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Constitutional Handbook on Korean Unification

- Economic Issues -

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Preface

Since the division of the Korean Peninsula in 1948, unification has been one of the most important national goals for the Koreans. Even the Korean War, 1950-1953, did not quench the burning aspiration of the Korean people for unification. In recent years, the end of the Cold War has significantly improved the prospect of Korean Unification. The German unification, in particular, reassured Koreans that their long cherished dream of peaceful unification can eventually be realized even after more than half a century of division. Following the historic summit talk in June 2000, the prospect of Korean unification is further improved by the fact the gaps between the economic systems of South and North Korea may be narrowed as North Korea begins to open to the South and the rest of the world. The two Korean leaders have reconfirmed their dream of unification in the joint declaration: "The South and the North have agreed to join hands to solve the question of national unification." Korean unification, however, is a complex and multi-faceted dynamic enterprise that is still extremely elusive. It is not clear when and how unification may be realized. Plausible unification scenarios are entertained in various contexts, but their practi-

cal values are hard to determine. What is certain, however, is that Korean unification will not come easily and, if it does, the process needs to be handled with utmost care, socio-politically as well as economically.

Currently there are enormous economic gaps between South and North Korea, both in the structures of the economic systems and their performance. One essential area of Korean unification is the integration of the two economies. Economic integration as a part of Korean unification requires bridging the vast gap between the two economies and building a unified economic system. The gap that separate the two Korean economies can be closed from either side. However, the poor performance of the socialist economic system in general and the North Korean economy in particular indicates that it is the North Korean economic system that needs fundamental and sweeping reforms.

The economic reforms proposed in our studies are mostly designed to improve the efficiency of the North Korean economy, both domestically and internationally, without sacrificing much of its equity. The resulting economic order in the Northern part of the Korean peninsula should be conformable with the new world economic order based on market principles. It is not surprising that the general direction of North Korean economic reforms that we propose in preparation for the ultimate South-North economic integration coincides with the direction of changes in Eastern European countries and former Soviet Republics, both North Korea's former trading partners. The ongoing liberalization of the Chinese and the

Vietnamese economies provides additional support.

A systemic transition from a socialist to a market economy requires comprehensive reform. Many of the reform programs need to be synchronized and carefully sequenced. Since the economic integration of South and North Korea will inevitably involve a dynamic and sometimes volatile process, the success of economic integration also depends critically upon systematic and skillful management of the process. What we need is a clear image of the fully integrated economic system and a practical and effective road map that will guide us to the final stage of economic integration.

With reference to economics and the Korean Unification Project, this volume attempts to identify pivotal areas of economic reform for North Korea and formulate consistent and practical proposals for the economic integration of South and North Korea. Because economic integration in the context of Korean unification involves a wide range of economic issues, we had to be selective. Specifically, we chose to deal with the integration issues in the seven areas listed below, and commissioned a paper in each of the area to the author(s) whose name appears in parentheses:

- (1) A Quantitative Comparison of Socio-economic Conditions in South and North Korea — Implication for a Prospective Reunification (Nicholas Eberstadt)
- (2) Economic Policy during and after Reunification in Korea (Sung-Hee Jwa and Chan Guk Huh)
- (3) Economic Institution Building (Joachim Ragnitz)

- (4) Korean Unification and the Privatization of North Korean Economy (Kun-Young Yun)
- (5) Constructing Social Safety Net for Korean Unification (Sung-Yeal Koo)
- (6) Improvement of Business Environment (Udo Ludwig)
- (7) The Cost and Financing of Korean Unification (Young-Sun Lee)

Korean unification cannot be complete without the full integration of the two economies. Economic integration in turn entails two fundamental steps: One is to transform the socialist economic system in the North into a market economy that is compatible with the South Korean economy and open to the rest of the world; The other step is to close the income gap between South and North Korea. As the experience of former socialist countries demonstrates, the transformation of the North Korean economy will most probably be a difficult and painful task requiring extraordinary courage, compassion, ingenuity, and economic resources.

On the other hand, the root of North Korea's current economic difficulties lies in its socialist system and no partial adjustment of economic policy seems to be able to rescue her from the present economic predicament. A solution must be sought involving fundamental reform of the economic system itself. In the context of Korean unification, transformation of the economic system in North Korea is even more compelling as a unified Korea cannot function efficiently with two diametrically contradictory economic systems.

