

The North Korean Economy: Current Issues and Prospects*

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Abstract: While the North Korean economy has emerged from a decade of negative growth, it is uncertain if the recovery is sustainable. This paper surveys the path the economy has taken, examines the issues of food, energy and foreign trade, and presents its prospects for the future.

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1. Introduction

After the Korean War, the Democratic People's Republic of Korea (DPRK or North Korea hereafter) was able to reconstruct and industrialize its economy rather quickly. Emphasis was put on building heavy industry. Already in the 1980s, however, the Soviet model of economic development ran into increasing difficulties in North Korea. Unlike other socialist countries in the Eastern Europe, North Korea failed to open up its economy and find ways of liberalizing economic management. The consequence was stagnation. With the disintegration of the Soviet bloc and a series of natural disasters, the North Korean economy plunged into near collapse in the 1990s.

Since the mid-1990s North Korea has had chronic food shortages. Massive international food aid has enabled the regime to escape from starvation of an enormous scale, but the population remains vulnerable to prolonged malnutrition and deteriorating living conditions. On the other hand, industrial capital stock is nearly beyond repair as a result of years of under-investment. Recently, the regime has placed emphasis on increasing grain production, addressing power shortages, earning hard currency, and attracting foreign investment, but without undergoing serious market-oriented reforms.

While the economy appears to emerge from a decade of negative growth, its future growth is highly uncertain. In this paper we survey the path the North Korean economy has taken in the post-Korean War period, examine its most challenging issues, and discuss its prospects for the near future.

The plan of this paper is as follows. In Section 2 we summarize the development of the North Korean economy. Section 3 discusses three most critical issues that North Korean economy faces: food, energy, and foreign trade. In Section 4 we examine foreign investments and intra-Korean trade that may help the North Korean economy turn its direction around. Section 5 contains concluding remarks.

2. Economic Development of North Korea

Since the mid-1960s North Korea has published no official statistics on the economy. Most available statistics, though limited, are in percentage terms over baseline figures, which are

in turn in percentages over earlier baselines. Absolute figures are rarely published. Lack of reliable data is a rather serious problem in studying the North Korean economy.

The major data sources on North Korea exist in the South. The Bank of Korea is the main source for macro-economic indicators, the Ministry of Unification for intra-Korean trade and cooperation, and Korea Trade Promotion Agency (KOTRA) for North Korea's trade. Although we use statistics from these and other sources in the following discussion, their data are not accurate for obvious reasons, and should be considered at best as "guesstimates."

Five decades of North Korean economic development can be summarized by two decades of rapid growth and industrialization followed by three decades of slowdown, stagnation and decline. Despite the devastating Korean War, North Korea's initial industrialization was impressive. Natural endowment, the Soviet model, and the ideology of *juche* (self-reliance) pushed North Korea in the direction of relatively self-reliant industrialization.

North Korea put emphasis on heavy industry, including the chemical, iron, steel, and machine tool sectors. The country could steadily increase its industrial output, producing steel, machine tools, tractors, trucks, bulldozers, and generators, and exported some to the Middle East. Until the early 1970s, North Korea led the South in the degree of industrialization as well as in per capita income.

In the 1970s North Korea made a large-scale purchase of turnkey factories from the West to upgrade its technology. Caught by oil shock, world recession, and sinking export prices of minerals, the country could not service its debt of about \$2 billion.¹ The country was virtually cut off from access to advanced technology and international capital since, and its economy began to slow down.

In the early 1980s, the North Korean economy started to show classic symptoms of a malfunctioning planned economy; shortages or inefficiency were seen everywhere.² Raw materials were in short supply and so were energy and hard currency. Infrastructure decayed and machinery became obsolete. Unlike other socialist countries in the Eastern Europe, North Korea kept planning highly centralized and refused to liberalize economic management. The consequence was stagnation.

In the 1990s North Korea saw stagnation turning into crisis. Economic assistance it received from the former USSR and China was an important factor of its economic growth. In 1991 the former USSR withdrew its support and demanded for payment in hard currency for imports. China stepped in to provide assistance and supplied food and oil, most of it reportedly at concessionary price. But in 1994 China reduced its exports to North Korea.

The rigidity in the political and economic systems of North Korea left the country ill-prepared for a changing world. The North Korean economy was undermined and its industrial

¹ All dollar figures are in the U. S. currency.

² Economic stagnation in the former USSR and the East European countries began in the 1970s and 1980s. Fast growth followed by sudden collapse was the common characteristic of the socialist economy. (Murrell and Olson, 1991).

output began to decline in 1990. Deprived of industrial inputs, including fertilizers, pesticides, and electricity for irrigation, agricultural output also started to decrease even before North Korea had a series of natural disasters in the mid-1990s.

Table 1 presents gross national products (GNP), per capita GNP, and growth rate of North Korea. The North Korean economy started to shrink in 1990, and over the four year period from 1990 to 1993 it declined on the average about four percent a year. In the mid-1990s North Korea had to endure a series of serious natural disasters: hails in 1994, flooding in 1995 and 1996, and draughts in 1997. Severe natural disasters eroded the agricultural base in the country. The North Korean economy continued to decline at the rate of about 3 percent a year over the 1994–1998 period.

