



Discussion Paper 04-03

# The Structure of North Korea's Political Economy: Changes and Effects

Young-Sun Lee and Deok Ryong Yoon

**KOREA INSTITUTE FOR  
INTERNATIONAL ECONOMIC POLICY**

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## **Executive Summary**

This study analyzes the structural changes of North Korea's economy using social accounting matrix. It finds that, since the early 1990s, North Korea's official economy has shrunk because of the collapse of state owned enterprises, and the private economy has grown as a result of the people's effort to survive amid economic difficulties. Meanwhile, the military spending has increased demonstrating the military's important role in maintaining domestic stability and external security. Gradually, and often under state initiated reforms like the reform measures introduced in July 2002, the private sector in North Korea has expanded at the expense of the official economy, thereby transforming the North into a market economy. International engagement toward a peaceful resolution with North Korea should begin with efforts to support growth in the private sector.

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Key Words: North Korea, Social Accounting Matrix, Transition Economy

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# The Structure of North Korea's Political Economy: Changes and Effects\*

Young-Sun Lee\*\* and Deok Ryong Yoon\*\*\*

## I. Introduction

Traditionally the socialist economic systems have been characterized by a central planned economy, in which a planning agency plans and organizes the production as well as consumption to reach given objectives. The government carries out the plan while at the same time prohibiting unregulated economic activities. However, increasing difficulties in planning and severe shortages have resulted in a marked growth of unplanned economic activities in socialist countries. Activities outside the so-called 'plan' were termed as the following: the 'second economy', the 'unofficial economy' and/or the 'private economy.' This paper will focus on the 'private economy.'

The private economy in socialist countries refers to all production or trade for private gain<sup>1)</sup> and is usually run by market mechanism.

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1) Gregory Grossman, "The 'Second Economy' of the USSR", *Problems of Communism*, Vol. 26 (September/October 1977).

The private economic activity increased in every sector and has helped ease economic scarcity in socialist countries in transition period. Another important contribution of the private economy is that it has become an inlet for the market economy in the transition economies through its wealth of entrepreneurial talent.<sup>2)</sup>

While numerous changes have impacted every sector of North Korea, the military sector has not shown much change. It continues to take priority as far as receiving resources and investment. In fact, government military expenditures have remained stable even while the rest of the economy has undergone a severe contraction. Kim Jong-Il set the military as the primary concern after his official take-over of power, and it only takes one visit to North Korea to recognize that holds the greatest importance. In the process of North Korea's impoverishment after the 1990s, the military has become relatively stronger.

The changes to the economic structure and economic capacity reflect changes in the North Korean society. This paper attempts to show the changes to economic relations, drawing implications from the political and economic points of view. This paper first explains changes to North Korea's economic structure, and then analyzes the reform measures in regards to a possible economic transition. The last chapter summarizes the paper briefly and draws conclusions.

The private economy in North Korea has also gained significance in terms of its increasing scale as well as in its role of easing material scarcity. North Korea introduced reform measures to facilitate some

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2) Keun Lee and Hong-Tack Chun, "Secrets for Survival and the Role of the Non-State Sector in the North Korean Economy," *Asian Perspective*, Vol. 25. No.2, 2001. pp. 199-226.

market mechanisms in 2002, which were regarded by many experts as approval of already existing market mechanisms within the society. Since then, however, North Korea has added to these reform measures, stimulating the private economy further. The increase in market mechanisms through these reforms will expand the unplanned portion of the North Korean economy more rapidly, which may then strengthen the private economy and market mechanisms.

Even though there have been signs of change in nearly every field in North Korea, the military sector has not shown much change. The military sector continues to be given priority in resources and investment, and government military expenditure has been stable even though the whole economy underwent a severe contraction. This implies that the military sector has become relatively stronger than other sectors in the process of impoverishment that commenced in the 1990s.

## II. Structure of North Korean Economy and Its Changes

### 1. Organization of the North Korean Economy

The North Korean economy is composed of three main economic sectors<sup>3)</sup>: the official economy; the military economy; and the private economy. The official economy refers to all economic activities occurring under central planning and the private economy is defined as all activities outside the planning structure.<sup>4)</sup> The military economy

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- 3) Sometimes the party economy for the elite group is counted as another important economy in North Korea. The Party economy attends to the consumption of the small governing elite by extracting rent from the People's economy and through ownership of profitable enterprises that earn foreign exchange such as gold and mining. (See Deok Ryong Yoon and Bradley Babson, "Understanding North Korea's Economic Crisis," *Asian Economic Papers*, Vol. 1, No. 3, (2002).) This paper, however, does not include the party economy because its extent does not seem that significant.
  - 4) This definition follows the classification of first economy and second economy of Dannis O'Hearn (The Consumer Second Economy: It's Size and Its Effects," *Soviet Studies*, Vol. 32 (April 1980)). There are numerous discussions on the definition with slight different emphasis. See Grissman, *op. cit.*; O'Hearn, *ibid.*; Istvan Kemery, "The Unregistered Economy in Hungary," *Soviet Studies* (July 1982); R. Ericsson, "The Second Economy and Resource Allocation under Central Planning", *Journal of Comparative Economics*, Vol. 8 (1984); S. Wellisz and R. Findlay, "Central Planning and the 'Second Economy' in Soviet-Type Systems". *Economic Journal*,

implies economic activities for the military sector. These three are only loosely related and do not appear to be closely integrated to one another. The absolute size and weight of each economy within the whole economy have changed greatly since the 1990s. The evolving differences have changed the daily lives of citizens and the significance of each economy. To comprehend the changes in the North Korean economy and its influence on the sociopolitical environment, it is necessary to understand the internal dynamics of these three economies and how they interact.