A unified Korea should be built on a market economy. The rationale for the choice is obvious. Suffice it to note the contrast between the poor economic performance of North Korea and the whole hearted embracing of market principles by the former socialist countries during the past decade.

Economic integration of the two Koreas involves much more than envisioning a final economic landscape of a unified Korea. What is probably more important for successful integration is a practical navigation chart that will guide the Korean people safely and efficiently through the uncertain voyage toward full integration in terms of both economic system and economic performance. In this volume we attempted to develop part of such a navigation chart as well as the principles that will govern the economic system of a unified Korea. We are fully aware that our choice of research topics is selective and some of the recommendations are bound to be controversial. Nevertheless, we hope to have made the first fruitful step towards for serious study of Korean unification and economic integration.

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Contents

Preface/3

1. A Quantitative Comparison of Socio-Economic
Conditions in North and South Korea: Implications
for a Prospective Reunification

Nicholas Eberstadt/13

I . Population/20

II . Mortality and Health/26

III . Urbanization/36

IV . Militarization/38

V . Labor Force/41

VI . Foreign Trade and Domestic Economic Infrastructure/48

VII . National Output/63

VIII . Concluding Observations/65

2. Economic Policy During and After Reunification
in Korea

Sung-Hee Jwa and Chan Guk Huh/77

I . Introduction/79

II . Transition/85

III. Peace Dividend/105

IV. Role of the Government after Reunification/107

V . Conclusion/112

3. Economic Institution Building

Joachim Ragnitz/121

I . Introduction/123

II . General Assessment/128

III. Special Issues/139

IV. Concluding Remarks: The Assignment of Responsibility/161

4. Korean Unification and the Privatization of North
Korean Economy

Kun-Young Yun/165

I . Introduction/167

II . Property Ownership in North Korea/170

III . Basic Issues in Privatization/178

IV . A Privatization Program/195

V . Summary and Concluding Remarks/205

5. Constructing a Social Safety Net for Korean Unification

Sung-Yeal Koo/215

I . Introduction/217

II . Migration and Labor Market Policies/220

III . Differences in Social Security and Welfare System
between the North and the South/233

IV . How to Establish an Integrated Social Security System
in Unified Korea/252

V . Conclusion/254

6. Improving Business Environment

Udo Ludwig/263

I . Outline/265

II . Incentives for Doing Businesses/267

III . Improving the Infrastructure/278

IV . Environmental Policy/287

7. The Cost and Financing of Korean Unification

Young-Sun Lee/301

I . Introduction/303

II . Speed of Unification and Concepts of Unification Cost/305

III . The German Case/308

IV . Estimates of the Cost of Korean Unification/321

V . Financing Unification Cost/336

VI . Concluding Remarks/339

A Quantitative Comparison of
Socio-Economic Conditions in
North and South Korea:
Implications for a Prospective
Reunification

Nicholas Eberstadt
(American Enterprise Institute, USA)

To approach discussion of an eventual reintegration or reunification of the two Koreas in a practical fashion, it is essential to have some sense of the starting points for this prospective journey. We need to know concretely, in other words, about social and economic conditions in both parts of Korea, so that we may have some presentiment of the magnitude and nature of the gaps that will have to be bridged, and the adjustments that will have to be accommodated, for the divided nation to congeal.

Alas: it is extraordinarily difficult today to offer a reliable socio-economic comparison of North and South Korea. The reason, quite simply, is that North Korean conditions are not readily or easily quantified. Two problems—one general, one quite particular—account for this.

The general problem is the dilemma of valuing output produced by a Soviet-Type Economy (STE)¹⁾ in market terms. Although Western economists developed a variety of techniques and devices for representing the results from centrally planned economies in a market-style framework,²⁾ none of these attempts could solve the conundrum of how to offer a common unit of measurement for systems with such fundamentally different approaches to pricing and resource alloca-

1) For useful background on the STE, see Jan Winiecki, *The Distorted World of Soviet-Type Economies*, Pittsburgh, PA: University of Pittsburgh Press, 1988, and Janos Komai, *The Socialist System: The Political Economy of Communism*, Princeton, NJ: Princeton University Press, 1992.