As is seen in Table 1, North Korea's GNP decreased by roughly 35 percent from \$23.2 billion in 1990 to \$12.6 billion 1998.³ Per capita GNP fell by 50 percent from \$1,146 to \$573 in the same period.

3 Current Economic Issues

While the North Korean economy emerged in 1999 from a decade of negative growth, it is not certain if the recovery is sustainable. There are no sectors of the North Korean economy that have not been affected by years of underinvestment. In this section we examine three most critical ones: food, energy, and foreign trade.

3.1 Food

North Korea's terrain is mostly hilly and mountainous. Its arable land is limited and only about 14 per cent of the total.⁴

Figure 1 shows the annual grain production of North Korea. Motivated partly by security concerns and partly by the *juche* ideology, North Korea pursued self-sufficiency in food. The measures that the country undertook for food security in the 1960s include: irrigation of farmland, electrification of rural areas, mechanization of farming, and increased application of chemical fertilizers. North Korea also attempted to increase farmland by terracing hills and reclaiming tidal flats. By 1989 grain production peaked at 5.5 million tons. North Korea even exported some rice and imported other grains, earning some foreign exchanges in the process.

³ UNDP (2001) describes an even gloomier picture of the North Korean economy in the 1990s. It estimated that GDP dropped by 50 percent from 1992 to 1998—to just over \$10 billion. Estimating North Korean GDP is fraught with difficulties. North Korean accounting procedures use gross social product, defined as the total monetary value of goods produced and services are not included. There are no official statistics on social products either. Another problem arises from the exchange rates for the US dollars. The margin of errors in these estimates may, therefore, be rather substantial.

⁴ Total arable land is about 17,020 Km² or 1.7 million hectares. (CIA, 2003).

Drive for food self-sufficiency had negative effects as well. Continuous cropping resulted in soil depletion, the overuse of chemical fertilizers led to soil acidification, and unwise terracing caused soil erosion. The first sign of possible food shortages emerged as early as in 1987, when daily grain rations through the public distribution system (PDS) were cut by 10 percent. In 1991 North Korea agreed to import 1 million tons of rice from Thailand over a two or three year period and made the first ever direct purchase of 5,000 tons of rice from South Korea. (EIU, 1993).

Economic downturn since 1990 together with natural disasters crippled North Korea's food security. Fertilizers, pesticides and fuel were in short supply and farming equipment was in poor state. North Korea's agricultural capacity was eroded even before catastrophic floods in 1995 destroyed a significant fraction of farmland and displaced a vast number of people.⁵ Annual grain production fell by 36 percent from 5.5 million tons in 1989 to 3.5 million tons in 1995.

More floods and draughts followed the 1995 disaster, and North Korea faced severe and chronic shortages of food. By 1997 food rationing by PDS had broken down in many areas. The number of deaths resulting from the food crisis in the mid-1990s is estimated to be anywhere between 0.5 to 1 million people.⁶ (Noland, 2003)

In 1995, North Korea made a request for humanitarian assistance to the international community. The World Food Programme (WFP), the United Nations Children's Fund (UNICEF), and many other UN and nongovernmental organizations responded with food and other humanitarian assistance.

Table 2a shows the massive humanitarian assistance provided since 1995 by the international community and South Korea. Total assistance over the 1995-2002 period amounts to \$2.6 billion, of which 71 percent (\$1.8 billion) is from the international community and the rest from South Korea. Table 2b lists the major donors of humanitarian assistance to North Korea. In 2002, North Korea received nearly \$140 million in assistance from the U.S., South Korea, and EU and much additional aid from other countries and the UN organizations.⁷

An important question is whether North Korea can achieve food security again. Its agriculture faces natural hazards: late spring droughts often followed by severe flooding and occasional typhoons during the late summer. It also has to cope with crumbling irrigation systems, soil erosion, farming equipment in disrepair, and shortages of fuel, electricity and fertilizers. Despite a reasonable grain harvest of 4.1 million tons in 2002, OCHA (2002) estimated a national food supply gap of more than one million tons for 2002-2003. The prospects are not good as donor fatigue, food crises elsewhere, and political tensions with key donor countries will hold down the flow of much needed food aid from abroad.

⁵ North Korea announced that 5 million people had been displaced and 330 thousand hectares (or about 19 percent) of agricultural land had been destroyed. (Noland, 2003).

⁶ USAID gave a much larger number of 2.5 million deaths. (Natsios, 2003).

⁷ Japan was one of major donors until the cessation of Japanese assistance in 2002 for diplomatic reasons.

As the food crisis continued, the United Nations Development Program (UNDP) in coordination with other UN agencies has attempted to reorient humanitarian assistance to agricultural and development assistance. It initiated in 1996 a program of rehabilitation (called the Agricultural Relief and Recovery Program) to enhance local capacity for food production by rebuilding dikes and dams and by raising agricultural productivity through double cropping and increased inputs in the form of equipment, fertilizer, and seeds. The program aims at restoring grain production to the pre-crisis level of 6 million tons in the medium term. (UNDP, 2001).