### *Official Economy*

The official economy is the main body of North Korea's economy and formal economic system comprising of state enterprises and agricultural collectives; it is a centrally planned and controlled monocratic system. The means of production are owned by the state or by cooperatives. With its rationing system, the state distributes resources for production as well as consumption. In a command economy such as North Korea, the social preference for production is decided through value judgements made by the ruling body. The North Korean economy is understood to have put great emphasis on social equity and welfare as the other socialist economies have done.

The State Planning Commission is supposed to drive the budget planning process through composing detailed plans; however, in reality, the annual budget is decided of compiling negotiated agreements on production for each enterprise and deriving an allocation of turnover and taxes on profits. Public finance plays an

important role in carrying out planned capital accumulation as well as distribution. The budget and the public distribution system (PDS) serve as the core mechanisms of the people's economy for the allocation of resources. Similar to other centrally planned economies, North Korea manages the economy through a governmental budget. The government uses a large share of the North Korean national income. The government share of total expenditure was normally above 70 percent and reached 90 percent in 1993 and 1994 (see table 1). Even if the government budget uses around 60 percent of GDP as in recent years, the government still controls most of the national income.

The principal sources of revenue for the budget are turn-over taxes,<sup>5)</sup> profits from state enterprises and user fees for working capital. From 1994 to 1998, total revenue declined almost 50 percent from \$191.9 million to \$91 million.<sup>6)</sup> Currently the total budget approved by the Supreme People's Assembly has increased slightly, stabilizing at around \$95 million (see Table 1). The collapse of North

**Table 1. The Weight of North Korea's Government Budget in GNI**

(Unit: \$100 million)

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Budget	166.0	171.7	184.5	187.2	191.9	N.A	N.A	91.3	91.0	92.2	95.7	98
GNI	231	229	211	205	212	223	214	177	126	158	168	157
Weight (%)	72	75	87	91	91	.	.	52	72	58	57	65

Source: Bank of Korea

5) These are taxes on state enterprise production turnover.

6) We use the statistics in dollar made by the Bank of Korea to deliver a comparable assessment. About the problems contained in the data from BOK see Noland (2000) and appendix of this paper.

Korean industry sector is the prime reason for the decline in total revenues.

For the financial system in North Korea, the central bank plays a major role. The state uses the central bank as another important instrument, to realize the plan. It provides funds from the national budget that are needed for business activities of government agencies and state enterprises, such as construction funds, maintenance funds, and operating funds. Loans are extended to meet additional demands for funds. In this system, financing is simply a measure to support the national budget system.

North Korea's central bank carries out the usual functions of any central bank, including issuing banknotes, monetary control, making payments and settling debts, and supplying and receiving national funds. It also functions as a commercial bank by offering loans, savings and insurance services. The central bank controls the supply and demand of money, taking account of money circulation in cash as well as in non-cash based on the state's financial plan. North Korea controls the resource allocation by controlling money to carry out the state plan. Prices in the people's economy are essentially accounting prices that are set to make the supply meet the demand. In other words, the monetary policy serves the national plan by controlling the money.

The official economy is run by the state, which plans, invests, produces, and distributes goods and services produced in society. The state manages all the production process and consumption.

#### Military Economy

North Korea has managed the military economy separately from the other economies (the military economy is called the second



economy). The state established the Second Economy Committee in the early 1970s to manage the production of military goods. It decides independently on production and distribution, and has first priority in allocation of necessary materials and resources. The committee is privileged to manage not only production organizations under the committee, but also the production institutions under the cabinet if necessary. The Second Economy Committee became affiliated with the National Defense Commission in 1993 shortly after its establishment following of the Constitution in 1992.

As the head organization of the defense industry, the Second Economy Committee oversees production activities under the control of the National Defense Commission. It manages the planning, production, distribution, and external trade of all military goods in North Korea. The committee directly controls about 130 munitions factories and about 60 facilities for weapons repair/ parts production. In addition, the committee has about 100 factories for civilian goods that can be converted into the production of military goods in contingencies such as war.

North Korea's armed forces operate an independent munitions manufacturing system and is a major player in the economy. The defense manufacturing industry is divided into two sectors: one producing weapons and technical equipment for combat such as guns, cannons ammunition, tanks, warships and aircraft, and the other producing military necessities such as uniforms, shoes, clothing and food<sup>7)</sup>. To meet these demands, the military economy runs its own farms, mines and even banks in addition to factories.

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7) See Choo Suk Suh (2002), "Industry of North Korea: Defense Industry," *Tongil Kyeongje*, 2002.7/8, p. 28.

Manpower in the second economy is estimated at over 1 million people, many of whom are employed in military-owned farms and factories. The North Korean military force includes one million troops on active duty and about 4.7 million reservists. The severe contraction of the economy has, however, weakened North Korea's conventional military capabilities and it cannot afford significant replacements or upgrades for its conventional military hardware. As a significant part of the labor force, the military economy includes activities or enterprises that meet the needs of the North Korean military establishment, including food production, military industries and businesses that earn foreign exchange. The military economy does not appear to be closely integrated with the official economy, although the national budget approved by the Supreme People's Assembly does specify allocation for military expenditures. This is probably best understood as "rent" paid by the people's economy to the military, and it supplements the resources mobilized within the military economy itself.

### *Private Economy*

A private economy implies one that exists outside the state plan that operates according to market mechanisms. As in other socialist countries, informal markets seeking to make private profits have existed in North Korea for many years. They have developed from farmers' markets where farmers within cooperative farms can sell agricultural products from their private plots to consumers. The farmers' markets expanded gradually in the 1980s, and since the sharp economic contraction of the early 1990s, these markets have grown in both number and in variety. Once opened only every 10

days in rural areas, markets have proliferated, and are now open daily.<sup>8)</sup> The farmers' markets deal not only with agricultural products, but also with industrial goods. The state finally accepted the markets and has changed the name from "farmers' market" (Nong-min Si-jang) to "market" (Si-jang)<sup>9)</sup>.

