

Assessing North Korean Economic Reform: Historical Trajectory, Opportunities, and Constraints

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Introduction

The inherent problems with centrally planned economies (CPE)¹ have left many socialist countries in the depths of economic crisis over the past few decades. This, in turn, has induced most socialist countries to adopt market-oriented reforms, following the precedents of some Eastern European countries like Hungary. These reform efforts by socialist countries make North Korea one of the few countries in the world which still adheres to the principles of strict central planning. Even though North Korea has also tried to introduce some material incentives into production, such efforts were not moves toward the market mechanism by any standard, but an attempt to solve its economic difficulties by perfecting the existing system.²

The purpose of this paper is to analyze the historical record of past economic reforms by North Korea and to present the prospects for reform from a political economy perspective. The following section provides an overview of North Korea's macroeconomic performance by examining the previous nine economic development plans, which were first implemented by the North Korean government in 1945. In evaluating the past performance of the North Korean economy, the lack of reliable data along with the difficulties in converting the North Korean data into internationally recognized figures is discussed. In section III, a microeconomic analysis of the North Korean economy is presented. The shortcomings of the material

1. See Janos Kornai, "The Soft Budget Constraint," *Kyklos*, 39:1 (1986).

2. See Wladimir Andreff, "Economic Reforms in North Korea and Viet Nam," *Seoul Journal of Economics*, 2:1 (1989), pp. 101-105.

incentive system, which was introduced in the mid-1980s in the industrial sector, and the absence of private production in the agricultural sector are studied. In section IV, the current problems with the North Korean economy and the efforts by North Korea to resolve these problems are discussed. Even though the root of the current economic problems lie in the closeness of the North Korean economy and the lack of an incentive system (that is, a lack of market incentives), the chronic foreign currency shortage will be designated as the most urgent economic problem facing North Korea, and the efforts by the North to resolve this problem by encouraging foreign capital investment is studied. Furthermore, the political dilemma of succession confronting North Korean regime, which can hinder its reform efforts, is discussed. In each section, the North Korean case will be analyzed in comparison with the precedent-setting measures of other socialist countries, particularly those of China.

North Korea's Macroeconomic Performance

Estimation of North Korean GNP

In order to evaluate North Korea's economic performance, one has to face the problem of a shortage of reliable data. Even compared to other socialist economies, North Korea releases very few economic data that are reliable to outside world. Furthermore, the frequency of reporting official figures by North Korea had been drastically reduced since the mid-1960s, when the North Korean economy began to experience slow growth.³ The first problem of converting North Korean data into GNP in dollar terms is the different concept of production between CPE and market economies. In socialist economies, GVSP (Gross Value of Social Product) is used to measure the overall production of its economy. GVSP measures material sector production only, and it includes intermediate input production as well, while GNP measures the value of final outputs of goods and services.⁴ Thus the relationship between GNP and GVSP should be,

$$(1) \text{GNP} = \text{GVSP} - \text{intermediate input} + \text{service sector value added}$$

3. The only official figures which has been reported regularly since 1948 by North Korea are its government revenue and expenditure figures. For detailed figures, refer to Ui-Kwack Hwang, *The North Korean Economy* (Seoul: Na-Nam Publishing Inc., 1992), pp. 174-176.

4. According to North Korean classification, the following sectors are regarded as the non-material sector: public administration, education, science, art, health, housing, and passenger transportation.

While GVSP represents the gross value of all production that took place in the material sector, NMP (Net Material Product) measures the material sector's value added only. Therefore, the relationship between NMP and GVSP, and between NMP and GNP are presented :

$$(2) \text{GVSP} = \text{NMP} + \text{intermediate inputs} + \text{Depreciation}$$

$$(3) \text{GNP} = \text{NMP} + \text{Depreciation} + \text{service sector value added}$$

The National Unification Board (NUB) of South Korea uses equation (3) in estimation North Korea's GNP, while the U.S. CIA is believed to estimate the North Korean GNP by using NMP/GNP ratios of Eastern European Countries.⁵ Other institutions like IISS (International Institute of Strategic Studies, United Kingdom) or SIPRI (Stockholm International Peace Research Institute, Sweden) are thought to use North Korean government expenditures data in estimating North Korean GNP. The second problem in estimating GNP is converting North Korean GNP estimated in North Korean currency into dollar terms. Like most other socialist countries, North Korea has a multiple exchange rate system. The official exchange rate, which is overvalued, is applied to official statistics that are reported to the outside world, while the trade exchange rate (commercial exchange rate) is used in international transactions including trade.⁶ The officially reported GVSP figures by North Korea and GNP estimated by IISS use the official exchange rate, leading to the problem of over-estimation. While the U.S. CIA and NUB use the trade exchange rate in estimating the North Korean GNP to avoid the problem of over-estimation. There is another method used called PIM (Physical Indicator Method), which can avoid this convertibility

5. See Hong-Taek Chun, "A Comparison of South and North Korean Economic Performance," *The International Symposium on the North Korean Economy* (Seoul: The Korean Economic Daily, 1992), pp. 178-184.

6. Official exchange rate is about twice overvalued than trade exchange rate. For example, 1990 official exchange rate (won/\$) was 0.96 when trade exchange rate was 2.08. In addition to official rate and trade rate, there is noncommercial rate, which is used in exchanging foreign traveler's currency into local North Korean currency. Official and trade exchange rate of the North Korean currency for selected years are followings:

Official and Trade Exchange Rate of North Korea (won/\$)

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 |
|---------------|------|------|------|------|------|------|------|
| Official Rate | 1.20 | 1.20 | 1.20 | 0.96 | 0.86 | 1.07 | 0.96 |
| Trade Rate | 2.20 | 2.20 | 2.57 | 2.05 | 1.70 | 2.43 | 2.08 |

Source: Ui-Kwack Hwang, *op. cit.*, pp. 80-81.

problem.

PIM is often applied to the calculation of centrally planned economies' per capita GNP, and it is generally believed that PIM avoids the problems of converting GVSP (measured in local currency) into GNP (measured in dollars). PIM is based on the assumption that there exists a certain functional relation between GNP per capita and a certain set of physical indicators, such as consumption and production of certain commodities and other social indicators. PIM can calculate the GNP per capita of a country whose per capita GNP is not known, but whose physical indicators are available through two steps. First of all, by using reliable data from other countries (reference countries) whose GNP per capita and physical indicators are available, one can establish a functional relationship between GNP per capita and physical indicators. Second of all, by substituting the physical indicators of the country whose GNP per capita is unknown into the functional relationship that has been established in the first stage, one can arrive at an estimated value for the country's GNP per capita. Estimations of North Korean GNP by the U.S. CIA, NUB, PIM, as well as other sources are presented in Table 1.