Clearly, any actions to increase the agricultural output would narrow the food gap. Even if the gap could be completely filled by domestic production, self-sufficiency in food by domestic production alone would rather be costly in the long run. As the marginal productivity of agriculture declines, the cost of producing grains continues to increase. The ultimate solution to the food problem has to be found outside agriculture.

North Korea is rich in mineral deposits. The optimal strategy for food security is to open up its economy, invest in the mining sector, expand its exports of minerals, and buy food the country needs on international markets. Until that time comes, there is an on-going risk that food shortages will worsen into famine in some parts of the country unless there is an adequate flow of foreign food. South Korea could provide more assistance with its bulging reserves of grain, domestic and international politics permitting.

3.2 Energy

Energy sector is one of the most serious bottlenecks in the North Korean economy. Figure 2 presents the historical data on energy supply of the country. Since 1990 the supply of oil, coal, and electricity declined steadily, and seriously affected all sectors of the economy.

North Korea has no oil or gas.⁸ Oil imports peaked at about 23 million barrels in 1988. Crude oil used to be imported by pipeline at “friendship prices” from the former USSR or China. The withdrawal of Russian concessions and the reduction of imports from China brought down annual imports to less than 4 million barrels by 1997. As the imported oil was refined for fuels for transportation and agricultural machinery, a serious cutback in oil imports caused critical problems in transportation and agriculture.

North Korea has no coking coal either. But it has substantial reserves of anthracite in Anju, Aoji, and other areas. Coal production peaked at 43 million tons in 1989 and steadily declined thereafter to 18.6 million tons in 1998. Major causes of coal shortages include mine flooding, shortage of electricity supply, and outdated mining technology. As coal was used mainly for industry and electricity generation, decrease in coal production caused serious problems in industrial production and electricity generation. Coal production may not necessarily increase significantly until North Korea imports modern mining technology.

⁸ North Korea is searching for oil with the assistance of Sweden’s Taurus Petroleum and Britain’s Soco International in the Korea Bay and Australia’s Beach Petroleum off its east coast. (EIA, 2002).

Electricity generation of North Korea peaked in 1989 at about 30 billion KWh. There were seven large hydroelectric plants in the 1980s. Four were along the Yalu River, built with Chinese aid, and supplying power to both countries. In 1989 60 percent of electricity generation was hydro and 40 percent thermal, mostly coal-fired. (EIA, 2002).

Some hydroelectric facilities are believed to be out of operation due to damages from major flooding in 1995. Coal-fired power plants have been running well under capacity in recent years, due in part to a serious decline in coal supply and in part to problems with transportation of coal. The electricity supply steadily declined and was 17 billion KWh in 1998. Since electricity generated should double up just to return to the 1989 level, power shortage will continue until coal production increases substantially and generating equipment is refurbished. Transmission losses are reported to be around 30 percent.

A long-term increase in the capacity of electricity generation will be realized when the Korean Peninsula Energy Development Organization (KEDO) completes the construction of two light-water nuclear reactors under the U.S.-North Korea Agreed Framework of 1994. They would generate 10 billion KWh annually. KEDO also provided a half million tons of heavy fuel oil annually since 1996. In reaction to North Korea's surprise admission of the uranium enrichment program, KEDO stopped the oil flow and suspended the construction of the power plants.

3.3 Foreign Trade

In order to achieve food security and revive its ailing economy, North Korea requires an enormous amount of hard currency and investment. However, the autarkic *juche* ideology has not encouraged foreign trade, and the country has had chronic shortages of foreign exchanges.

In the 1950s and 1960s North Korea's trade grew steadily but was overwhelmingly with communist countries (although it never joined the Council of Mutual Economic Assistance, COMECON).

The former USSR was the predominant trade partner until the 1970s when China had a bigger role. There was also a brief opening to the West as mentioned above. Partly inspired by the need for more advanced technology and partly motivated by rivalry with the South, North Korea imported plants and technology from Europe and Japan, to be paid for by short-term credits and increased export earnings. Because of the oil shocks and the recession in the West, however, both demand for and prices of North Korean minerals plummeted. The consequences were predictable; the country suspended payments on the debts. Total debt by 1976 was estimated to be around \$2 billion, of which almost \$1 billion was owed to the West and Japan and \$1 billion to the USSR and China. (EIU, 1977) In the late 1970s, however, North Korean trade began to pick up in general. A new feature was an increase in trade with the Third World; cement to Saudi Arabia and arms to Iran figured prominently in the Third World trade.

Figure 3 shows North Korea's international trade since 1985. Fence mending with the former USSR in the 1980s reestablished its traditional dominant role as North Korea's major trading partner. North Korea's trade in goods rose steadily to peak at \$5.2 billion in 1988, including a deficit of \$1.2 billion, mostly with the USSR.

The 1990s came with a blow to North Korea economically and in foreign relations. The former USSR recognized South Korea in 1990 and Seoul lent \$3 billion in aid to Moscow. Although the growing contacts between Beijing and Seoul were still unofficial, the trade volume between the two countries exceeded \$4 billion by 1991. In 1991, the USSR demanded that trade with North Korea be denominated in hard currency at world prices. North Korea's international trade declined sharply from \$4.2 billion in 1990 to \$2.7 billion in 1991. China recognized the South in 1992.