The markets have grown rapidly due to several factors<sup>10)</sup>. First, severe food shortages have driven people to the market because the state was unable to provide necessary food. Since the PDS collapsed and the state was forced to tolerate the markets' growth due to aggravated economic conditions, many North Koreans have been able to make a living thanks to the markets. Second, North Koreans have learned the necessary skills of the market from Chinese peddlers (Korean-Chinese constitute the main group of Chinese tradesmen), and cross-border trade has become an important channel for learning and goods transfer. Third, the North Korean government has enabled the people to engage in the production of consumer goods. Workers and farmers were organized into auxiliary work units through the "August 3 Consumer Good Production Movement" in 1984 by order of Kim Jong-Il. They were to produce consumer goods outside of state planning using whatever materials available. Then the economic crisis of the 1990s forced others to engage in similar activities on an individual basis.

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8) Cited from interview with North Korean defectors. See Hong-Tack Chun, "The Second Economy in North Korea," *Seoul Journal of Economics*, Vol. 12, No. 2. (1999), p. 179.

9) North Korea accepted the farmers' market as a general market for trading all goods and renamed it "market" in March 2003.

10) Hong-Tack Chun (1999), *op.cit*, pp. 178-180.

Resources are now flowing into the markets from several sources<sup>11)</sup>: agricultural surpluses produced by cooperatives and households that exceed state purchases; “leaked goods” from overseas food aid; commodities from cross-border trade with China; items stripped, pirated and salvaged from state enterprises; commodities diverted from the PDS; small family enterprises; and, services offered in the markets.

Numerous reports indicate that the private economy has grown significantly since the early 1990s as households have responded to the food crisis and the failure of the PDS to supply basic human necessities. The PDS had been the mechanism for feeding the urban population and with its breakdown in the late 1990s, private markets have been stimulated by demand for basic consumption items. Prices in the markets are generally set in reference to border prices in China. A report by the South Korea Ministry of Unification estimated that 60-70 percent of urban households are now meeting their needs through the markets.<sup>12)</sup> While there were several crackdowns on operations of informal markets, it seems clear that they will continue to expand. The informal market economy is not officially recognized, but accepted as a way of providing normal households with industrial goods as well as agricultural products.

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11) Yoon and Babson, *op.cit.*, p. 76.

12) See Doo Soon Ahn (2002), The possibility of North Korea’s Economic Reform and the Policy Measures of South Korea. See. <http://www.pyung.co.kr/gehuk.htm>

## **2. Changes of North Korea's Economic Structure: Analysis using the Social Accounting Matrix (SAM)<sup>13)</sup>**

One way to understand North Korea's economic structure is by establishing a Social Accounting Matrix (SAM). The SAM contains all the economic transactions of households, enterprises, the government, and also with other countries for one year. The transactions among the sectors can be calculated by using input-output relation.<sup>14)</sup> To understand the features of North Korea's economic structure, we have established social accounting matrices for 1990, 1994, 2000 and 2002.<sup>15)</sup>

The basic data to establish North Korea's SAM are national income, consumption, investment, government budget and international trade. This paper has used data from Bank of Korea reports and figures from the North Korean budget report. Some figures had to be estimated in order to construct a systematic SAM because the available data was not complete and the measuring method in North Korea differs from that of a market economy. Government income is assumed to be the same as the entire budget volume. In North Korea, investment is made by the government. The payment for official

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13) About the necessary assumptions and limitations of this model and data see appendix.

14) To establish the matrix, we have used the input-output relation from East Germany because the industrial structure was similar to that of North Korea. For the method for establishing SAM, see Dong Chun Shin (1999), *Input-Output Analysis of International Trade*, p. 266.

15) For other years, we were unable to establish accounting matrices because North Korea did not release the necessary data.

economy in the budget is regarded normally as investment. Private expense is the rest of the final demand - the sum of the value added and imports - after the deduction of investment, government spending and exports. Table 2 shows the economic linkages among different sectors in the North Korean economy.

**Table 2. Social Accounting Matrices for the North Korean Economy:  
1990, 1994, 2000, 2002\***

Social Accounting Matrix of the North Korean Economy: 1990 (US\$million)

Expenditure	Economic Activities	Commodities	Household	Government	Capital Account	Foreign Countries	Total
Economic Activities		10727 <sup>1)</sup>	10336 <sup>2)</sup>	5620 <sup>3)</sup>	7848 <sup>4)</sup>	1733 <sup>5)</sup>	36264
Commodities	12335 <sup>6)</sup>						12335
Household	7267 <sup>7)</sup>			3898 <sup>8)</sup>			11165
Government	16662 <sup>9)</sup>						16662
Capital Account				7144 <sup>10)</sup>		704 <sup>11)</sup>	7848
Foreign Countries		1608 <sup>12)</sup>	829 <sup>13)</sup>				2437
Total	36264	12335	11165	16662	7848	2437	86710

- Notes: 1) intermediate demand for domestic produced  
 2) final demand for domestic products  
 3) final demand of government  
 4) investment demand  
 5) export demand  
 6) total intermediates  
 7) household income  
 8) final demand of government: administration costs  
 9) government income  
 10) government savings  
 11) foreign savings (trade deficit)  
 12) import demand for intermediate  
 13) import demand of household

**Table 2. Continued**

Social Accounting Matrix of the North Korean Economy: 1994 (US\$million)

Expenditure	Economic Activities	Commodities	Household	Government	Capital Account	Foreign Countries	Total
Economic Activities		10475	5994	6435	9106	858	32869
Commodities	11295						11295
Household	2349			4067			6416
Government	19225						19225
Capital Account				8722		384	9106
Foreign Countries		820	422				1242
Total	32869	11295	6416	19225	9106	1242	80154