Table 1. Estimated GNP of North Korea (in million dollars)

| Year | Population ^(a) | GVSP ^(b) | NMP ^(c) | NUB | CIA | IISS | PIM ^(h) |
|------|---------------------------|----------------------|----------------------|-------|----------------------|-------|--------------------|
| 1960 | 10789 | 5568 | | 1520 | 4800 | | |
| 1965 | 12100 | 8734 | | 2340 | 7600 | | |
| 1970 | 13892 | 14334 | 8700 | 3980 | 10000 | 8510 | 2800 |
| 1975 | 15853 | 40357 | 16600 | 9350 | 16000 | 7980 | |
| 1980 | 18025 | 65688 | 33900 | 13500 | 19500 | 13370 | 9700 |
| 1985 | 20385 | 71854 | 47800 ^(d) | 15140 | 23000 ^(e) | 19240 | |
| 1990 | 21412 | 88688 ^(f) | 52200 ^(g) | 23100 | | | 27100 |
| 1991 | 22500 | | | 22900 | | | |

Source: Ui-Kwack Hwang, *op. cit.*, pp. 123-124, 135-136, 142-143.
Hong-Taek Chun, *op. cit.*, p. 190.

Notes: (a) unit: 1,000

(b) GVSP estimated by using official exchange rate.

(c) 1989 data.

(d) Officially reported figures by North Korea.

(e) 1986 data.

(f) 1988 data.

(g) 1984 data.

(h) GNP per capita of North Korea estimated by PIM.

Using the population data and the estimated GNP of North Korea, we can calculate GNP per capita of North Korea. South Korea's NUB estimation of North Korea's GNP per capita for 1990 was \$1064, while the 1989 and 1990 estimations of North Korea's GNP per capita, both of which used the method of PIM, were \$1268 and \$1181 respectively.⁷ Even though the NUB had long been accused of intentionally underestimating the North Korean GNP, the estimated GNP of North Korea, using PIM method shows that these bias of the NUB is not that significant. From the estimation of North Korean GNP per capita, we can ascertain that the per capita GNP of North Korea, which was two to five times greater than the South Korean per capita GNP in 1960 according to various sources, was surpassed by the per capita GNP of South Korea in the early 1970s according to NUB estimation, and in the middle of the 1970s according to the U.S. CIA's estimation. Furthermore, almost every estimation shows that the current North Korean GNP per capita is five or six times smaller than that of South Korea. We will now turn to an analysis of the past performance of the North Korean economy, which started better than the South Korean economy but had been surpassed by South Korea and still remains a low income developing country, focusing on the past nine economic development plans of North Korea.

The Economic Development Plans of North Korea

The division of the Korean Peninsula into South and North after the end of World War II left North Korea the better endowed economy of the two in terms of minerals, electrification, and heavy and chemical industries. In 1940, North Korea accounted for 76% of mining production,⁸ 92% of electricity generation and 80% of heavy and chemical industry production for the entire Korean Peninsula. This situation was largely the result of Japanese colonial policy. After the start of the Sino-Japanese war in the early 1930s, Japan made the northern part of Korea its military supply bases for her invasion of China, and the southern part of Korea its supplier of rice. After independence from Japan, both South and North Korea established separate governments in 1948. Since then, each government has competed ferociously against the other to achieve rapid industrialization through different development paths. The North Korean socialist economy adopted inward-oriented development strategy with import substitution policies

7. For 1989 data, refer to Kap-Young Jeong, "The North Korean Economy," *Korea and World Affairs* (Spring, 1992), p. 36. Also, for 1990 data, refer to Hong-Taek Chun, *op. cit.*, p. 190.

8. In 1940 practically all iron ore and coal were produced in the North as well as more than 70% of the gold, silver and tungsten. See Kwang-Suk Kim and Michael Roemer, *Growth and Structural Transformation* (Harvard University Press, 1979), pp. 22-25.

whose priority placed on heavy and chemical industries, while the outward-oriented South Korean market economy adopted export promotion policies whose priority placed on light industry.

North Korean economic development can be characterized as successful and impressive during the 1950s and '60s, followed by the troublesome '70s and stagnant '80s. Stalinist central planning and a command economy were the ideological backbone of the North Korean economy in the 1950s and '60s with the growing influence of the Chinese economic system during the 1960s. Inspired by the Stalinist command economy during the 1950s, virtually every means of production had been nationalized, and a great deal of ideological stimuli had replaced material incentives in encouraging production. In the late 1950s and early '60s, massive Chinese-style manpower mobilization and collective leadership in state enterprises had been introduced. However, since the 1970s, "Juche Ideology," which had been first introduced by Kim Il-Sung in 1955, became the unchallenged principle of the North Korean economy. Juche, which means "self-reliance" in Korean, is an extreme form of nationalism. Since the first introduction of Juche in 1955 by the Central People's Committee to establish ideological independence from Soviet Union and China,⁹ it became the leading principle in economic relations in 1957, in national defense in 1962, and finally it was designated as the leading (guiding) ideology of North Korea in Article 4 of the 1972 new constitution. The major goals and performance of the nine economic development plans since 1947 are summarized in Table 2.

Like most other socialist economies, North Korea initiated economic development with land reform. Immediately after independence, North Korea implemented land reform in 1946. During this reform, the North Korean authorities confiscated about 1 million hectares of farmlands from 422,646 households and distributed them to 724,522 households. Immediately following the land reform, further nationalization of major industries, banks, transportation, and public broadcasting was carried out. During the first two one year plans of 1947 and 1948 and the first two-year plan, establishing a new socialist economic system which was meant to replace the old colonial economic system was the main purpose of the development plans. The priority of the three-year plan (1945-1956) after the

9. In the speech of Kim Il-Sung on "Exterminating Dogmatism, and Establishing Independence in Ideological Work," made in April 1955, he states, "...Although some people say that the Soviet way is best or that the Chinese way is the best, have we not now reached the point where we can construct our own way?" See Bruce Cumings, *The Origin of the Korean War: Liberalization and the Emergence of Separate Regimes* (Princeton: Princeton University Press, 1981).

