, U.S. (www.nautilus.org/fora/security/07045CRS.pdf)

and fishery products. Major South Korean exports to North Korea include fertilizer and foods. The success of meaningful economic ties between North and South Korea is currently being cultivated through the KIC, which South Korean companies manage with the approval of the political leadership of North Korea. Although small- and medium-size companies in South Korea are interested in manufacturing their products using the cheap labor in the KIC, the growth and stability in production in the KIC have been hampered by friction between the Koreas.

Major multinational corporations based in South Korea, such as Samsung, LG, and Hyundai, appear to perceive that the political risk, caused by the gigantic amount of necessary and irreversible investment, is too high to set up manufacturing plants in North Korea.

Japan. Japan's economic relations with North Korea have declined sharply as North Korea continues to maintain its nuclear and missile programs. Furthermore, because North Korea launched several test missiles and

then detonated a nuclear weapon for testing in 2006, Japan imposed strict unilateral sanctions, causing bilateral trade to plummet. As of early 2010, Japan bans any trade with North Korea and prohibits all North Korean ships from entering Japanese ports.

Russia. The collapse of the Soviet Union greatly reduced economic relations between Russia and North Korea. In 2006, Russia was the third-largest trading partner of North Korea owing to Russia's exports of fuel. Its other trade products with North Korea include wood, pulp, fertilizers, machinery, and iron and steel.

United States. The United States and North Korea barely trade with each other because of the issue of the development of nuclear weapons and missiles by North Korea. The United States currently imposes sanctions on goods from North Korea.

Balance of Payments

In their forensic construction of North Korea's balance of payments, Haggard and Noland covered two areas: illicit transactions and legitimate transactions.[17] Because of a huge statistical discrepancy, some observers suspect that North Korea might be in the business of illicit transactions such as drug trafficking, counterfeiting, and arms sales. Such suspected transactions cannot, however, be major portion of North Korea's balance of payments. Major items of legitimate transactions come from five areas: North-South projects, workers' remittances, foreign direct investment, official transfers, and private unrequited transfers.

North-South projects include the KIC, the Mt. Kumgang tourism project, and other humanitarian support. As shown in Table 4, North Korea is a country with chronic trade deficit. Except for trade with Japan, North Korea shows a consistent trade deficit with three neighboring countries: China, South Korea, and Russia. As with other economic statistics, information on North Korea's balance of payments is not officially available. All in all, it is obvious that the level of foreign currency reserves is very low because of the North's chronic trade deficit.

Current Exchange Regime

It has been known that North Korea used a dual conversion system for hard currency: one for domestic residents and the other for foreign residents. In mid-2002, the *Los Angeles Times* reported that North Korea, as a measure of self-engineered economic reform to reflect the black market rate for the dollar, devalued its North Korean *won* to two-thirds of a cent ($0.0067/*won*) from 46.5 cents ($0.4650/*won*) in 2002 (see also Table 1).[18] The magnitude of the devaluation seems to have been arbitrary and extreme. It appears that there exists no solid monetary system and thus no coherent exchange rate system.

The dollar is considered to be the most important foreign currency for posting foreign exchange rates. The historical exchange rate of the North Korean *won* against the dollar is shown in Table 1. North Korea's devaluation in 2002 appears to have been a complete repudiation of its own official rate system, indicating chaos. In fact, the discrepancy between the official rate and the black market rate is so large that there seems to be no viable exchange market for converting North Korean *won* to the dollar or vice versa.

Implications for North Korea

Prerequisites

North Korea is not a country with a typical monetary system. Instead of using money or currency, an exchange coupon (or ration coupon) issued by the government has been a major medium of any economic transaction. Thus, although North Korea has used legal tender, the circulation of domestic money has been very limited. As a measure of its recent self-engineered economic reforms, the government in 2002 attempted the reintroduction of money for circulation, also known as remonetization. It appears, however, that the legal currency is not well perceived by the residents, owing to the rapid depreciation of the value prompted by the sharp increase in price or hyper-inflation that accompanied the reform.

Moreover, it is necessary for North Korea to understand that any transitional economy goes through hyper-inflation, acute or chronic, when the economy undergoes a structural systemic change from a centralized planned system to a market-based system that results from a shortage of consumer and manufactured goods. Thus, North Korea needs to formulate a coherent economic policy that accounts for the unavoidable hyper-inflation that arises in the process of its economic reform, self-engineered or otherwise.