Social Accounting Matrix of the North Korean Economy: 2000 (US\$million)

Expenditure	Economic Activities	Commodities	Household	Government	Capital Account	Foreign Countries	Total
Economic Activities		8007	11746	3166	2686	556	26160
Commodities	8939						8939
Household	7903			4323			12226
Government	9317						9317
Capital Account				1829		857	2686
Foreign Countries		933	480				1413
Total	26160	8939	12226	9317	2686	1413	60742

Social Accounting Matrix of the North Korean Economy: 2002 (US\$million)

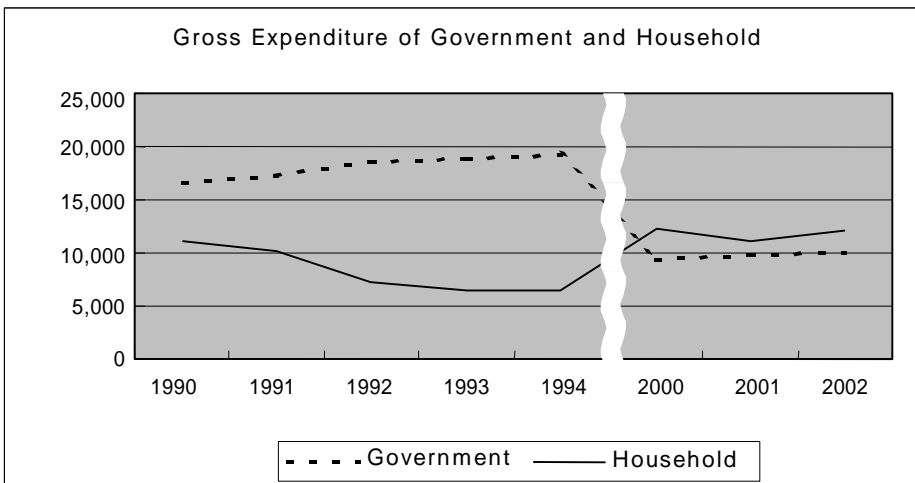
Expenditure	Economic Activities	Commodities	Household	Government	Capital Account	Foreign Countries	Total
Economic Activities		8074	11651	3220	2924	735	26604
Commodities	9081						9081
Household	7490			4680			12170
Government	10033						10033
Capital Account				2134		790	2924
Foreign Countries		1007	519				1525
Total	26604	9081	12170	10033	2924	1525	62336

We assumed the total value-added excluding labor cost, to be government income. The government spends its income on government management, subsidies for households and enterprises, and investment for economic development. It is assumed that there are no household savings in North Korea. Although citizens are forced to save, the savings cannot be freely withdrawn. In fact the government uses those funds as another financing source, and therefore, savings in North Korea can be equated as part of the government income. For this reason, zero household savings are assumed and the category is not included in the SAM of North Korea.

The rows in Table 2 show the income of each economic item and the columns reveal expenses. "Economic activities" refers to the input-output relation and "commodities" reveals intermediates and final demand. "Household" shows private economic activity and "government" the activities of the public side. "Foreign countries"

Figure 1. Gross Government and Household Expenditure

(Unit: million US\$)





implies international trade and "capital" means savings and investment.

It is helpful to compare the SAMs of 1990, 1994, 2000 and 2002 to see the economic changes in North Korea. Comparing the SAMs shows some changes since 1990. First, the weight of government in the economy declined after 1994. The total expenditure of government started with \$16.66 billion and increased to \$19.22 billion in 1994. Then in 1994, the North Korean government absorbed almost 90 percent of its GDP to preserve the socialist economic system, including the public rationing system. However, natural disasters - flood and drought - caused further deterioration of North Korea's economic situation. Industry was destroyed and the government has lost the capability to manage its economy according to socialist principles. In addition, the government lost the greater portion of income sources, causing government expenditures in 2000 to decrease to half of that of 1994 or 1990. Although the expenditure in 2002 increased a little, it has maintained a relatively constant level (\$9.32 billion in 2000 and \$10.03 billion in 2002). Even though overall GDP has decreased dramatically, it was reflected mainly in the reduction of government income. The reason behind that loss is that state-owned enterprises became obsolete and the government lost an important income source. The planning mechanism of the government was no longer able to function, and the public distribution system collapsed. Consequently North Koreans began to supply themselves with food and necessities from the farmers' markets.<sup>16)</sup>

Second, the private economy is continuing to expand. At first, the

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16) Seok Sam Park (2002), "Status of Economic Cooperation of North and South Korea and their future," The Bank of Korea.

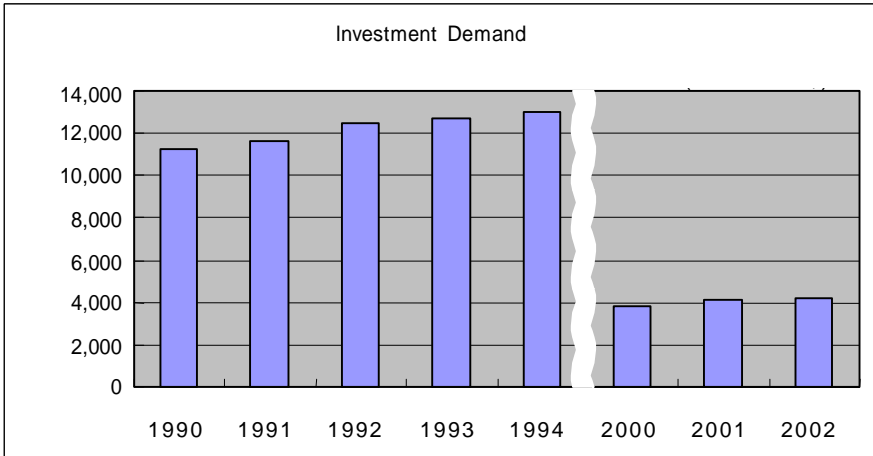
government claimed a great portion of household income. But by 1994, that income had dropped to one-third of the 1990 level. After the economic breakdown in the mid-1990s, household income rose above the level before the crisis. To make a living to survival, households became active in the farmers' markets, while at the same time production in state-owned enterprises faltered, and in fact never recovered. The government's ineffectiveness has led to a great influence of the private economy, which is represented by household income and expenditure in Table 2. Total income has surpassed the governmental revenues since 2000. Because the private economy follows market mechanisms, the increasing weight of the household in the economy reflects the growth of market mechanisms, indicating that more and more money is flowing into the private economy.