North Korea's foreign trade continued to deteriorate in the 1990s. After hitting the bottom of \$1.4 billion in 1998, it recovered slightly. North Korea's trade total in 2002 was \$2.7 billion: only about 50 percent of \$5.2 billion in 1988, even in nominal US dollars. These figures exclude intra-Korean trade, deemed internal, which rose in 2002 to \$641 million.

Since the 1990s, top traders of North Korea have been China and Japan. The typical pattern of its trade has been exports of minerals, metallurgical products, and some manufactures (including armaments, textiles and marine products), in exchange for imports of crude oil, coking coal, and capital goods (including machinery and equipment).

In 1991 imports from China amounted to \$524 million (mainly oil) while exports to China were only \$85 million. (EIU, 1993). North Korea's trading with China remained highly imbalanced throughout the 1990s. In 2002 imports were \$467 million and exports \$271 million (KOTRA, 2003). After a brief attempt in 1993 to enforce proper settlement at world prices, China now sustains North Korea to stave off its complete collapse.

Japan, in the second place with bilateral trade of \$369 million in 2002, is a truer case of trade, with exports of \$234 million, imports of \$135 million, and a surplus earning of \$99 million. (KOTRA, 2003). Japan has been North Korea's major non-communist trading partner partly because Japan is close to North Korea geographically and partly because pro-Pyongyang Koreans in Japan handle a significant part of the Japan-North Korea trade.

It is remarkable that North Korea has run chronic deficits in international trade throughout its entire history. The shortage of hard currencies is constricting its ability to import oil, food, capital goods, and modern technology. Is there some way in which the country could promote its exports? Mining is a promising sector. Unlike South Korea, the North is well endowed with a range of minerals, which could become through exports its major source of earning foreign exchanges. They include coal, iron, zinc, lead, copper, gold, silver, and magnesite.

Major iron ore mines are at Musan and Unryul and major steel works at Kim Chaek, Chungjin and Nampo. The lead smelter at Tanchon is processing the indigenous ore.

North Korea is also rich in nonferrous metals. The gold mine at Unsan is under joint venture with pro-North Koreans in Japan. Gold and silver sales are an important source of hard currency. North Korea is known to have the world's largest deposits of magnesite.

Mining in sufficient quantity to keep pace with demand has been a chronic problem. As in other sectors, output has been falling in the 1990s, due to aged mining technology, worn-out equipment, and shortage of electricity. Developing the mining sector with fresh investment and exporting minerals and metals for foreign exchanges is a viable option for North Korea's adequate food supply and economic survival.

4 Prospects for the Future

The Chinese economy has been growing rapidly since economic reforms began in 1978. Vietnam appears to be successful in its economic reforms. Facing the insurmountable economic crisis, will North Korea follow the steps of China and Vietnam?

North Korea has taken a series of tentative moves towards economic reform. Among the first signs of reform are the 1984 joint venture law and the establishment in 1991 of the Rajin-Sonbong SEZ. In 1998 North Korea revised its constitution to give slightly more space to private enterprises and use of price and profit. Farmers' markets have expanded and so has private cross-border trade with China.

Although official announcements were absent, North Korea enacted in July 2002 a set of measures for economic reform in order to "improve the people's living standards based on new economic policy." (*The People's Korea*, August 17, 2002). Key structural changes to the economy included extraordinary hikes in prices and wages, the shift from rationing through PDS to a monetized distribution system, devolution of managerial authority in agriculture and industry, and promotion of foreign investment inflows. The reforms have yielded little so far except inflation.⁹

Limited economic reform alone is not enough to revive the North Korean economy. The country needs a vast amount of capital to restore the productivity of agriculture, to increase the energy supply, to rebuild the infrastructure, and to import the modern technology of industrial production. But available sources for investment resources are few.

Prospects for support from international institutions like the World Bank and the Asia Development Bank (ADB) are very dim until the nuclear issues are resolved as the support would effectively require the U.S. approval. A potential source of funds is reparations that Japan may pay as recompense for the suffering caused by the Japanese occupation in the first half of the 20th century. The normalization talks between Japan and North Korea are currently stalled because of the security issues including the missiles development and the abduction of Japanese

⁹ Extraordinary hikes in wages and prices include the price of rice increasing from 0.08 Won to 44 Won, basic wages from 110 Won to 2,000 Won, and the US dollar from 2.19 Won to 150 Won.

nationals. Another source of hard currency for North Korea is the export of missile technology. The U.S., Japan, and other countries are working to prevent such exports.

Until international agreement is reached on nuclear and missile issues, it is unlikely that the external support and investment will be forthcoming. South Korea is an exception. It has been investing in the North—partly for business and partly for security reason.

North Korea has been trying to resolve the problem of underinvestment by creating attractive business environment for foreign direct investment (FDI) and by inducing the capital and technology of the South. In this section we examine at North Korea's records of FDI and intra-Korean trade.