In North Korea, whenever any ordinary residents or business entities obtain hard currency, the hard currency is supposed to be exchanged for the legal tender, the North Korean *won,* at an official rate, much lower than the black market rate, a process that resembles the cause of the failure experienced in Cuba. After the conversion, the hard currencies, such as the dollar, go directly into the government treasury, if not the private treasury of the leadership, to mitigate the shortage in reserve currency.

All in all, North Korea has a very fragile monetary system. Instead of using an ambiguous dual (monetary) system, that is, money and exchange coupons, North Korea must establish a solid monetary system based on the North Korean *won* to deal with compensation payments to tens of thousands of laborers working in hard-currency-earning sites such as the KIC. It may take an adjustment period for North Korea to deter the possible hyper-inflation it experienced in the early stage of its self-engineered economic reform in 2002 and when it implemented redenomination of its legal tender in 2009. Specifically, the shortage of consumer goods, a primary reason for the hyper-inflation, might be alleviated by special arrangements with South Korea or China, or both, when there is a coherent exchange rate regime with a solid monetary system in place.

The chronic economic problems of North Korea, as a consequence of the communist economic system for the past 60 years, can be characterized as follows: lack of productivity, absence of incentive system, misallocation of limited resources, corruption in the bureaucracy, and lack of accumulated capital. A viable strategy for North Korea to solve these problems, in addition to the hyper-inflation problem, is to adopt the concept of efficiency based on competition in the market and to give up the elusive concept of equality based on collectivism. One way to achieve efficiency might be the implementation of an export-driven economy (an open economy with international trade) rather than its self-reliance economy (autarkic, closed economy), thus opening to worldwide competition in the market. The priority of North Korea appears to be an affirmation of its solid plan for an economy driven by economic development, exports, and cheap labor—as done by most transitional economies, including China.

Furthermore, it might be imperative for North Korea to grow economically, not with the export of primitive agricultural and natural resource products but with the export of manufactured goods, by taking advantage of the low cost of North Korean labor and also by creating employment opportunities for its residents. As the political environment improves, North Korea could have an enormous opportunity to export its manufactured goods to South Korea, lowering the cost of production for companies in South Korea and creating jobs for North Korean residents. With the hard currency earned from its exports, North Korea could import food and consumer goods from South Korea to control its hyper-inflation.

China provides an excellent precedent in the context of an export-driven economy. Although the exchange rate policy alone cannot achieve improvement in macroeconomic fundamental variables, it can facilitate greatly the implementation of a plan for economic development, as we have seen in China and Vietnam.

Stability of Value of Currency and Choice of Exchange Regime

The stability of the value of the currency in transitional economies seems to be a necessity for the success of economic development; China and Vietnam are good examples. For an economy driven by exports of manufactured goods, stability creates more international trade for domestic manufacturers (exporters) and foreign buyers (importers) without causing them worry about exchange rate risk. In China, there has been little need for them to hedge against currency risk. There has also been little room for speculators to disturb the exchange markets, targeting China.

Although as a sovereign economy North Korea may choose a floating exchange regime, fixed exchange re-

Table 5: **Comparison of Possible Exchange Rate Regimes for North Korea**

Regime	Pros	Cons
Float	May be insulated from external shock such as inflation originating from foreign country—but not completely	Economic system in North Korea is not yet a market-based economy; domestic prices are not market driven
Managed float	Adjustment might be possible in theory	Not practical: lack of reserve currency
Fixed	Stability; able to maintain autonomy in monetary policy, if any; additional benefits if North Korea chooses the South Korean *won* as an anchor currency: it could lead to *won*-ization and then to monetary unification	Need to impose capital controls (the impossible trinity)

Source: Authors' concept.

gime, or something in between, it is clear that North Korea is not ready to adopt floating or a managed float without having substantial foreign currency reserves. As North Korea chooses stability with a fixed exchange regime, it can maintain the autonomy of its monetary policy by imposing capital controls, as it has in the past and as shown in Table 3. North Korea, however, is ill-prepared for financial integration with the rest of the world.