Third, government investments have decreased dramatically by over 60 percent. The collapse of the official economy led to the abrupt decrease because the government has no capital for economic rehabilitation. And even though the private economy has the capacity for investment, there are no channels in place to facilitate it. In socialist countries, the government functions as the only investor and therefore, if the government does not have the funds, investment cannot occur; North Korea finds itself in that double bind.

Fourth, the volume of contributions from foreign countries has declined markedly, especially in terms of total trade volume. Both imports and exports dropped due to the breakdown of the international cooperation network as well as internal industrial degradation. However, the trade deficit remains at a similar level to before. Over one-third of North Korea's investment is being provided through foreign credit.

**Figure 2. Investment Expenditure**

(Unit: million US\$)



These changes confirm the following: First, North Korea does not have the capacity for investment needed to escape the poverty trap. Second, the North Korean government is losing influence over the economy. Third, the bottleneck of North Korea's economy is the foreign sector, especially the export sector. Fourth, North Korea's economy runs in part through market mechanisms. The private economy and market mechanisms are becoming more and more important, and all these findings are interrelated. The SAMs show that the government has neither the income nor the enough capacity for investment. The expansion of household expenditure is a natural consequence of a helpless government: household income has now outstripped that of the government. Finally the government must find an alternative income source and reinvigorate its investment scheme.

### 3. Changes in the Military Economy – Military-First Strategy

Looking at the state budget, North Korea allocates about 15 percent of the total budget for defense. However, many experts suspect that the North conceals defense spending within other categories. The exorbitant military expenses and the huge volume of military spending has become a severe burden for the North Korean economy<sup>17)</sup>. However, North Korea regards military power as the foundation of its internal as well as external security, and the North cannot, and will not reduce the military sector, even if it hampers economic recovery, as expressed by the government's military-first strategy. The "Military-first strategy" is a literal translation of a Korean term, *songun jongchi* (politics of giving first priority to the military). The term does not imply a single policy for a particular purpose, rather, it expresses the emphasis on the military throughout society.<sup>18)</sup>

The military-first strategy has dominated the management style of Kim Jong-Il since 1995 even though it was not spelled out until 1998 for the first time. The military-first strategy was a reaction to the economic crisis that stabilized after the flood in 1995 and 1996, and drought in 1997 severely aggravated food shortages. At least hundreds of thousands of people were killed by famine in these

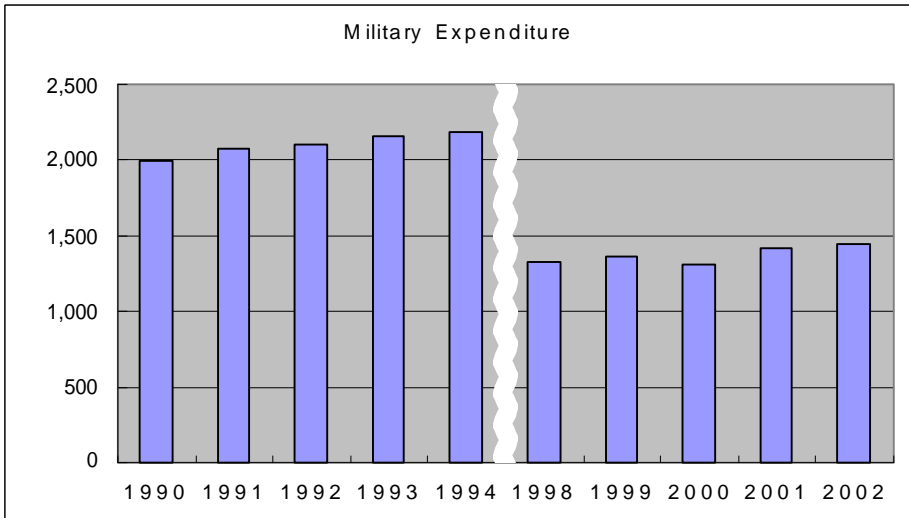
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17) Some military experts argue that the North Korean defense industry shares 30 percent of total national production and the production volume of defense enterprises surpass the production volume of civilian industries. See Choo Suk Suh (2002), *op. cit.* pp. 28-30.

18) Suh Dae-Sook (2002), "Military First Politics of Kim Jong-Il," *Asian Perspective*, 26(3), pp. 148-149.

**Figure 3. Military Expenditure in North Korea**

(Unit: million US\$)



years. 19) According to Koh Byung Chul (2004), “A great number of people strayed everywhere to seek something to eat at that time. The traditional system of ruling by party faced limit in controlling society in those harsh times. It was inevitable that the military take over the role to manage political, economic and social stability. The army had to be strengthened and lead socialistic revolution as well as construction powerfully using this strength. That is Kim Jong-II’s peculiar style of policy.”<sup>20)</sup>

19) North Korea reported to the UN that the number of deaths resulting from famine was under 300,000, but some NGO workers estimated the figure to be over 2 million. See “Misery and Terror: Systematic Violations of Economic, Social and Cultural Rights in North Korea”, *International Federation for Human Right*, Nov. 2003, No. 74/2.