2) Perhaps most importantly, Abram Bergson, *The Real National Income of Soviet Russia Since 1928*, Cambridge, MA: Harvard University Press, 1961.

tion.³⁾

This basic methodological predicament has continually confounded attempts to place the performance of Communist economies in comparative international perspective. During the Cold War, the US government devoted considerable resources to its effort to describe and measure trends in the Soviet economy; that undertaking, in fact, may well have been the largest social science research project ever mounted.⁴⁾ Yet despite the great financial and intellectual investment in that project, its findings in retrospect appear in a number of respects to have been seriously off the mark: such indicators as output per capita, levels of per capita consumption, and rates of economic growth may have been consistently overestimated. (An analogous overestimation of a Communist system's economic performance can be seen in the case of the German Democratic Republic, the severity of whose economic troubles only became generally apparent to Western specialists after the 1989 breach of the Berlin Wall.)⁵⁾

3) A point originally made in Nicholas Eberstadt, "The CIA's Assessment of the Soviet Economy," in *idem.*, *The Tyranny of Numbers: Mismeasurement and Misrule*, Washington, DC: AEI Press, 1995, pp.136-149.

4) For an elaboration on this argument, see Steven Rosefielde and Ralph W. Pfouts, "Neoclassical Norms and The Valuation of National Product in The Soviet Union and Its Postcommunist Successor States," *Journal of Comparative Economics*, vol.21, no.3, 1995, pp.375-389.

5) There is an enormous literature bearing on the reassessment of the GDR's economy. For a sense of this literature, see Gernot Schneider, *Wirtschaftswunder DDR: Anspruch Und Realitaet*, Cologne: Bund Verlag, 1990; Philip J. Bryson and Manfred Melzer, *The End of The East German Economy*, New York:

The second and more particular problem is the remarkable dearth of reliable social and economic information about North Korea today. Since the early 1960s, the government of the Democratic People's Republic of Korea (DPRK) has steadily enforced a strict "statistical blackout" on conditions within that country. The North Korean state's campaign to suppress all such information is reminiscent of earlier campaigns in Stalin's USSR and Mao's China, but Pyongyang's campaign has lasted far longer than those of any Communist precursor.

Closed though they were before the downfall of their Communist governments, Soviet bloc countries in the 1980s nonetheless regularly published a variety of statistical compendia (e.g., *Narodnoe Khoziaistvo SSSR*, *Statistisches Jahrbuch der DDR*). By contrast, the DPRK has *never* published an official statistical compendium of any sort on a regular basis!⁶⁾ To make matters worse, some of the few data the DPRK has released have clearly been deliberately distorted or fals-

St. Martin's Press, 1991; Eberhard Kuhrt, ed., *Die Wirtschaftliche Und Oekologische Situation Der DDR In Den Achtziger Jahren*, Opladen, Germany: Leske and Budrich, 1996; and Jeffrey Kopstein, *The Politics of Economic Decline in East Germany, 1945-1989*, Chapel Hill, NC: University of North Carolina Press, 1997.

- 6) Indeed: the only regular official statistical series of *any kind* bearing on the performance of North Korean economy (the annual report on state budgetary revenues and expenditures) was interrupted by the four year (1995-1998) suspension, in the wake of Kim Il Sung's death, of the DPRK Supreme People's Assembly (SPA) – the forum at which those figures were traditionally announced.

ified, and the actual ability of the DPRK Central Bureau of Statistics to compile and prepare accurate data remains as yet an open question.⁷⁾ Under such circumstances, the question of “what we know and how we know it” figures centrally in any assessment of North Korean social and economic conditions. In the case of North Korea, we can *not* simply take “data” as “given”. Although a number of institutions—most importantly, the Central Intelligence Agency (CIA) in the United States and the Republic of Korea’s (ROK) Ministry of National Unification (MNU), the Korea Development Institute (KDI) and the Bank of Korea (BOK)—analyze and attempt to quantify North Korea’s economic performance, the quality and reliability of their estimates are inescapably limited by the general and particular problems to which we have already alluded.⁸⁾

If we are to attempt a meaningful comparison of socio-economic conditions in North and South Korea, and at the same time avoid the pitfalls of false precision, we must search indicators that are both inherently reliable and subject to a minimum of interpretive ambiguity. Two kinds of data suggest themselves for our purposes. The first are demographic

7) For an extended analysis of the quality of Pyongyang’s statistical releases, see Nicholas Eberstadt, “Our Own Style of Statistics: Availability and Reliability of Official Quantitative Data for the Democratic People’s Republic of Korea,” *Korean Journal of International Studies*, (forthcoming).