4.1 Foreign Direct Investment

The 1984 joint venture law was not successful in attracting foreign direct investment into North Korea; there were few takers except pro-North Korean residents in Japan. In 1991, North Korea set up its first special economic zone (SEZ), the Rajin-Sonbong economic and trade zone, in connection with a UNDP-sponsored Tumen River Area Development Program. Despite of the promulgation in 1992 of new laws on foreign investment, not many businesses came to the SEZ perhaps because of its remoteness, poor infrastructure, and real or perceived risks.

According to KOTRA (2003), 35 companies from China, Hong Kong, Japan, South Korea, Russia, Australia, and Singapore undertook investment projects, valued at \$120 million, as of 1999. Although the Rajin-Sonbong SEZ remains a solitary enclave, it still has a great potential for development. Rajin can be a transit port for Russian trade with South East Asia as it has rail link to the Russian system over the Tumen River. On the other hand, nearby Chungjin parallels the role of Rajin in transshipment of Chinese trade.

Table 3 presents North Korea's FDI inflows as compiled by UNCTAD (2002). FDI inflows have been insignificant except in three years. It is not clear what the \$629 million FDI in 1989 is about. Most of \$134 million in 1991 would be accounted for by investments in the Rajin-Sonbong SEZ. Finally, most of \$307 million in 1997 should be for KEDO's construction of two power plants. Over the period from 1991 to 2001, North Korea received a total of \$1,052 million in FDI.

In 2002, North Korea announced the establishment of three new SEZs: Sinuiju, Mt. Kumgang, and Kaesong. The Sinuiju special administrative region (SAR) was supposed to be completely outside North Korea's normal governing structures. The plan for the SAR was promptly squashed when China arrested its first chief administrator.

Mt. Kumgang tourist zone and the Kaesung industrial park have been long in the making. Since 1998 Hyundai of the South has been running tour boats for South Koreans to Mt. Kumgang in North Korea. The establishment of the Mt. Kumgang tourist zone formalized the activities of the past four years. Since tours began in 1998, about a half million South Koreans have been to Mt. Kumgang. Hyundai's Kumgang tourist venture is reported to have lost \$300

million by June 2001. To enhance economic viability of the Mt. Kumgang tours, Hyundai was allowed to open a land route to Mt. Kumgang.

The establishment of the Kaesong industrial park formalized Hyundai's plan for constructing a large-scale export zone for South Korean small- and medium-sized enterprises (SMEs). South Korean companies would use their capital and technology with Northern labor to manufacture goods for export. Kaesong is so far just a bare site, but the South Korean government has reportedly offered to provide the infrastructure of water supply, electricity and communication facilities. (*Chosunilbo*, 2003).

In principle, the Kaesong industrial park could bring export-led light industry to North Korea and bring economic benefits to North as well as South Korea. Many issues yet to be settled include cross-border links across the demilitarized zone (DMZ).

Although South Korean tourists visit Mt. Kumgang again, the untimely death of Chung Mong-Hun, the head of Hyundai-Asan group, has put the Kaesong project on hold.

4.2 Intra-Korean Trade and Cooperation

Until 1988 the two Koreas conducted no trade with one another. Intra-Korean trade began in 1989, when Hyundai's founding chairman, Chung Ju Yung, visited his northern birthplace and returned with plans for trade and investment. After a trickle for the first two years, intra-Korean trade rose steadily from \$20 million in 1989 to \$308 million in 1995.¹⁰ See Figure 4.

The 1998 total fell to \$222 million as the South Korean economy faced the foreign exchange crisis and North Korea's imports exceeded its exports to the South by \$37 million. Intra-Korean trade kept growing soon after. By 2002 Northern imports rose to \$370 million while exports to \$272 million. North Korea's exports were commercial: marine products, textiles, zinc products, electronic equipment, and others. By contrast, over 80 percent (\$297 million) of South Korea's exports to the North consisted of aid goods: agricultural products, chemical fertilizers, textiles, and machinery and transportation equipment for railroad linkup.

North Korea has also received inflows of investment from South Korea since 1995. As of 2002, a total of 25 companies have invested about \$270 million in joint ventures located in the Rajin-Sunbong SEZ, Pyongyang, Nampo and other areas, making clothes, shoes, bicycles, televisions, etc. (MOU, 2002). South Korean companies would send materials and sometimes machinery for manufacturing in the North, and made processing on commission (POC) an increasingly larger component of the intra-Korean trade. Samsung and LG are selling Northern-made television sets on this basis.

¹⁰ Rice aid of \$237.2 million is not included in the import figure of 1995.

4.3 Bilateral Relations between Canada and North Korea

Before we close this section, we briefly look at the bilateral relations between Canada and North Korea.

Bilateral Trade

Although Canada and North Korea established their diplomatic relations in 2001, trade between the two countries goes back far beyond. Table 4 summarizes the bilateral trade since 1991. Although the trade volume has only been small, there are two remarkable features: (1) substantial increase in trade from CA\$60 thousand in 1991 to \$21.5 million in 2002 and (2) the chronic and large trade deficits.

Major items of imports from Canada include pulp and paper, inorganic chemicals, wood, chemical products, motor vehicles, and fish. Major items of exports to Canada include rubber and rubber articles, electrical and electronic machinery, paper and paperboard, toys and games, and clothing. (Statistics Canada, 2003).