Table 2. The Nine Development Plans of North Korea: Goals and Performance

| Plan | Goals | Announced Results (Targets) |
|--|--|--|
| 1 Year Plans (1947, 1948) | - Consolidation of firms - Increased production of basic necessities - Increased agricultural production | - Industrial Production: 1946-1947: 54% increase 1947-1948: 38% increase - Grain Production: 1947: 2,069,000 tons 1948: 2,668,000 tons |
| 1st 2 Year Plan (1949-1950) | - Solidifying economic foundation for self-reliant economy | - 1949 Industrial Production: 3.4 times greater than 1946 level - Grain Production: 58% increase between 1946-49 |
| 3 Year Plan (1954-1956) | - Surpass the output level and efficiencies of pre-war period | - Industrial Production: 2.8 times greater than 1953 level Reported annual growth rate: 41.7% - Grain Production: 19% increase between 1949-56 |
| 1st 5 Year Plan (1957-1961) | - Further consolidation of economic foundation of socialism - Increased production of basic necessities | - Industrial Production: 3 times (2.6 times) Reported annual growth rate: 36.6% - Grain Production: 1960: 3,760,000 tons |
| 1st 7 Year Plan (1961-1967, extended to 1970) | - Decisive strengthening of the material and technical foundation for socialism | - Industrial Production: 3.3 times (3.2 times) Reported annual growth rate: 12.8% - Grain Production: (6,000,000 to 7,000,000 tons) |
| 6 Year Plan (1971 - 1976) | - Accomplishments of Industrialization - Advance technical revolution | - Industrial Production: 2.5 times (2.2 times) Reported annual growth rate: 16.3% - Grain Production: 8,000,000 tons (7,500,000 tons) |

Table 2. Continued

| Plan | Goals | Announced Results (Targets) |
|--------------------------------|---|---|
| 2nd 7 Year Plan (1978-1984) | <ul style="list-style-type: none"> - Self-reliance and modernization - Frugality campaign - Increase foreign trade - Modernization of transportation sector | <ul style="list-style-type: none"> - Industrial Production: 2.2 times (2.2 times) Reported annual growth rate: 12.1% - Grain Production: 10,000,000 tons (10,000,000 tons) |
| 3rd 7 Year Plan (1987-1993) | <ul style="list-style-type: none"> - Promotion of Juche ideology - Modernization - Increase foreign trade | <ul style="list-style-type: none"> - Industrial Production: (1.9 times) Planned annual growth rate: 12.2% - Grain Production: (1.4 times) |

Source: Ui-Kwack Hwang, *op. cit.*, pp. 51-52, 61, 66.

Woon-Keun Kim, "Agricultural Situation and Prospect in North Korea," *International Seminar on Agriculture of North Korea and Agricultural Reform in Centrally Planned Economy* (Seoul: Korea Rural Economic Institute, 1992), p. 4.

Korean War was rehabilitation of the North Korean economy which had been badly damaged during the war. During this period, massive aid from the Soviet Union, China, and Eastern European countries helped North Korea to achieve its pre-war industrial production level by 1954, and by 1956, North Korean industrial production increased 2.8 times compared to the 1953 level, with an annual growth rate of 41.7%. In agriculture, farmers were strongly advised to join cooperative farms starting in 1954 April, and by 1958 August, virtually all farmers had become members of a cooperative farm. Recovery from the Korean War and establishing the solid basis for a socialist economy during the three-year plan enabled North Korea to achieve its most successful performance during the 1st five year plan of 1957 to 1961. By the end of 1958, socialization of all means of production had been completed through the nationalization of the industrial sector and collectivization of the agricultural sector. This provided a firm basis for further industrialization through massive manpower mobilization programs in North Korea.

The North Korean authorities proudly declared the achievement of the major targets of the five year plan two years ahead of schedule. The successful completion of the plan was mainly due to two factors, the effective mobilization of manpower and continued aid from the Soviet Union and China. During this period, a massive manpower mobilization program called "The Chollima Movement" was initiated by Kim Il-Sung in 1958.¹⁰ Resembling the Chinese "Great Leap Forward Movement" of 1958, which directed manpower into ambitious heavy industry projects by Chairman Mao, the Chollima Movement aimed at tapping into the revolutionary fervor of the North Korean workers in order to increase output in all sectors of the economy. The effective labor mobilization and continuous ideological stimuli enabled the North Korean economy to achieve plan targets within two and half years, with the industrial sector's annual growth rate running at 36.6%. This resulted in an even more ambitious promotion of heavy industry with the first 7-year plan in 1961.

During the 1st seven year plan (1961-1967), inward-oriented industrialization with greater emphasis on heavy industry was carried out. The Sino-Soviet border dispute in the early 1960s helped Pyongyang realize the importance of self-reliance in terms of the economy and self-defense in terms of military security. This led to the invocation of the Juche ideology for national defense purposes in 1962 and further emphasis on heavy industry, which was vital to military sector. However, biased resource allocation toward heavy industry with relative neglect of the consumer goods industry produced the problem of unbalanced growth. Furthermore, decreased assistance from the Soviet Union and China, a poor harvest in agriculture, and the emergence of bottle necks in key sectors due to inefficient planning aggravated the situation to the point that, by 1966, it became clear that the planned targets were not going to be reached. Despite the official declaration of the completion of plan by the North Korean authorities, the first seven-year plan was extended to 1970, implicitly reflecting that the originally planned targets were not met. It was during this development plan that North Korea no longer reported detailed economic statistics to the outside world.

The problems of unbalanced growth and the lack of advanced technology due to an inward-oriented development strategy made North Korea adopt a six year plan to resolve these problems. To overcome the problem of unbalanced growth, the "Three Technological Revolutions" policy was initiated to curtail the lag between heavy industry and light industry, reduce the income differential between industrial workers and agricultural workers,

10. "Chollima" is a legendary horse which was believed to be able to travel 400km (250 miles) a day.

and to relieve women from household work. The problem of obsolete technology induced North Korea to import massive amounts of advanced technology and capital from Japan and several western countries in the early 1970s, which later created the balance of payments problem.¹¹ However, despite the alleged completion of major industrial and agricultural targets, a chronic trade deficit and the first oil shock of the early 1970s created a foreign exchange shortage by the mid 1970s, with North Korea beginning to experience the debt-repayment difficulties in 1975. Bottlenecks in key sectors continued due to the increased complexity and inefficiency of central planning. To overcome these problems, mass campaigns such as "The Three Revolution Team Movement" in 1973 and "Seventy Day Speed Battle" in 1974 were used to mobilize more manpower.

Declaring 1977 as a year of adjustment, North Korea started its second seven year plan in 1978. The major economic goals of this plan included a frugality campaign, an increase in foreign trade and the modernization of the transportation sector, reflecting the chronic problems of a trade deficit, accumulation of foreign debt, lack of capital, and obsolete technology. In 1984, North Korea declared the completion of the second seven year plan without reporting detailed figures and announced that it would have a two years adjustment period before the start of the third seven year plan, which implicitly indicated the unsatisfactory performance of the North Korean economy during this period. It was also in 1984 when North Korea initiated limited economic reforms, which provided some material incentives and autonomy to state enterprises and a semi-open door policy to attract foreign joint venture projects in North Korea. However, the results of these efforts were far below the expectations of North Korean planners, and it caused North Korea to enact a more vigorous law to attract foreign joint ventures in 1992. The third seven year plan, which is currently underway, began in 1987 with almost the same goals as the second seven year plan with modest production targets. However, the foreign exchange shortage in North Korea was aggravated due to the collapse of socialist economies and the decline of Soviet and Chinese aid, and the efforts of North Korea to attract more foreign capital have not yet been fruitful.