The weak economic power of the government threatened to destabilize the state itself. North Korean government reacted to this situation by strengthening military power within the society. The government has given priority to the military to stabilize the power system. The needs of the economy, therefore, were filed behind those of the military. According to Joongang Broadcasting in 2001, February 18, Kim Jong-Il said: " If I would put the first priority on the economy, more fabrics will be made and the the quality of life of people may become a little better. However, I can't endanger our socialist country forged through blood and fire for the goal of stuffing our mouths for a while yet."

Despite of the worsening economic conditions, North Korea gives priority to the military sector in distributing food and other available resources. Even if it has become a burden for economic recovery, the military has contributed to the economy by constructing roads, buildings and dams in on a large scale. The military sector guaranteed minimum production even at a time when most people left their places of employment to seek food, and a large number of North Korean soldiers are workers in army unifoms, spending the majority of their service period at construction sites. The military sector has functioned as a stabilizer for industrial construction as well as for military objectives.

The defense industry has also earned foreign currencies. This sector is the most economically competitive sector in North Korea because the country has exported military products continuously and gained international competitiveness. Even though the defense

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20) Byung Chul Koh(2004), "North Korea In 2003 and 2004: Pyongyang's View," *Essay on Current Issues*, IFES.

industry is relatively competitive in North Korea, it has too many problems to be relied upon to sustain the economy. The problems caused by such a policy are as follows. First, the defense industry expanded heavy industry too much, causing imbalance in the industrial structure. The industrial imbalance resulted in agriculture and light industries being underdeveloped relative to heavy industry. Second, the defense industry in North Korea became an important source of foreign exchange. However, this sector uses much of this foreign exchange to catch-up new developments and it becomes more and more difficult for the munitions industries to find new external demand. Third, the defense industry in North Korea is isolated and located usually close to military bases. This increases production costs and disturbs technology diffusion to other sectors.

Even if military sector has been given priority in the resource allocation, the investment in the military sector has decreased significantly due to the absolute capital shortage. The government expenses for the military sector decreased abruptly in the 1990s, as shown in Figure 3. This implies that the defense industry may begin to fall behind.

Kim Jong-Il has chosen the military as a principal tool to overcome a wide range of difficulties both inside and outside the country. It has helped the state to stabilize economic and social conditions. North Korea is taking advantage of this strategy to strengthen its negotiation power in talks with neighboring countries, especially with the United States and South Korea. It seems clear that the North will stick to its military-first policy as long as Kim Jong-Il is convinced of the lack of external threat and the military's necessity for economic recovery. As a result, the military sector will stay a

burden to economic recovery in an economic sense and will not contribute significantly to economic improvement.



### **III. North Korea's Reform Measures and their Implications**

#### **1. July 1 Reform Measures**

North Korea introduced some reform measures at the beginning of July 2002, raising wages and prices to bring the state sector into line with market valuations in the growing private sector. It has scrapped the system of rationing goods, and foreign currency could be exchanged with normal North Korean currency rather than coupons to be used in state-designated markets.

Price increases were expected to absorb the monetary overhang. Wage increases would provide the people with purchasing power to counter the increases in prices, securing a higher level of living and returning labor into the realm of government control. Scrapping the rationing system acknowledges the breakdown of state planning and distribution systems. The abolition of rationing would, however, change the command economy into a monetary economy, because money would decide resource allocation rather than political power. These changes would constitute the foundation of a market economy.

Moreover, allowing cash use for foreign currency exchange will allow foreign customers to approach North Korean markets directly. All these changes seem to be oriented toward monetization, reflecting the intention of the government for introducing market mechanisms.

According to these changes, money and cash will have a greater weight in the economy because the monetization will allow all the economic activities to be translated into monetary terms, contributing

to the reallocation of resources and then to the improvement of economic efficiency in North Korea. It will ease the severe scarcity of consumption goods at first because family enterprises can decide what they produce.

The July 2002 Reform measures included increases in prices and wages, partial abolition of rationing system, abolition of exchanged coupons, realistic readjustment of exchange rates, strengthening of the self-supporting accounting system of corporations, reinforcing material incentives, and increasing the autonomous distribution rate of agricultural products. Each reform measure can be summarized as the following:

**Table 3. July 1 Reform Measures and the Direction of Economic Changes**

Direction of Economic Changes	Contents of Reform	Policy Measures for Reform
Changes in economic management	Planned economy → Monetary economy	Increase in prices and wages, abolition of rationing system
Reintegration with the international market	Isolation from international market → Connection with international market	Readjustment of exchange rate, abolition of exchange coupon
Change in business management	Ethical, social motivation → Material, individual motivation	Strengthening the self-supporting accounting system of corporations, material incentives, increase in the autonomous distribution of agricultural products

This policy reform is expected to eventually increase the efficiency of the North Korean economy and there have already been some positive outcomes. However, it is likely that the reform measures will bring about some problems, especially high inflation and budget pressure. The budget pressure on the North Korean government will increase because the government should pay for government purchases and for higher wages and prices. Government budget revenue will decrease too, since the government started to strengthen the self-supporting accounting system of corporations and increase the portion of the autonomous distribution in the agricultural sector. North Korea will face inflationary pressure because all the economic activities will be transmitted into money at the increased level of wage and price but with the same production capacity. Even if the North has had a small measure of success from the July 1 Reform, the country cannot fully enjoy the fruits of the reform if there are no macroeconomic changes to increase government revenue and stabilize inflation pressures.

The North Korean government has also taken steps to control the problems stemming from the reform measures. The main problems expected were decreased government revenue and higher inflation pressure. North Korea began to issue government bonds in May 2003. These bonds do not bear any interest, but the government gives a "prize" to bond-holders according to a lottery held every six months until the end of the bond validity. This bond issuance was an attempt to absorb private savings to increase government revenue and reduce the pressure of inflation. The planned issuance period was prolonged from the end of August to the end of last December, implying that the government has had difficulty in meeting its

fundraising goals.