Canadian Emergency Assistance

Since 1996 Canada has been a major donor of food and other emergency assistance to North Korea. Canadian Foodgrains Bank (CFGB) has been actively involved in delivering relief food to the vulnerable groups in North Korea.¹¹

Canadian farmers and the Canadian Government have donated significant amount of the relief food. Relief projects in 2002 included shipments of wheat flour for local processing and local purchase of rice at the cost of CA\$4.6 million. In addition to food assistance, the CFGB has also been working to increase local agricultural production through the distribution of seeds, fertilizers, and spare parts to cooperative farms.

The health system in North Korea has also been in a steep decline since the beginning of the 1990s. North Korea could not maintain its health system as it was unable to purchase medicines and maintain medical infrastructure. Canada has been providing health care assistance to North Korea through the International Federation of Red Cross and Red Crescent Societies. Their program includes distribution of drugs and medical equipment to health institutions and training of local health personnel.

Canadian International Development Agency (CIDA) has played a major role in sending food and other humanitarian assistance to North Korea by matching private donations. CIDA's total assistance over the 1996-2001 period amounts to CA\$33 million in total.

¹¹ The CFGB is an NGO and has 13 church members, including Mennonite Central Committee of Canada and Presbyterian World Service and Development.

Annual figures (in millions of Canadian dollars) of CIDA assistance are

Year	Food Aid	Other Aid	Total Disbursements
1996	-	0.30	0.30
1997	10.06	0.30	10.36
1998	8.45	1.22	9.67
1999	4.68	0.59	5.27
2000	2.60	1.01	3.61
2001	3.23	0.89	4.12

Source: Canadian International Development Agency, *Statistical Report on Official Development Assistance – Fiscal Year 2001-2002*, and earlier issues; available on <http://www.acdi-cida.gc.ca>

5. Concluding Remarks

Economic reform alone cannot revive North Korea's ailing economy. Without external assistance its prospects for sustaining recovery is grim. The country needs substantial food assistance before it can secure self-sufficiency in food. The country also needs an enormous amount of investment to increase agricultural production, import modern technology, and refurbish its worn out mines, plants, and infrastructure.

Nuclear crisis has put at risk badly needed food and aid. As long as nuclear crisis persists, few countries will be ready for major assistance to the country. It also freezes progress towards joining the international financial institutions like the ADB and the World Bank. With a sympathetic regime in Seoul, South Korea may be the only source of significant economic aid and cooperation.

For sustainable economic recovery and growth, North Korea should embrace overall economic reform based on the market principle. But opening up its economy and reforming its economic system could lead to the collapse of the regime. North Korea is in dilemma. A necessary prerequisite for the maintenance of its political system has been an effective quarantining from the outside world. Solving economic problems presents the security risk for its political regime.

Without major external assistance and economic reform, the North Korean economy is driving along a dead end and is likely to implode. Whether sympathetic or not, South Korea may have to continue with its economic aid and cooperation if it is not ready to accommodate vast waves of refugees.

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Table 1: Gross National Product and Per Capita GNP of North Korea, 1965 - 2002

Year	1965	1970	1975	1980	1985	1986	1987	1988	1989	1990	1991
GNP	2.3	4.0	9.4	13.5	15.1	17.4	19.4	20.1	21.1	23.2	22.9
Per capita GNP	162	230	415	758	765	860	938	980	987	1146	1115
Growth rate					2.7	2.1	3.3	3.0	2.4	(3.7)	(3.5)
Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
GNP	21.1	20.5	21.2	22.3	21.4	17.7	12.6	15.8	16.8	15.7	17.0
Per capita GNP	1013	969	992	1034	989	811	573	714	757	706	762
Growth rate	(6.0)	(4.2)	(2.1)	(4.1)	(3.6)	(6.3)	(1.1)	6.2	1.3	3.7	1.2

Source: Korea Development Institute (1996) and Bank of Korea (2003). GNP in billions of US dollars; Growth rates in percent, negative figures are in parentheses; per capita GNP in U.S. dollars. Figures prior to 1990 are compiled by the Ministry of Unification and for 1990-2002 by the Bank of Korea, and there is a break in the series in 1990.

Table 2a: Total Humanitarian Assistance to North Korea, 1995 – 2002

Year	1995	1996	1997	1998	1999	2000	2001	2002	Total
Korea									
Government	232.0	3.1	26.7	11.0	28.3	78.6	70.5	83.8	533.8
Private Sector	0.3	1.6	20.6	20.9	18.6	35.1	64.9	51.2	213.1
Subtotal	232.3	4.6	47.2	31.9	46.9	113.8	135.4	134.9	746.9
International Community									
Community	55.7	97.7	263.5	302.0	359.9	181.8	357.3	257.3	1,875.0
Total	287.9	102.3	310.7	333.8	406.8	295.5	492.6	392.2	2,621.8

Source: Ministry of Unification (2002), *North South Trade and Cooperation in 2002*, Seoul. Assistance is in millions of US dollars.