As North Korea makes official its intention to move to a fixed exchange regime for its major trading partners such as South Korea, there exists no ambiguity in the local currency price of North Korean products in the South Korean market to compare with the local currency price of domestic products. Because of a significant market imperfection in North Korea's labor market—that is, the low cost of North Korean labor—North Korea's manufactured products could dominate the consumer products market in South Korea, in particular, as Chinese products have done in the United States. In ***Table 5,*** we summarize the pros and cons of an alternative exchange regime for North Korea.

Choice of Currency for Initial Peg

The candidate currencies are currencies of North Korea's major trading partners: the Chinese yuan and the South Korean *won.* In theory, North Korea may choose a currency basket or a combination of several currencies; however, in practice, that choice is not viable. From the beginning of its economic reform two decades ago, China has pegged its currency to the dollar because the United States was the major market for its exports. Although China could change its choice of its anchor currency, it seems that China has made consistency and stability of its exchange regime its foremost priority internally and externally as its economic reform is in progress.

Furthermore, South Korea's major trading partner is the United States. Although South Korea adopted a floating exchange rate regime, the value of its *won* depends significantly upon U.S. factors such as portfolio investment and trade balance. Thus, North Korea must realize that its two major trading partners have strong economic ties with the United States. Ironically, the change in the value of the dollar could affect North Korea's international trade in relation to its two major trading partners.

With the fixed exchange regime, North Korea might be affected by external economic shocks such as inflation originating in the country of the anchor currency, as seen from the transmission of U.S. inflation from country to country during the Vietnam War era. The country of the possible anchor currency must be able to absorb the asymmetric transmission of inflation: the hyper-inflation originating in North Korea might be transmitted to the country of the anchor currency, but not vice versa. In that regard, inflation originating in China might be more worrisome than inflation from South Korea owing to the narrow price differential between North Korea and China. Furthermore, the unavoidable hyper-inflation originating in North Korea could be better absorbed by South Korea, not by China, because of the significant price differential between South Korea and North Korea (or a substantially higher price in South Korea).

It is well known that the average cost of labor in South Korea is much higher than labor in China. As we have seen in the experience of Vietnam, it is not desirable for North Korea to compete against China, but it could compete against South Korea in terms of the cost of labor. If North Korea chose the Chinese yuan as an anchor currency, North Korea might find that the benefits of its cheap labor would be greatly diminished and that it would be in competition with China in terms of its major export markets, such as South Korea and the United States.

In addition to the low cost of labor, North Korea has several other advantages in trading with South Korea: geographical proximity, reducing the cost of transportation; easy mobility in labor and capital; and the same language and culture. For North Korea, South Korea can be an ideal market for its exports for the next several decades until it accomplishes its goal of self-engineered economic reform. In 2008, South Korea's total imports were $435 billion whereas North Korea's total exports were only $1 billion.[19] It is clear that South Korea has ample room to import products from North Korea.

Thus, it is better for the leadership of North Korea to dominate South Korean markets with its products, capitalizing on all of its competitive advantages in economics, as China has done with the United States, rather than developing WMD and begging for carrots. In that regard, the South Korean *won* can be a good candidate currency as a currency peg for North Korea (see ***Table 6***). Furthermore, the choice of the South Korean *won* may provide additional benefits: instilling psychological confidence and credibility in North Korean residents, reducing the anxiety prompted by the economic reform in 2002 and the recent redenomination in 2009, and strengthening its monetary system.

***Won*-ization**

As discussed, a recent trend in exchange rate arrangements favors the fixed exchange regime, including ultimate forms of the fixed regime such as monetary union

Table 6: **Advantages and Disadvantages of Several Possible Anchor Currencies for North Korea**

Currencies	Advantages	Disadvantages
Chinese yuan	Stability if major trading partner is China	Transitional economy, spillover of potential hyper-inflation; cannot enjoy benefits of low labor costs
Korean *won*	Stability of a major trading partner; can be a currency for settlement; consistent with theory in terms of optimum currency area; monetary union; South-North Cooperation Fund; easy for capital flow between South and North	Volatility against other major currencies via South Korean *won;* partial loss of autonomy
U.S. dollar	Stability if major market is the United States	Less competitive when the value of the U.S. dollar is strong
Japanese *yen*	Not major trading partner	Not major trading partner
Russian ruble	Not major trading partner	Not major trading partner
Currency basket	Chinese yuan and South Korea *won*	No coherent monetary system yet
Currency board	Credibility if South Korea *won* were chosen	Loss of autonomy
Won-ization	Labor and capital mobility; maximize the benefit of low cost of labor as in euro zone; improve homogeneity of economy; confidence for residents in North Korea; might be able to control hyper-inflation; save the cost of printing own currency	Loss of autonomy

Source: Authors' concept.

and dollarization. Furthermore, empirical evidence of dollarization in Ecuador and El Salvador suggests that the unilateral adoption of the dollar as legal tender, without consulting the U.S. government, appears to be a success in bringing about psychological confidence, credibility, and discipline for the economies of those countries.[20] In addition, dollarization has been effective in controlling hyper-inflation in Ecuador and implementing structural economic reform in El Salvador.