A senior official from North Korea's Finance Ministry confirmed that the government revenue could not meet expenses after the economic crisis, and that bonds were issued to meet the capital demand for economic recovery and improved living standards through the use of internal resources.

## **2. Economic Changes and Sociopolitical Implications**

The July 1 Reform was generally regarded as an "enforced reform" or "approval of existing reality" rather than active reform measures towards a specific goal. North Korea has reportedly had success from the reform, even if there is no available data on the actual outcome. The Chosun Shinbo, the official newspaper published by the Chosen Soren, reported several times on the economic and social changes after the July 1 Reform. According to the Chosun Shinbo and other sources, North Korea's economy is showing improvements:<sup>21)</sup> The volume of production must have increased because the people are working more actively. North Korea's New Year's Common Editorial 2004 confirmed that there were increases to production and modernization in light industry, even though they didn't provide any evidence.

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21) North Korea's Joong Ang Broadcasting reported from 24 December to 26 December on the economic achievements in 2003. It reported that the production of electricity, coal, consumption goods and heavy industry increased and transport expanded. The report also evaluated that this economic achievement was a direct result of the new economic policy (Joong Ang Broadcasting Dec. 24).

North Korea's continuing reform measures implies that economic reform has had some limited successes. North Korea went on to complete a range of reform measures in 2003 (as Table 4 shows), and the New Year's Common Editorial 2004 expressed the intention of the

**Table 4. Major Changes in the Economic Management System in 2003**

Subject	Changes made
Replacement of Managers	- Managers aged 30 to 40 have been named in major enterprises
Revaluation and Enlargement of the Market's Role	- The farmers market has been expanded into a comprehensive consumers market Enhanced diversification of consumption goods Price ceilings set on essential index goods such as rice and oil. Prices are set every 10 days according to supply and demand. Markets are run under a government enterprise system Market fees and governmental payments are imposed on vendors in the market
Enhanced autonomy of factories and enterprises	- Government enterprises and cooperative bodies are permitted to participate in market activity Factories and enterprises are permitted to supply basic goods within a bound of 30% In the case of the Pyongyang Tongil market, about 5% of the returns are allotted to the factories and enterprises
Introduction of the notion of competition	- Competition in soap and toothpaste has been encouraged via price equalization
Introduction of other economic notions	- A massive commercial ad has been placed in downtown Pyongyang - Economic courses are reorganized emphasis on financial and monetary economics emphasis on price control mechanisms - Science and technology are recognized as intellectual market goods Contracts between research labs and enterprises are made obligatory

\* Material extracted and reorganized from various reports of Chosun Shinbo in 2003, Cited from *KDI Review of the North Korean Economy*, 2004.1, pp.11.

government to continue with reform.<sup>22)</sup> On December 22, 2003, the Chosun Shinbo reported that a new way of thinking has prevailed in North Korea after the July 1 Reform. North Korean people no longer expect rationing of necessities from the government as they did in the past. It says that the trial implementation of "practical socialism" is being established as an irreversible trend. North Korea has expanded the farmers' market into a general consumers' market and is trying to systemize the market that appeared spontaneously in the period economic crisis. The government revises prices for important goods every 10 days according to supply and demand. This seems to be a trial period for the introduction of price mechanisms into the market. Almost all products are traded in the market as long as it does not violate any laws. All this implies that the reform measures in the North are much more than a just an approval of existing reality.

The portion of private economy has grown rapidly, especially in the 1990s through the crisis. The North Korean government could not suppress its expansion because it has been combined with many positive effects.<sup>23)</sup> The North Korean household produces more

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22) Kim Sang-Gi (2004) analyzed the New Years Common Editorial 2004, referring to an article in the Newspaper of Kim Il-Sung University, which has explained important tasks to improve economic management. See Kim Sang Gi (2004), "The Analysis of New Year's Editorial 2004: Economic Sector," *KDI Review of the North Korean Economy*, p. 12.

23) The North Korean government tried to ban illegal private farming and unregulated farmers' markets and reduce the frequency of market opening at the beginning of the 1990s. The government released these regulations again in 1993 (Chun 1999, p. 187).

agricultural products by cultivating private gardens or factory farms. They produce necessities such as clothes and footwear, rice cakes, cookies, liquor and so on. These activities do not reduce the products of the official economy because the labor or capital used in the private sector does not substitute those in the official economy. The workers are not fully employed and they use surplus materials or recycled materials. The production in the private sector eases the shortage of goods in the North.

The major question with regard to the reform measures in North Korea has been whether the reform will lead to a market-based free economy or whether they are simply a collection of piece-meal reforms within the framework of a socialist system. Everyone says that North Korea might be reluctant to transform its system into a market system. This may be true. However, the choice would be made mainly by the economic and political conditions. Therefore, it is important to enrich the supporters of transition in the North and to improve the economic and political conditions for success. The expansion of private economy provides a good fundamental for progressive marketization.

The expansion of private economy has positive effects for the economic reform in the North. The expected positive effects are as follows (Chun 1999): First, the private economy can put pressure on the government for change by representing an alternative system. Second, the greater the private economy becomes, the less people will lose their investment in the private sector. They will support economic reform. Third, the private economy can become a reservoir of entrepreneurship for transition.

However, the expansion of the private economy may weaken the

spirit of socialism by spreading individualism, materialism and increasing corruption. It can widen the gap between the rich and the poor. Even if there are some negative effects from the perspective of socialism, the state cannot suppress the expansion of private economy due to the dominant positive economic effects. The private economy in North Korea has grown rapidly and the total expenditure (or revenue) of household surpassed that of the government since 2000 according to the social accounting matrix in Table 2.