Summarizing the past performance of the North Korean economy, we can conclude that North Korea could achieve successful industrialization in the 1950s and 1960s by relying on Soviet-style central planning, the nationalization of the means of production, ideological stimuli, and mass

mobilization of the labor force. However, these achievements were biased toward heavy industry, especially military-related industries, and it neglected light industry and foreign trade. As a result of inward-oriented industrialization policies, North Korea found itself in short supply of foreign advanced technologies and foreign exchange. These problems have become visible since the mid-1970s, and by the mid-1980s, North Korea was obviously in need of changing its economic policies. Even though some material incentives were provided to state enterprises and foreign joint venture law was enacted to attract foreign capital, these measures have not resulted in a significant improvement in the North Korean economy so far. In the next section, we will examine the incentive system for North Korean state enterprises from a microeconomic perspective, and will briefly discuss the lack of incentives in the agricultural sector.

Partial Economic Reform in North Korea During the Mid-1980s

Sluggish economic growth in North Korea during the late 1970s and early 1980s, and economic reforms in China since 1978 have forced the North to try several reform measures in the mid-1980s. However, these efforts were not intended to bring the market mechanism into the North Korean economy, rather, they were to provide more material incentives within the existing North Korean economic system. The economic reforms of Hungary, Poland, and China can be called transitional reforms toward market economy in the sense that they introduced private ownership and abandonment of price controls, both of which would be the two core principles of socialist economy. However, several reform measures in North Korea in the mid-1980s have not led to such genuine reform efforts. Rather than introducing a new system, North Korea tried to correct its problems by modifying the existing system without damaging the principles of a socialist economy.¹²

1984 8.3. Production of People's Consumer Goods Program

1984 became the year of partial reform of the North Korean economy. In August 1984, "The August Third (8.3) Program," which allowed some production of consumer goods outside the confines of central planning, had been announced, followed by foreign joint venture laws in September and the revision of the "Provision on the Independent Accounting System in State Enterprises" in December. The 1984 8.3 Production of People's Consumer Goods Program can be termed a partial reform based on two

11. North Korea's average annual imports from Western industrialized countries including Japan from 1970 to 1974 was increased by 89.6%, and OECD countries in 1974 accounted for 51.7% of its total imports, which was \$1,357 millions worthy. See Ha-Cheong Yeon, *North Korea's Economic Policy and Operation* (Seoul: Korea Development Institute, 1986), pp. 177-182.

12. See Wladimir Andreff, *op. cit.*, pp. 101-105.

aspects: It allowed the production of some consumer goods outside the planned economy, and these products could be sold in the market rather than in state stores. In addition, this program had two more distinctive features. Most of the products produced under this program were basic necessities which used wasted resources as an input. Production decisions were made by local authorities, and products were produced and sold inside local province. According to a 1990 January article by Choe In-Duk in *Kulloja*, sales of those products produced under 8.3 Program accounted for 9.5% of total consumer goods sales. Even though this program is limited to consumer goods production and the incentives and decision making authorities were restricted to local bureaucrats and party members, this program did introduce some market forces and thus can be called as partial reform measures.

The 1984 Revision of the "Provision on the Independent Accounting System in State-Enterprises"

The revision of the "Provision on the Independent Accounting System in State-Enterprises," which was passed in the 6th Central People's Committee in December 1984 reveals the inherent inefficiency problems of North Korean state enterprises. According to the revision, three basic principles were announced: First, it advocated the combination of plans and markets by stating the need for a combination of state planning and commodity-market relations through the introduction of costs, prices and profits. Second, state enterprises were asked to cover their own expenses from their own revenues. Third, political and material incentives were permitted at state enterprises, depending on the fulfillment of their plans. The first two principles emphasize financial accountability and the independence of state enterprises, which reflects the growing fiscal deficit due to continued subsidies to state enterprises. Even though state enterprises were allowed to retain a portion of their extra profits since the early 1950s, the third principle of this revision allowed higher profit retention rates for state enterprises.¹³ The emphasis on financial accountability verifies the existence of soft budget problem in the North Korean state enterprises (as with other socialist economies). The planning nature of socialist economies will make managers of state enterprises bargain for more inputs and lower target assignments with state authorities, and this bargaining nature will inevitably cause soft budget

13. The retention rate from extra-profits was 10-90% in 1960, 13-50% in 1962, and 0-20% in 1972. Then it was raised to 50% in 1985. See Myung-Kyu Kang and Keun Lee, "Industrial Systems and Reform in North Korea: A Comparison with China," *World Development*, 20:7 (1992), p. 948.

problem which can result in a vicious cycle of input hoarding and fiscal deficits.

There also exists a collusive behavior among managers and workers in state enterprises due to the distinctive form of collective leadership. With China's adoption of a collective leadership system, North Korea followed suit with regards to state enterprises in 1961. China abolished the one-person (manager) responsibility system used in the Soviet Union in 1956, and adopted a system combining collective leadership and manager responsibility. Influenced by China, Kim Il-Sung abandoned one-man management system and announced his so called "Dae-an Model" in 1961, which has a pure collective leadership structure through a state enterprise party committee.¹⁴ Since 1961, the Dae-an Model has become the sole management model in the North Korean state enterprises. According to the Dae-an Model, each factory is to be run by a party committee, which is composed of workers, managers and engineers. The Dae-an Model places higher priority on political guidance over economic and technical guidance by placing party committee ahead of executive committee, and it advocates workers' participation in decision making by focusing on cooperation among workers, technicians and party functionaries at each factory.¹⁵ As it had been empirically shown in China, collective leadership can lead to inertia which favors the status quo over innovation due to the ambiguity concerning responsibility in the decision making process and the difficulties of arriving at a consensus. Even though China abandoned the collective leadership approach and moved toward a manager responsibility system in 1984, the fact that Kim Il-Sung himself created the Dae-an Model will make it difficult for North Korea to modify or abandon.

In addition to the emphasis on the financial accountability of state enterprises, the December 1984 revision provides more material incentives to workers in state enterprises. Workers' income in state enterprises is composed of three portions: 1) basic living costs, 2) bonuses, and

14. On the occasion of the introduction of Dae-an Model, Kim, Il-Sung said: "The factory's party committee, as the supreme administrative organ of the plant, managers and runs the factory with the direct participation of the party members, the workers, and technicians. No single person should take the responsibility of managing the plant, but every party member, worker, and technician in the plant should take part in the operation of the factory's party committee, which is in turn responsible for the administration and management of the factory." See Han-Shik Park and Kyung-Ae Park, *China and North Korea: Politics of Integration and Modernization, Asian Studies Monograph Series* (Hong Kong: Asian Research Service, 1990), p. 111.

15. For the detailed hierarchy of state enterprise, which is set by the Dae-an Model, see Frederica M. Bunge, *North Korea: A Country Study* (American University for U.S. Department of the Army, 1981), p. 132.