Another viable alternative for North Korea is to adopt *won*-ization: in other words, choose the South Korean *won* as its legal currency, without consulting the South Korean government. For North Korea, the benefits outweigh the costs. The immediate benefit would be having a solid monetary system automatically, replacing exchange coupons and the bruised North Korean *won.* Thus, the structural problem of North Korea, a very fragile monetary system with no coherent exchange rate arrangement, could be resolved by piggybacking onto South Korea, a heavyweight in international trade.

As a result, an important goal of the economic reform North Korea attempted in 2002—remonetization—could be achieved instantly, providing confidence and credibility with North Korean residents. North Korea would also be relieved of the burden of printing its own money. In addition, *won*-ization would be a better alternative for controlling hyper-inflation than the 2009 redenomination, as demonstrated by Ecuador and El Salvador. It seems the only cost of *won*-ization for North Korea would be the loss of autonomy in monetary policy. That cost seems to be irrelevant, however, because of the absence of a coherent monetary system and monetary policy in North Korea.

It is known that the convergence criteria, to achieve homogeneity in economic profiles across member countries, must be satisfied prior to joining the euro monetary union as posited in the idea of optimum currency area. Although the dollarization countries created a de facto monetary union unilaterally, without considering the homogeneity for formal membership, dollarization seems to be working in that the countries achieve their intended goals in economic policies.

By adopting *won*-ization, North Korea would be a de facto member of the monetary union on the Korean peninsula without having to satisfy any convergence criteria. As long as North Korea can achieve its immediate economic goals, *won*-ization is a rational alternative. Furthermore, *won*-ization can facilitate the acceleration of

economic development for North Korea, maximizing the benefits of mobility in labor and capital that grow out of the geographical proximity with South Korea.

Implications for South Korea

In the constitution of South Korea it is clearly stated that (1) the Republic of Korea seeks unification and formulates and carries out a policy of peaceful unification based on the principles of freedom and democracy, and (2) the territory of the Republic of Korea shall consist of the Korean peninsula and its adjacent islands.

To achieve the goal prescribed in the constitution, it may be more practical for the people and government of South Korea to seek gradual economic unification rather than seek an abrupt political and territorial unification. As demonstrated by several transitional economies, such as East Germany and Romania, a sudden collapse of the communist regime creates more chaos than stability for a good number of years. Thus, South Korea must formulate a strategy to achieve gradual economic unification, one that avoids replicating the experiences of the abruptly unified German economy, but a strategy to achieve gradual economic unification.

In that regard, South Korea has strong advantages over North Korea in accumulated capital and technology while North Korea has overwhelming advantages over South Korea in the cost of labor and the need for economic development. Thus, the best strategy for economic unification is to combine the advantages and promote intrapeninsular trade. South Korea, however, has to maintain a consistent policy of gradual economic unification, regardless of its political relationship with the current or next leadership in North Korea.

As the two Koreas begin to capitalize on the mutual benefits of bilateral trade, the two Koreas will become more integrated economically. As seen with the euro in the European Union, economic unification is more crucial for the economic welfare of people who live on the Korean peninsula than is territorial unification for competing in the world market. Economic unification will pave the way for peaceful unification based on the principles of freedom and democracy.

Settlement Currency of Intrapeninsular Trade: South Korean *Won*

As discussed, North Korea's legitimate balance-of-payments transactions come from five major areas: North-South projects, workers' remittances, foreign direct investment, official transfers, and private unrequited transfers. North-South projects include the KIC, the Mt. Kumgang project, and other humanitarian support using the South-North Cooperation Fund. Direct trade (or transactions) between the two Koreas is mostly settled in dollars or physical merchandise. For example, dollars are being used to pay the laborers working at factories run by South Korean companies in the KIC.