## IV. Summary and Conclusion

There are three categories of economy in North Korea: the official economy; the military economy; and the private economy. Many changes have taken place in each economy over the years, especially after 1990. The *official economy* has fallen due to the collapse of state-owned enterprises, while the *private economy* has grown through efforts to survive. The *military economy* maintains itself at a level of relative fitness and still holds a large portion of GDP in spite of a small contraction. Due to the economic crisis, the *official economy* has in part transferred its role to the *private economy*, and this will lead the North gradually toward becoming a market economy. The private sector will expand continuously at a much faster pace than ever before. Although the *military economy* requires some sacrifice in the economic sense, it has an important function for security as well as for external negotiations. It also plays a role in crisis management in the economy. Above all, it cannot be expected that the military-first policy will change before reconciliation with the United States.

This study shows that the *private economy* will expand most rapidly while the *military economy* stagnates and the *official economy* is contracting. The *private economy* will put pressure on the official economy for change and its expansion will hurt socialist ideology in society. However, North Korea has introduced diverse institutional changes continuously since the July 1 Reform. The private sector will grow with the additional reform measures. North Korea started with the institutional changes in the style of the Soviet Union, allowing just small changes within a tolerable range, but these acted as a

catalyst to change and the system eventually collapsed. The reform measures in North Korea since the July 1 Reform are similar to the Chinese style of reform, allowing gradual but significant expansion of the private economy. To make sure that North Korea does not return to that past state, more people must continue to show interest in the market system development in the North. Investment in various forms will help enlarge the basement for international cooperation as well.

International engagement towards a peaceful resolution with North Korea should begin with the efforts to support growth in the private sector. If production in the private sector surpasses that of the official economy, North Korea may become a transition economy without making abrupt changes as China did.

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## Appendix: Social Accounting Matrix and the data

### 1. Social Accounting Matrix<sup>24)</sup>

We have two practical issues to consider when modeling the North Korean economy and analyzing socio-economic changes in North Korea. One is to select an appropriate computational model that can be used in our analysis. The other is how to deal with incomplete and unreliable data on the North Korean economy. As noted above, the objective of this paper is to get a brief picture on how the structure of the North Korean economy has changed since 1990 and how the society has been influenced by those changes. It goes without saying that it is crucial for reliable results to construct a proper and manageable model with data, which correctly reflects the North Korean economy.

The most popular model to examine the links between economic and social development is the Social Accounting Matrix, which provides the necessary tool for establishing such links. The Social Accounting Matrix shows the social accounts in a matrix form encompassing every transaction of an economy within a given timeframe. The prime interest of social accounting is in the distribution

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24) For the detailed information on SAM see Benjamin B. King, (1981), *What is a SAM? A Layman's Guide to Social Accounting Matrices*, The World Bank. Steven J. Keuning and Willem A. De Ruijter, "Guidelines to the Construction of a Social Accounting Matrix," *The Review of Income and Wealth*, Vol. 34(1), 1988, pp. 71-101.

and redistribution of income generated by the production process, while national accounting emphasizes analyzing the production of goods and services.

Even if there is no fixed design for a SAM, it usually includes institutional sectors and productive activities separating accounts for commodities and the activities that produce them with accounts for the rest of the world. A SAM contains the norm for the generation and distribution of primary income and redistribution of secondary income.

The design for a SAM in practice, however, depends on the purpose to be served and data availability. The idea of a SAM is to provide a detailed framework for the better understanding of the economy via disaggregation of all possible accounts in accordance with the circumstances and needs of the country. However, if the data is insufficient for the 'ideal' SAM, the scope of the SAM must be reduced, by some aggregation and using some estimating methods. Due to the limited data availability, we had to construct a SAM in a very aggregative form in this paper.

## 2. DATA

The main difficulty in constructing a SAM for the North Korean economy is the lack of reliable data on the input-output table and key macro variables. Most of these data on the North Korean economy has not been published and even the available data is often inconsistent with one another.

We had to use the data compiled by the Bank of Korea (BOK). The Bank of Korea estimates important data on the North Korean

economy using its own method and any pertinent available information and publishes them every year. Even if there are some critical and suspicious views on the accuracy of BOK-data, it is the only data source for the North Korean economy made by a systematic method. However, the absolute figures of this data may not be correct, because the data of socialist countries must have been newly classified and estimated. Different statisticians can make the figures different according to the assumptions and definitions applied to the data to transform North Korea's statistics into the data of market system. Another problem with BOK-data is the use of South Korean prices and weightings as a benchmark to convert the real economic data calculated by input-output table into monetary data. The BOK's methodology is probably an effective way to avoid the problem of very different prices and exchange rates from region to region in the North. The data cannot avoid the criticism that they reflect the scarcity relation of South Korea. Therefore, the absolute figures of BOK and this paper do not necessarily reflect the correct picture of North Korea's economy. However, the trend must be true because the data was produced using the same system and method.

There are no official taxes in North Korea. However, the so-called 'transaction revenue' and various surpluses collected by the government from the state and cooperative firms are like indirect taxes on value added. It is assumed that the government takes the value added generated by capital employed in industrial sectors. These revenues and surpluses constitute the government revenue. Investment is carried out by the government which also provides a subsidy to the private sector.

It is inevitable for us to estimate the input-output technical



coefficients and other exogenous variables, using the available information on the North Korean economy and applying the statistical method. Under the assumption that the technology of North Korea resembles the old East German, the estimated input-output table of North Korea is based on the 1987 East German input-output table made by Ludwig, Stiglin and Stahmer (1996). For our analysis, the input-output coefficients and sectoral final demands-private and government consumption, investment and exports-have been estimated by the cross entropy optimization method similar to Golan, Judge and Robinson (1994), given the 1987 East German input-output table and the available data on the North Korean economy.

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