3) monetary prizes. Out of these three components, monetary prizes are paid from the "prize funds." Prize funds are part of extra profits in state enterprises which can be retained by the enterprise. According to the new provision, there are two ways to retain part of the extra profits: enterprise funds and prize funds. Enterprise funds can be used only for production investment and the improvement of collective welfare, while prize funds can be distributed to workers in the form of monetary prizes. Prize funds can be retained by state enterprises only after enterprise funds had been retained from extra profits, and it can be as much as 20% of extra profits. According to the Marxian formula of production, the gross value of production is composed of $C + V + M$, where C stands for material costs, V for labor costs, and M for net material income, which means profits. From the composition of the workers' income in state enterprises, a bonus is a reward for the reduction of labor costs, V , while the monetary prize is a reward for increased profits, M . The distinction between the workers' income in state enterprises, a bonus is a reward for the reduction of labor costs, V , while the monetary prize is a reward for increased profits, M . The distinction between the bonus and the monetary prize can be a peculiar feature of the North Korean incentive system, which provides incentives both to target accomplishment and profit generation. The bonus amount depends on the target fulfillment rate, which is measured by the ratio of final output to assigned target. Using the above characteristics of the workers' income structure in North Korean state enterprises, we can establish the following equation:

$$(4) Y = B + B \cdot \alpha \left\{ \left(\frac{Q}{T} \right) - 1 \right\} + (0.2 \cdot m)/n$$

where "Y" is the income of a representative worker, "B" stands for basic living costs, "α" is a constant, "Q" is actual output, "T" is an assigned target, and "n" is the number of workers in the enterprise. "m" is the amount of extra profits, which is $M - M^*$, where M is profit and M^* is planned quota profit has to be remitted to the state.

With an income structure like the above equation, we can observe that the incentive system for North Korean state enterprise workers is subject to the famous "ratchet effect" and "free-rider problem." The ratchet effect is a dynamic incentive problem, which will occur when a strong past performance leads to a higher target today with no reward for moving the target upward. The existence of the ratchet effect along with punishment for unsuccessful fulfillment of targets prevents workers from exerting the maximum abilities and causes them barely achieve the assigned targets. To avoid the ratchet effect, allowing managers of state enterprises to self-impose

targets instead of receiving targets from the planner was proposed.¹⁶ However, no such measure can be found in the North Korean incentive system, and from equation (4), we can infer that North Korean state enterprise workers are also subject to the ratchet effect. Another incentive problem we can infer from equation (4) is the free-rider problem. As explained above, monetary prize is not subject to the ratchet effect because the amount that will be distributed to each worker is not affected by past performance. Monetary prize is a kind of income sharing, which has a superior incentive effect,¹⁷ but it will lead to the free-rider problem when the number of workers who will share this income (in equation 4, it is "n") is significantly large. From the above analysis, we may conclude that the 1984 revision of the "Provision on the Independent Accounting System in State Enterprises," reveals the problems facing North Korean state enterprises, such as soft budget problem, collusive behavior of managers and workers, the ratchet effect, and the free-rider problem, all of which are commonly observed in socialist economies. Even though the 1984 revision was affected by economic reform in China, North Korea's method of dealing with the existing inefficiency problems in state enterprises was not through market reform like China, but through modifying the existing system, which makes the long-term effects of this revision questionable.

Kitchen Plots and Peasant Markets: Existence of Free Market in Agriculture

The Socialization of agricultural sector began with the Land Reform Act of March 1946. According to this act, the confiscation and redistribution of approximately 1 million hectares land formerly owned by the Japanese colonialists took place. After the Korean War, collectivization was vigorously carried out such that by August 1958, all the agricultural means of production was socialized and all farmers joined cooperative farms. In February 1960, the so called "Chongsan-ni Method" was announced by Kim Il-Sung during his on-the-spot visit to the Chongsan-ni Cooperative Farm management method for agriculture, the equivalent of the Dae-an Method for state enterprises. In order to combat "bureaucratism" and "formalism," Kim proposed the remedy of increased communication between farmers and the managerial staff of cooperative farms. According to this method, party

16. See J. P. Bonin, "On the Design of Managerial Incentive Structures in a Decentralized Planning Environment," *American Economic Review*, 66:4 (September, 1976), p. 682. Also see Bengt Holmstrom, "Design of Incentive Schemes and the New Soviet Incentive Model," *European Economic Review*, 17:2 (February, 1982), pp. 128-129.

17. Refer to Laura A. Tyson, "Incentives, Income Sharing, the Institutional Innovation in the Yugoslav Self-Managed Firm," *Journal of Comparative Economics*, 3:3 (September, 1979), p. 290.

officials were to leave their desks and go into the fields to provide guidance work, as Kim had done. Like the Dae-an Method, the Chongsan-ni Method also emphasized the role of party guidance in the production of agricultural products.

Thanks to collectivization, the effective mobilization of manpower in collective farms, and modernization efforts during the six year development plan (1971 to 1976), labor productivity in the agricultural sector improved significantly during the 1960s, enabling North Korea to be self-sufficient in terms of major grains by the late 1970s. However, despite the declaration by the North Korean government that agricultural production targets had been fulfilled in every development plan, continuous poor harvests and declining productivity in the 1970s led to insufficient supply of major grains by the late 1970s. It is estimated that North Korea had an annual rice shortfall of approximately 1.43 million tons in 1990, which is about the half of the total demand for in North Korea.¹⁸

Facing a gradual decline in productivity during the 1960s, the North Korean government allowed each farm household to privately cultivate a small "kitchen garden" surrounding the house, and to sell the crops and livestock they raised there in a "peasant market," where prices are determined by market forces. Cultivation of kitchen plots was regarded as a necessary evil, and was implicitly tolerated by the North Korean government until it was finally permitted in the mid-1960.¹⁹ From the very beginning, the approved size of kitchen gardens was very small because Kim Il-Sung feared that the farmers might be more interested in profit making than participating in the cooperative farm.²⁰ Based on the experience of China, we can presume that the productivity of these kitchen plots would be higher than that of the cooperative farm. Even though the absolute and relative size of this privately cultivated land is small compared to cooperative farm size, the existence of a private ownership system and a free market for this privately produced crops is one of the few market-oriented reforms in North Korea.²¹

Particularly, the empirical evidence provided by China proves the importance of such private cultivation and free peasant markets. When China first began its market-oriented economic reforms in 1978, one of the

first measures was to allow each farm household to privately cultivate land through a long term contract with the government. Furthermore, after submitting the pre-specified proportions to government, each farmer was allowed to retain the remaining surplus and to either consume or sell it in the rural market. This measure immediately increased the productivity of the agricultural sector, and sufficient food supply was available afterward, which in turn enabled further reform without the fear of food shortages of the kind observed in the former Soviet Union. Judging from China's experience, we can expect that the current "kitchen garden" scheme can be further utilized in the future when North Korea initiates its own version of reform.