8) To the extent that those institutions rely upon privileged or classified information in their assessment of North Korea’s performance, we are confronted with additional issues regarding the replicability of results.

data collected by the DPRK Central Bureau of Statistics;⁹⁾ these bear directly upon social conditions, and can cast some light upon economic conditions as well. The second are so-called “mirror statistics” on North Korea’s foreign trade, as reported by the DPRK’s trading partners: these quantify a consequential component of the North Korean economy (the external sector) and in addition provide an aperture on the domestic DPRK economy.¹⁰⁾

Some additional, and intriguing, bits of statistical data pertaining to North Korea’s socio-economic situation have also become available over the course of the late 1990s. These

9) In 1989, the DPRK transmitted some demographic information the United Nations Population Fund (UNFPA) to meet conditions for possible UNFPA technical assistance with an upcoming population census. Those data are analyzed in detail in Nicholas Eberstadt and Judith Banister, *The Population of North Korea*, Berkeley, CA: University of California Institute of East Asian Studies, 1992. North Korea eventually held a population census – evidently, its first-ever in the history of the regime – in early 1994, focused on the situation as of year end 1993. For more details, see DPRK Central Bureau of Statistics, *Tabulation of The Population Census of The Democratic People’s Republic of Korea*, Pyongyang: DPRK Central Bureau of Statistics, 1995. Results from this census were formally published in 1995, and became available in the West in 1997.

10) “Mirror statistics” on the North Korean economy used in this chapter are drawn from the UN International Commodity Trade Database, and from Soviet/Russian, Chinese, and South Korean statistical compendia on their trade with the DPRK. For more details, see Nicholas Eberstadt, “Self-Reliance and Economic Decline: DPRK’s Trade in Capital Goods, 1975-1995,” *Problems of Post-Communism*, vol.46, no.1, 1999, pp.1-13, and *idem.*, “North Korea’s Interlocked Economic Crises: Some Indications from ‘Mirror Statistics’,” *Asian Survey*, vol.38, no.3, 1998, pp.203-230.

include data that DPRK officials provided to the International Monetary Fund (IMF) on trends in national economic output and the national budget,¹¹⁾ and results of an independent nutritional survey conducted in the DPRK under the auspices of the UN World Food Programme (WFP), UNICEF and the European Union (EU) in late 1998.¹²⁾ A number of questions may be raised about these figures, even upon initial inspection. Nevertheless, they are worth reviewing as well: in the case of the former, if only because they afford a first official presentation of North Korean national accounts data in a Western-style framework; in the case of the latter, because they offer hope of a clearer impression of the impact of the terrible hunger crisis that apparently erupted in the DPRK in the mid-1990s, and evidently continues to grip that land up to this writing.

I . Population

The starting point for a socio-economic comparison of divided Korea is population size and composition. Table 1 presents some basic indicators on this, drawn from South Korea's

11) International Monetary Fund, "Democratic People's Republic of Korea, Fact Finding Report," Washington, DC: IMF Asia and Pacific Department, November 12, 1997, unpublished.

12) World Food Programme, *Nutritional Survey of the Democratic People's Republic of Korea*, Rome: WFP, 1999.

statistical system and from the North Korean population census for year end 1993.¹³⁾ (See Table 1)

<Table 1>

Comparative Demographic Indicators from Official Data:
DPRK and ROK, 1993

	DPRK	ROK
Population (millions)	21.2 ¹⁾	44.2
Area (thousands sq. km)	122.8	99.3
Population Density (persons per sq. km)	173	445
Sex Ratio (males per 100 females)	94.9	101.3
Median Age (Years)	27	31 ¹⁾
Population aged 0-14 (percent)	27.9	23.2 ¹⁾
Population aged 15-64 (percent)	66.6	70.7 ¹⁾
Population aged 65 and older (percent)	5.5	6.1 ¹⁾
Crude birth rate (births per 1,000 pop.)	19.9	16.5
Crude death rate (deaths per 1,000 pop.)	4.9	5.5
Rate of natural increase (per 1,000 pop.)	13.9	11.1
Average household size (persons)	4.7	3.3 ¹⁾

Notes: DPRK census data are for year-end 1993; ROK census data are for midyear. 1) = 1995.