Table 2b: Humanitarian Assistance to North Korea by Donors, 2000 - 2002

Donor	2000	2001	2002
South Korea	71,409 (40.6)	106,264 (31.5)	65,500 (34.8)
Japan	35,226 (20.0)	103,709 (30.7)	
US	29,228 (16.6)	90,014 (26.7)	63,469 (33.7)
EU	5,003 (2.8)		11,563 (6.2)
Germany		4,550 (1.4)	4,460 (2.4)
Australia	6,613 (3.8)	2,887(0.9)	3,425 (1.8)
UK			2,860 (1.5)
Canada	2,120 (1.2)	2,180 (0.7)	2,712 (1.5)
Sweden	3,484 (2.0)	2,819 (0.8)	2,712 (1.4)
Norway	2,315 (1.3)		2,355 (1.3)
Denmark	2,093 (1.2)		1,552 (0.8)
Others	18,389 (11.1)	25,169 (7.4)	27,494 (14.5)
Total	175,881 (100)	337,591 (100)	188,116 (100)

Source: OCHA(2002) and earlier volumes. Assistance is in thousands of US dollars. Figures in parentheses are percentages.

Table 3: Direct Foreign Investment Inflows of North Korea, 1987 - 2001

Year	1987	1988	1989	1990	1991	1992	1993	1994
FDI Inflows	3	1	629	(61)	134	2	8	(1)

Year	1995	1996	1997	1998	1999	2000	2001
FDI Inflows	0	2	307	31	(15)	5	7

Source: UNCTAD (2002), Historical Times Series of Foreign Investment and *World Investment Report 2002*, Annex Table B.1. Figures are in millions of U.S. dollars. Negative figures are in parentheses.

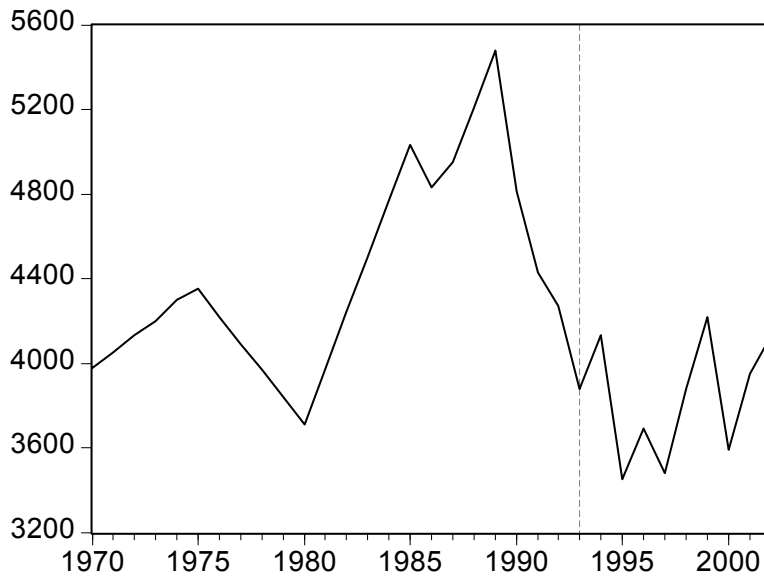
Table 4: North Korea's Trade with Canada, 1991 – 2002

Year	1991	1992	1993	1994	1995	1996
Imports	60	220	16,690	431	1,259	454
Exports	1	66	157	209	763	80

Year	1997	1998	1999	2000	2001	2002
Imports	8,575	5,375	3,007	22,869	4,753	21,450
Exports	138	692	233	1,209	163	69

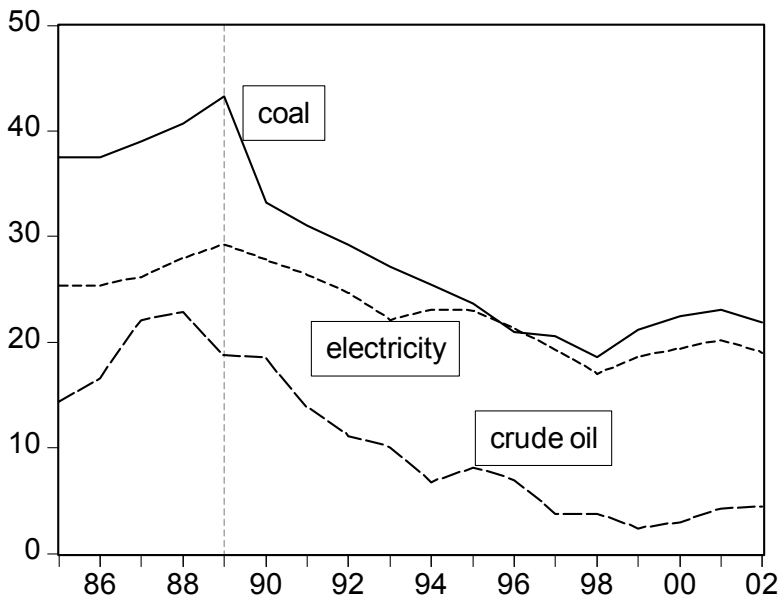
Source: Statistics Canada (2003). Figures are in thousands of Canadian dollars.