Foreign Exchange Shortages in North Korea and Its Open Door Policy

The 1984 Foreign Joint Venture Law: North Korea's First Open Door Policy

Even though the North Korean economy experienced slow growth during the 1980s, North Korea maintained positive growth until the end of the 1980s. However, the above stated inherent problems of the North Korean economy, such as inefficient planning, lack of incentives, bottlenecks in key sectors, declining productivity in agriculture and food shortages²² along with a chronic trade deficit and foreign debt depressed the North's economy despite partial reform efforts in the mid-1980s.²³ While the existing problems were serious enough to be considered an economic crisis, the reduction in foreign aid from the former Soviet Union and China, and the subsequent demands for trade based on hard currency rather than the previous barter system by the Soviet Union in 1991 and from China in 1993 left North

22. North Korea harvested 5.3 million tons of grain in 1991, leaving the country 1.4 million tons short of the 6.7 million tons needed in 1992. Due to this food shortage, food rations have been reduced by 25% since June 1991, and a soldier's daily grain ration is down to 624 grams from 800 (see The Economist Intelligence Unit, *EIU Country Report No. 3* (1992), p. 36).

23. Recent growth rates for real GNP and trade balance of North Korea are estimated below.

| | 1987 | 1988 | 1989 | 1990 | 1991 |
|---------------------------|--------|--------|--------|--------|------|
| Real GNP growth rates (%) | 2.5 | 2.9 | 2.0 | -3.7 | -5.2 |
| Exports (\$ bn) | 1.47 | 1.82 | 1.69 | 1.86 | 1.40 |
| Imports (\$ bn) | 2.57 | 3.20 | 2.90 | 2.93 | 2.31 |
| Trade balance (\$ mn) | -1,100 | -1,377 | -1,219 | -1,073 | -902 |
| External debt (\$ bn) | 1.2 | | | | 4.7 |

Source: *Ibid.*, p. 5.

18. Woon-Keun Kim, *op. cit.*, p. 24.

19. Kim Il-Sung stated that in the socialist stage the "peasant market" cannot be abolished completely. Kim looks further ahead and offers the theory that the "peasant market will disappear when the country becomes industrialized and there are plenty of consumer goods available to the people." See Han-Shik Park and Kyung-Ae Park, *op. cit.*, pp. 116-117.

20. Initially, each farm household could own as much as 260 m². However, as the grain shortage problem became worse, the size shrunk to 66-99 m² in 1977.

21. When the average amount of land cultivated by each farm household is 1.34 hectares (see Woon-Keun Kim, *op. cit.*, p. 13), the existence of kitchen plots of approximately 100 m² implies that as much as 0.75% of all cultivated land is privately owned.

Korea with a serious foreign exchange shortage.²⁴ Furthermore, the foreign exchange shortage led to an oil shortage in a country where oil consumption wholly depends on import.²⁵ In particular, the import of oil from the former Soviet Union has decreased sharply in recent years: North Korea used to import approximately 800,000 to 1,000,000 tons of oil per year from the former USSR until 1987, but has since declined to 640,000 tons in 1988, 506,000 in 1989, 410,000 in 1990, and 41,000 from January to July of 1991. Facing this serious problems of foreign exchange shortage and difficulty of borrowing from western bankers due to the low credibility of North Korea.²⁶ Along with a need for advanced technology, North Korea enacted the Foreign Joint Venture (FJV) Law in September 1984 to attract foreign capital and technology from western countries. However, the relatively unattractive terms of the FJV law compared with Chinese and Vietnamese FJV laws, and the suspicion of western investors about the commitment of the North Korean government to the open door policy resulted in an unsatisfactory number of joint ventures. In the following table, the differences between the North Korean FJV law and the Chinese and Vietnamese FJV laws are presented.

As it can be seen from Table 3, the North Korean FJV law of 1984 was less attractive than the Chinese or Vietnamese FJV laws in terms of ownership, management, and sales. The results of this FJV law enactment were disappointing to North Korea. Unlike the Vietnamese case where many companies from its neighboring countries including Japan, Singapore, and South Korea rushed into Vietnamese market after its enactment of the FJV law in 1987, only about 100 joint ventures were signed between North Korea and foreign investors, with average value of approximately \$1 million each by 1990.²⁷ Furthermore, about 70% of these joint ventures were made with

24. Li Lanqing, Chinese Trade Minister and concurrently a Politburo member of the Chinese Communist Party Central Committee, in a meeting with visiting Kang Jong-Mo, vice chairman of North Korea's External Economy and Trade Commission, said in late 1992 that all trade with China beginning in 1993 must be paid for in cash by North Korea (see *Vantage Point* (Seoul: Naewoe Press, January 1993), p. 14.

25. North Korea imported 2,650,000 tons of oil in 1988, and 17% of that imported oil was used in industry while 71% of was used in transportation. Unlike South Korea, North Korea depended on coal (45%) and hydro-electric generation (55%) for its electricity. The amount of oil imports dropped to approximately 1,100,000 tons in 1992. For references, see Young-Shik Chang, "Demand and Supply of Energy in North Korea," *The International Symposium on the North Korean Economy* (Seoul: The Korea Economic Daily, 1992); also see *Jungang Ilbo* (in Korean), March 31, 1993.

26. The national credibility rank of North Korea in 1991 was the lowest out of 111 countries that were surveyed by *Institutional Investor* (March, 1993) while the rank of South Korea was 19th (see Korea Development Institute, *Current Problems of Inter-Korean Economic Cooperation and Tumen River Development Plan* (Seoul: Korea Development Institute, June 1992), p. 25.

27. By the end of 1991, the total worth of foreign joint ventures was approximately \$200

Table 3. *The Foreign Joint Venture Laws of North Korea, China and Vietnam*

| | North Korea | China and Vietnam |
|---|--|---|
| Foreign investor's share | less than 100% | up to 100% |
| Decision-making by the board of directors | unanimity rule for the entire agenda | unanimity rule for important agenda items |
| Labor management | employment and layoffs through labor administrative authorities only | direct employment possible (through a labor contract) |
| Corporate income tax rate | 25% | China: 33% (15% in SEZ) Vietnam: 15 to 25% |
| Sales of output | export only | domestic sales possible |

Source: Korea Development Institute, *op. cit.* p. 31.

Chochongryon fund, which is a pro-North Korea organization of Korean Japanese, while most of the rest were signed with Chinese or Soviet funds. Therefore, the desired results of inviting advanced technology and capital from western countries were not met, and the expected increase in export also did not take place.

The 1992 Enactment of the Three Laws Related to Foreigners' Investment

Faced with the unsatisfactory results of its first open door policy in 1984 and deepening foreign exchange shortages, North Korea enacted three new laws related to foreign investment in October 1992: the Law on Foreigners' Investment, the Law on Contractual Joint Ventures, and the Law on Foreign Enterprises.²⁸ These new enactments provided more favorable conditions to foreign investors who complained about the relatively unattractive terms of

million, where 75 to 80% of them came from Chochongryon (*Hanguk Ilbo*, May 8, 1993).