Sources: Derived from DPRK Central Bureau of Statistics, *Tabulation of the Population Census of the Democratic People's Republic of Korea*; and ROK National Statistical Office, *Social Indicators in Korea 1995*, and ROK National Statistical Office, *Korea Statistical Yearbook 1996*.

13) There are some notable problems with the DPRK 1993 census data. Most importantly, internal inconsistencies—and inconsistencies between the 1993 census and earlier DPRK population registration data—suggest that the 1993 population may substantially understate North Korea's true population. For more details, see Eberstadt, "Our Own Style of Statistics," *loc. cit.*

According to official data for 1993, the DPRK's population was about 21 million; South Korea's, by contrast, was roughly 44 million. (Thus, whereas the ratio of West to East Germans at the moment of unification was about 4:1, the ratio of South to North Koreans is roughly 2:1.) South Korea looks to be much more densely populated than North Korea, and also appears to have a significantly higher ratio of males to females in its population — possibly in part due to the lingering effects of the Korean War, in which the North suffered even more severely than the South.

In Germany in the mid-1990s, the median population age was about 40.¹⁴⁾ To judge by Table 1, in the mid-1990s South Korea's population was much younger than that, with a median age of about 31 — and North Korea's is younger still, with a median age officially represented at just under 27. Children under 15 years of age accounted for a higher share of the total population in the DPRK than the ROK; for the population 65 years of age or more, the share was slightly larger in the South than in the North. People between the ages of 15 and 65 — sometimes described as the “economically active cohorts” — accounted for a somewhat greater share of the total population in South Korea than in North Korea in the early 1990s.

According to official data, household size averaged about

14) The figure is for the year 1995. Derived from BRD Statistisches Bundesamt, *Statistisches Jahrbuch Fuer Die Bundesrepublik Deutschland 1997*, Stuttgart: Metzler-Poeschel Verlag, 1997, p.62.

4.7 persons in the DPRK in the early 1990s. In South Korea, it averaged about 3.3. By contrast, average household size was under 2.3 in Germany in the early 1990s.¹⁵⁾ In general, smaller household size reflects 1) lower fertility levels and 2) the increased ability or disposition of persons to live alone (in independent one-person households). Evidently, these “modern” trends affect South Korea rather more strongly than North Korea.

In both North and South Korea, population growth in the early 1990s was due entirely to “natural increase” – the excess of births over deaths. According to official data, the rate of natural increase in 1993 was slightly higher in the DPRK than in the ROK (1.4% a year vs. 1.1% a year). Between the early 1960s and the early 1990s, both Koreas had made the transition from high- to low-fertility regimens. In the early 1960s, the “total fertility rate” (births per woman per lifetime, or TFR) was about six in both North and South Korea. South Korea’s fertility level has been below replacement since the mid-1980s, and is currently about 1.7.¹⁶⁾ As for the DPRK, by

15) *Statistisches Jahrbuch Fuer Die Bundesrepublik Deutschland 1997*, p.65.

16) One noteworthy feature of South Korea’s recent fertility patterns has been the coincidence of strong son preference and sub-replacement fertility. For more than a decade, South Korea’s newborns have been distinguished by unnaturally high “sex ratios”—up to 120 boys for every 100 girls. The eventual consequence of this pattern, as some researchers have noted, may be a “marriage crisis”: other things being equal, by 2015 there will be 25 percent more young South Korean men of marriageable age than young South Korean women who could marry them. See Chai Bin Park and Nam Hoon Cho, “Consequence of Son Preference in a Low Fertility Society:

1993, to judge by census data, North Korea's TFR was down to about 2.2 — just barely above replacement.