For economic unification, it might be a good idea for South Korea to use its *won,* instead of dollars or merchandise, for settlement of any bilateral trade. Specifically, as South Korean companies pay the North Korean workers with the South Korean *won*, their own local currency, companies will free themselves from currency risk. Thus, that will eliminate a significant risk in international trade, promote more trade with North Korea, and accelerate economic integration on the Korean peninsula. In addition, North Korea will not incur any exchange rate risk when it purchases consumer goods and manufactured products from South Korea using its earned South Korean *won*. In fact, North Korea will be able to shift its currency risk in international trade to South Korea.

Other possibilities exist for promoting bilateral trade using the South Korean *won*. For humanitarian aid, for example, instead of making shipments of merchandise, such as food and fertilizer, it may be more rational for South Korea to extend a line of credit to North Korea in South Korean *won* via the Bank of Korea. Then, North Korea, with this credit, would be able to shop for necessary merchandise using South Korean vendors, promoting intrapeninsular trade. Although the current size of the South-North Cooperation Fund does not appear to be adequate for economic unification, it might be more effective for the government of South Korea to give an additional line of credit in its *won* to North Korea via the Bank of Korea. The credit would be managed by North Korea, not by the Ministry of Unification in South Korea, and thus would promote intrapeninsular trade.

As South Korea settles any such bilateral trade in its *won*, including North-South projects such as the Mt. Kumgang tourism area, the benefits would include transparency in accounting for the uses of the fund and credit by North Korea, in addition to the benefits of promoting bilateral trade by eliminating foreign rate risk.

Won-ization

A unified Korea will emerge eventually on the Korean peninsula. At this point, the South Korean *won* seems to be favored to become the currency of a unified Korea because of the stability of its value and the disparity in economic profiles, including the sizes of the two econo-

mies and total trade of the two countries. As seen in the case of the euro in the European Union and in the case of dollarization in some countries, monetary union can be implemented with or without the consent of member countries.

Although the adoption of *won*-ization by North Korea is not likely, the use of the South Korean *won* must be expanded to accelerate economic integration and economic unification. Thus, whenever it is possible, the use of the South Korean *won* must become the norm on the Korean peninsula for any economic transactions.

Conclusions

It is obvious that the priority of North Korea must not be the development of a nuclear weapon; instead, it must be the development of economic power in order to be a reputable member of the international community. It is mandatory for North Korea to have, in addition to political sovereignty, a coherent economic system and economic sovereignty.

The first step toward achieving the goal is to satisfy this prerequisite: instead of using exchange coupons as part of its isolated autarkic system, North Korea must establish a sound monetary system via remonetization or reintroduction of currency (legal tender) for circulation in its economy in order to implement a viable monetary policy, which is an important domestic policy tool.

As we have seen, North Korea has two major trading partners: China and South Korea. The success of the two trading partners began with stability in their exchange rates against the currency—the dollar—of their major trading partner.

In principle, North Korea may choose any exchange regime. However, in the decision-making process, North Korea has to take into consideration the role of its two major trading partners before it makes its choice, as China did. Furthermore, China, an example of a transitional economy with success in exchange rate policy, is still maintaining a crawling peg system against its major trading partner, the United States. South Korea has been using a flexible exchange regime for the *won* since 1994.

Thus, for North Korea, it would be logical that the value of its currency is pegged to that of one of its two major trading partners. However, the Chinese yuan does not appear to be a viable choice for North Korea because the benefits of its cheap labor may not be capitalized because of the same cheap labor in China.

Consequently, pegging to the South Korean *won* might be a better choice for North Korea. North Korea could maintain the stability of the value of its currency against the South Korean *won,* the value of which has been adjusted continually in the foreign exchange market, reflecting its macroeconomic fundamentals in relation to the rest of the world. As we have seen, recent trends—including the euro, an ultimate form of fixed exchange regime—favor a fixed exchange rate regime, a monetary unification created by voluntarily giving up autonomy in monetary policy for the benefit of residents in the region.

Although asymmetric mobility in labor and capital and asymmetric economic characteristics exist between South Korea and North Korea, the Korean peninsula could be a candidate for an optimum currency area. Thus, if North Korea adopts a currency pegged to the South Korean *won*, it may pave a way toward monetary unification in advance of political and territorial unification.

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