28. For the whole text of these new laws, refer to *Vantage Point*, *op. cit.* (February, 1992), pp. 21-26.

the 1984 law. The newly enacted law on Foreigners' Investment is supposed to be applied to those foreign enterprises which are expected to be established in the "Free Economic and Trade Zone (FETZ)" of the Rajin-Sonbong area near Tumen River.²⁹ According to Article 6 of the Law on Foreign Enterprises, foreigners can set up foreign enterprises in the FETZ by submitting an application to the External Economic Department of the Administrative Council of the DPRK, and it can be 100% owned by foreigners. Furthermore, the corporate income tax rate for foreign enterprises in the FETZ was reduced to 14% from the 1984 level of 25%, while the equivalent rates under the Chinese foreign joint venture law was 25% (15% in Special Economic Zone) and 15 to 25% under the Vietnamese foreign joint venture law. Therefore, as far as the FETZ is concerned, the terms offered by North Korea to foreign investors are at least as favorable as the Chinese and Vietnamese conditions.

Furthermore, in order to attract investment from South Korean firms, the qualifications for Koreans seeking to invest in North Korea have been changed. According to the 1984 law, only Koreans residing overseas could invest in North Korea, but the 1992 law removed this restriction so that Koreans living outside the territory of the DPRK could invest in North Korea.³⁰ This change enabled South Koreans to invest in North Korea. However, to minimize the contacts between foreigners and North Korean citizens, hiring of North Korean workers still must be done through the North Korean labor administrative authorities according to the new laws. Encouraged by such efforts of North Korea, the Daewoo Group, one of the largest South Korean conglomerates, agreed to set up a joint venture factory in Nampo, but shortly before the establishment of the factory, the South Korean government prohibited any economic cooperation with the North due to the nuclear issue.

Obstacles to North Korea's Open Door Policy and the Political Dilemma of Opening the Door

As it is observed in the case of Daewoo's Nampo project, the resolution of nuclear issue, which now prevents any economic cooperation between North Korea and western countries, including South Korea and Japan, is an essential pre-requisite for any positive outcome of the North Korean open door policy. However, the elimination of nuclear issue will not be sufficient

enough to stimulate significant foreign joint ventures to North Korea. Even though the South Korean government is very likely to approve inter-Korean economic cooperation once the nuclear issue is resolved, unless South Korean or other western firms can export those products produced in North Korea through a joint venture with a North Korean counterpart to markets like the United States, there would be less incentive for South Korean or Japanese firms to invest in the North. Currently, the United States government prohibits any economic exchanges with North Korea on the basis of the Trading With the Enemy Act (TWEA), and, because of the rule of origin, South Korean firms will not be able export products produced in North Korea to the United States market.³¹ Therefore, for North Korea to truly expect a significant inflow of foreign capital and technology, the resolution of the nuclear issue and improved diplomatic relations with the United States are a prerequisite.

In addition to such external factors which can undermine North Korea's efforts to promote foreign joint ventures, there are some domestic factors which also can derail the open door policy of North Korea. First of all, there exists fear of a collapse among the North Korean leaders in regards to a open door policy. North Korean society has been completely closed since the end of the Korean War, and only the bureaucratic elite in North Korea could have accesses to outside information. Furthermore, the North Korean government continued to make the claim to its people that North Korea is a "workers' paradise on earth," particularly emphasizing the superiority of North Korean society over South Korean society. Under these conditions, an open door policy can provide opportunities to ordinary North Koreans to find out about what is really going on in the outside world, particularly in South Korea. The North Korean people may not be disturbed by the fact that they are worse off than the United States or Japan, but once they find out that they are far worse off than South Koreans, it will be such a shock that it will put the current North Korean regime in danger. The historical record of the collapse of the Central European socialist countries (like East German and Romania) as well as the Tiananmen Square Incident or Massacre in China also influences the North Korean leaders' fear of collapse. Pyongyang was especially annoyed by the frequent remarks made by Seoul that South Korea should prepare for a unification by absorption, which is based on the assumption that the North Korean regime will collapse. Second of all, North Korea is now undergoing a power transition, making it extra sensitive to potential disturbances that can be caused by an open door policy. Kim Jung-

29. In December 1991, the Rajin-Sonbong area was designated a free economic and trade zone under the Tumen River Basin Development Program, which had been proposed by the United Nations Development Program in 1991.

30. See Article 5 of the Law on Contractual Joint Ventures (*Vantage Point*, *op. cit.* (February, 1993), p. 21).

31. Since President Truman designated China and North Korea as enemies of the United States in 1951 during the Korean War, the U.S. government has prohibited any economic transaction with North Korea. This restriction against China was lifted in 1979 when China and the U.S. established formal diplomatic relations.

Il, the son of the current leader Kim Il-Sung, has been the heir apparent since the 1970s. He became the Supreme Commander of North Korean Armed Forces in December 1991, and by being appointed Chairman of the National Defense Committee, which is one of the three highest position in nation, in April 1993, Kim Jung-Il seems to have total control over the military.³² Even though Kim Jung-Il is known as a supporter of the open door policy, until he seizes control of the other two organizations, he will not want to invite any external elements into North Korea that could destabilize the political system. Third of all, the existence of influential hawks and their perception of the economic crisis in North Korea could also deter the opening of North Korea. It is generally believed that the old leaders in the Workers Party and the military belong to the anti-reform, hawkish group, while the relatively young technocrats, especially those who have had contact with the outside world, are believed to be pro-reform and dovish. If the hawks believe that the North's current economic difficulties can be solved through non-market measures such as missile sales to the Middle East, their resistance against the open door and reform policy can also undermine the doves' efforts at reform.

However, there are some positive signs as well. First of all, as an effort to persuade North Korea to be more flexible on the nuclear issue, the United States proposed a better relationship with North Korea after the North withdrawal from the NPT (Nuclear Non-Proliferation Treaty) on March 12, 1993.³³ Therefore, if the current nuclear issue is resolved, improved relations between North Korea and the U.S., and the possible development of inter-Korean economic cooperation can help the North's open door policy to succeed. Second of all, the dangerous influence of North Korea's open door policy on its regime stability can be minimized by restricting the activities of foreign joint venture firms in the enclave of the free economic and trade zone as China did during the initial stages of opening. Furthermore, the absence of any visible opposition group inside North Korea will also relieve the North Korean leaders' fears of collapse.³⁴ Third of all, the promotion of

32. The other two highest post in North Korea are: President (who is in charge of Administrative Council) and General Secretary (who is in charge of North Korea's labor party). These two posts are still held by Kim Il-Sung, but it is expected that they will be handed over to Kim Jung-Il in a near future (*Jungang Ilbo*, 9 April, 1993).

33. The United States has used a "stick and carrot" approach in trying to persuade North Korea to reconsider its decision to withdrawal from the NPT. As a stick, the U.S. made it clear that North Korea will face a strict economic embargo if it does not nullify its earlier decision. Carrots used to persuade North Korea include high level talks between the State Department and North Korea, improved diplomatic relations with North Korea, and further economic cooperation between South Korea and North Korea.