Figure 1: Grain Production of North Korea, 1970 - 2002



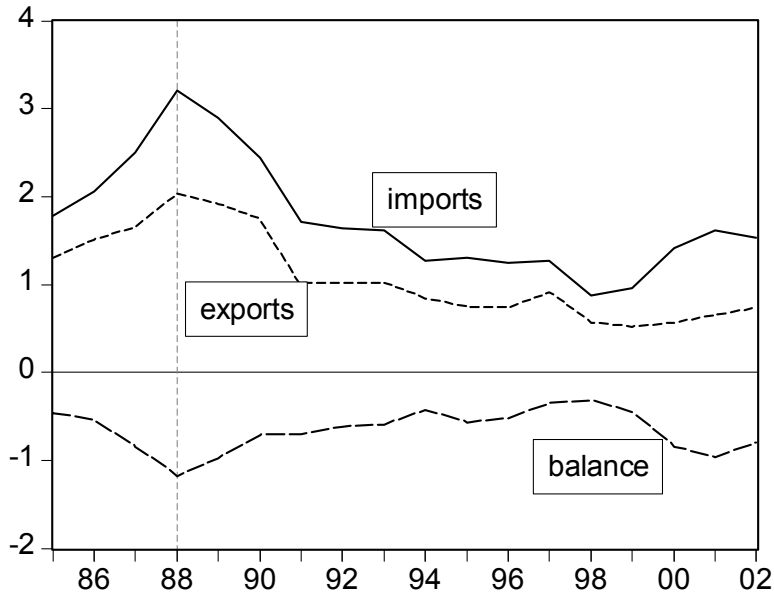
Source: KDI (1996) and Bank of Korea (2003);
units in million metric tons.

Figure 2: Energy Supply of North Korea, 1985 - 2002



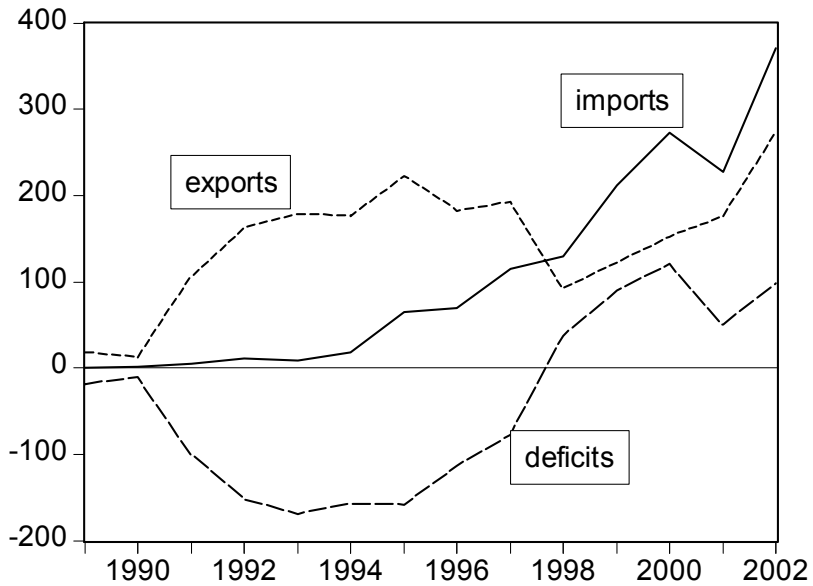
Source: Bank of Korea (2003); coal in million tons;
electricity in billion KWh; crude oil in million barrels.

Figure 3: International Trade of North Korea, 1985 - 2000



Source: Bank of Korea (2003) and KOTRA (2003); units in billions of US dollars.

Figure 4: Inter-Korean Trade, 1989 - 2002



Source: MOU (2003). Figures are in millions of U.S. dollars.

Figure 5: International Trade of North Korea, 1985 - 2000

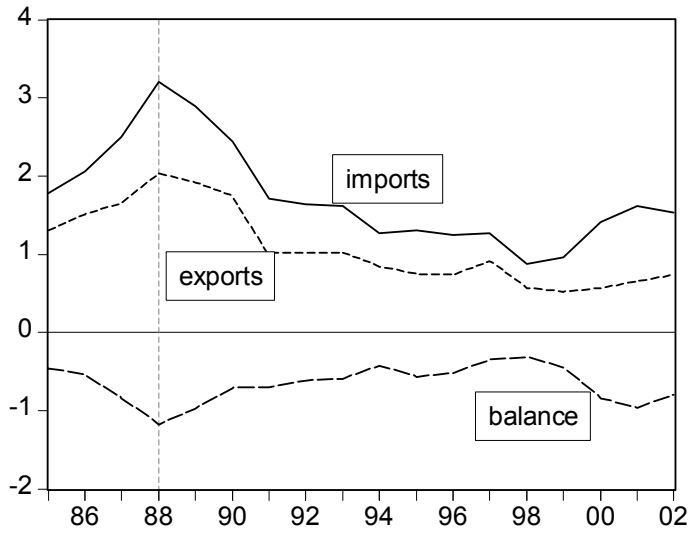


Figure 6: Inter-Korean Trade, 1989 - 2002