34. In Dae-Sook Suh, "The Prospects for Changes in North Korea," *Korea and World Affairs* (March, 1993), p. 4, it is stated as following: "...there is neither a single individual nor a solitary group publicly expressing dissatisfaction against the system, let alone challenging it. The situation in North Korea is quite different from that in the former Soviet

Kang Song-San and Kim Dal-Hyun to North Korean Premier and a Politburo, respectively, in December 1992 also indicates the growing tendency towards reform in North Korea.³⁵

Even though North Korea has made more sincere efforts in its open door policy, compared to its reform effort, there is one fundamental difference between the North Korean open door policy and China's open door policy. Even though both countries' open door policies aim at attracting foreign capital and technology, the motives behind the policies are different. In the Chinese case, the adoption of an outward-oriented development strategy, which imitated the South Korean development strategy in the 1960s, had initiated the open door policy. Therefore, China attracted foreign capital and technology to promote light industry based on the law of comparative advantage. However, North Korea's motives for adopting an open door policy was not to promote exports but to acquire foreign exchange needed to continue its import-substitution development strategy. Thus, North Korea attracts foreign capital not to invest in export promotion industries but to resolve urgent foreign exchange shortages. The North also seeks advanced technology not for light industry, but for replacing obsolete technology in North Korea's heavy industries. However, whatever motive lies behind the open door policy of the North, in the sense that it can result in increased exports and further opening of its economy, North Korea's efforts to attract foreign capital will have a lot more positive effect on its economy than any previous measures they have taken so far.

Concluding Remarks

The relatively better endowed North Korean economy (compared to the South) could achieve considerable industrialization in the 1950s and '60s through relying on Soviet-style economic planning and the mass mobilization of labor. However, inherent internal problems, such as the imbalance between heavy and light industry, the lack of capital and technology, inefficiency and incentive problems, bottlenecks due to the increasing complexity of planning, and shortage (especially in food and

Union or China. There is no Andrei Sakharov in North Korea, and unlike the students of Peking University, the students of Kim Il-Sung University do not stand in front of North Korean tanks, they drive them."

35. Kang Song-San initiated the enactment of the first Foreign Joint Venture law in 1984. Due to the unsatisfactory results of the first open door policy, he was disgracefully demoted to a governor of local province near Tumen River. But his efforts to pursue the TRBDP has been appreciated by Kim Jung-Il such that he became Premier of North Korea in December 1992. Kim, Dal-Hyun is also one of the capable technocrats who advocate an open door policy, and also one of the very few North Koreans who visited South Korea in 1992.

energy), which can be observed in any socialist economy began to produce signs of problematic unbalanced growth in the 1970s, while the 1980s was a period of stagnant growth. Furthermore, the external shocks in the early 1990s, such as the collapse of the Soviet Union, the cutback in aid from the former Soviet Union and China, decreased trade between North Korea and the former socialist countries, and the resulting foreign exchange shortage delivered a critical blow to the already faltering North Korean economy.

As a remedy to the above problems, the North Korean government prescribed deregulation in the mid-1980s to solve internal problems, and initiated an open door policy to cope with external difficulties in 1984, and in 1992. However, in the sense that genuine reforms, which are market-oriented, has to include moves toward privatization and abandonment of price control, the North Korean economic reform in the mid-1980s was far from this definition of genuine reform, and should be called a partial reform, which attempted to correct problems within the existing socialist economy framework. Contrary to the partial reform measures of North Korea to address its domestic problems, North Korea's open door policy in 1984 and 1993 is more or less equivalent to the Chinese and Vietnamese open door policies. However, the low credibility of North Korea, the relatively unattractive terms of its foreign joint venture law of 1984, and restrictions of economic transaction with the U.S. resulted in a rather unsatisfactory number of foreign joint ventures in the 1980s. The enactment of new foreign joint venture laws in 1992 have not produce any significant results so far because of political succession and nuclear issue that North Korea is now facing.

Assuming the removal of the current obstacles such as the domestic political situation and the nuclear question, which now impedes the progress of North Korea's open door policy, we can predict a much more fruitful outcome for an open door policy, considering the efforts by the North to attract foreign investors and the enthusiasm of South Korean firms ready to be in North Korea. Given these conditions, the North may well be able to alleviate some of its foreign exchange and obsolete technology problems. However, without genuine reform toward a market economy, the internal problems of the North Korean economy, which are inherent to socialist economies, will be impossible to resolve.

Finally, based on the analysis of the previous sections about the North Korean economy, several suggestions to the North Korean leaders and the prospects of future reforms can be assessed. First of all, North Korea must display a sincere effort to resolve the current nuclear question so that it can continue its open door policy. Second of all, before Kim Jung-Il receives complete control of the North Korean government and Workers Party from his father, it is essential to solidify the power base of the reformers in North Korea. At this stage, Kim Jung-Il's leadership in removing or persuading

hard-liners, so that they will no longer be obstacles to the reform process, and the cooperation of South Korea will be necessary. These two measures should be carried out before Kim Il-Sung hands power over to his son in order if we are to expect any genuine reform efforts after the power transition. However, whatever positive environment for reform North Korea might have, it will be difficult for North Korea to carry out any significant reform policy while Kim Il-Sung is still in power.

A reform drive, which can be expected after Kim Il-Sung's fades away, will be far from the "Big Bang" model of the former Soviet Union or Hungary. Several factors will prevent North Korea from adopting such a Big Bang model: 1) The negative historical evidence of the Big Bang model (that is to say, the collapse of the former Soviet Union, and the enormous chaos in Hungary and Poland experienced in the initial stage of the Big Bang reform) will deter North Korea from adopting any radical reforms. 2) The absence of political leadership, strong enough to pursue such radical reform. North Korea does not have a political leader such as Gorbachev of the former Soviet Union, or Walesa of Poland, who is fully committed to genuine reform. 3) The fear of absorption by South Korea among North Korean leaders will also play a significant role in preventing radical reform.

Therefore, the future of reform in North Korea, which will be possible if the above stated conditions are met, will look like Chinese-style "Gradual Reform". Moreover, the post-Kim Il-Sung regime has to modify, and eventually abandon its Juche ideology if it is to make any genuine moves toward a market economy. The open door policy can not be extended to export promotion policy while Juche ideology still stands for a self-reliant economy. Removing the burden of military expenditures will not take place unless the militarily self-defensive Juche ideology is abandoned. After the modification of Juche ideology, North Korea will be able to begin its genuine reform of the agricultural sector as China did in the late 1970s. To minimize any turbulence in North Korean society, agricultural reform can be initiated by allowing larger kitchen gardens for farmers, and by allowing farmers to rent some portion of the cooperative farms' land through a long-term contract, as done by China. These kinds of modest reform measures will not damage the existing Juche ideology that much, and the positive results of these measures will be able to induce further reforms in North Korea.