As it happens, the relatively detailed data for North Korea that are highlighted in Table 1 describe the country immediately before a fateful demographic shock. About a year and a half after the official North Korean population census, Pyongyang announced that the country had been beset by severe food shortages, and launched an official appeal for emergency humanitarian food aid.¹⁷⁾ That appeal continues to this writing, suggesting that a desperate affliction still stalks the country. At this writing, however, it is impossible to provide an accurate assessment of the demographic impact of North Korea's nutritional problems: despite the millions of tons of emergency food assistance that North Korea has received since 1995 from international relief agencies, Pyongyang has steadfastly refused to provide those same agencies with detailed official demographic data that could help specify the precise dimensions of this humanitarian crisis.

If North Korea's ongoing food crisis was sufficiently dire, it could by now have affected both the size and the composition of the DPRK's population. Serious food shortages, for one thing, usually depress local fertility sharply. (In the years immediately following the "Great Leap Forward," for example, fertility levels in China are thought to have dropped

Imbalance of The Sex Ratio at Birth in Korea," *Population And Development Review*, vol.21, no.1, 1995, pp.59-84.

17) Cf. Kevin Sullivan, "North Korea Makes Rare Plea After Floods Devastate Country," *Washington Post*, September 22, 1995, p.A16.

by half or more.¹⁸⁾ Typically, furthermore, hunger crises exact a disproportionate mortality toll upon the old and the very young. Famine-like situations, finally, can induce large movements of people, even in the face of hardship and repression: by late 1999, it was reported that many North Koreans – perhaps as many as several hundred thousand – had crossed into China to forage and seek sustenance.¹⁹⁾

Thus, due to the ongoing food crisis, North Korea's population profile at the end of the 1990s could look rather different from the outlines projected for it early in the decade. Demographic projections before the food crisis, for example, anticipated an increase in DPRK population of over 3 million persons (or of about 15%) between midyear 1990 and midyear 1998.²⁰⁾ The 10th DPRK Supreme People's Assembly (SPA), however, impaneled exactly the same number of delegates (687) for its September 1998 deliberations as had been inducted for the 9th SPA in April 1990. Since the DPRK constitution stipulates that one SPA delegate is required for every 30,000 population, these SPA delegate totals might seem to imply that the country's population was no larger in 1998 than it had been eight years earlier.²¹⁾

18) Cf. Judith Banister, *China's Changing Population*, Stanford, CA: Stanford University Press, 1987.

19) *Joongang Ilbo* (Internet Version), October 18, 1999; translated in US Foreign Broadcast Information Service (hereafter, FBIS), as "Active Government Role for DPRK Defectors Urged," FBIS-EAS-1999-1019, October 18, 1999.

20) Cf. Eberstadt and Banister, *The Population of North Korea*, p.105.

Of course, this is only speculation: the stagnant vote total might equally well have an entirely different, internal, non-demographic rationale. Suffice it simply to observe that the advent of the hunger crises has suddenly, and grimly, broadened the range of plausible population profiles for contemporary North Korea—and only new information from Pyongyang will permit a reliable narrowing of that range.

II. Mortality and Health

A population's health is intrinsically important for both personal and humanitarian reasons. Health levels also reflect upon living standards, and may also provide clues about a population's potential for productive economic activity.

Perhaps the single clearest measure of a population's health is its expectation of life at birth. Estimates for life expectancy for North and South Korea are presented in Table 2. (See Table 2) Note that these estimates are based upon reconstructions of population data from the two countries, rather than simply upon the claims of their governments.

According to these estimates, both North and South Korea enjoyed rapid health progress over the decades between the

21) For further discussion, see Nicholas Eberstadt, "Development, Structure And Performance of the DPRK Economy: Empirical Indications," in Laurence J. Lau and Chang-ho Yoon, eds., *North Korea in Transition: Developmental Potential and Social Infrastructure*, Stanford, CA: Stanford University Press, forthcoming.

<Table 2>
 Estimated Life Expectancy at Birth
 for DPRK and ROK: 1955-85

	North Korea			South Korea		
	Both	Male	Female	Both	Male	Female
	sexes			sexes		
1955-60	NA	NA	NA	49.6	46.9	52.5
1960	49.0	46.0	52.1	NA	NA	NA
1960-65	51.9	48.9	55.0	50.7	48.1	53.5
1970-75	61.3	58.2	64.6	NA	NA	NA
1978-79	65.2	62.1	68.4	NA	62.7	69.1
1980	65.7	62.7	69.0	64.9	63.2	68.8
1985	67.2	64.1	70.4	NA	64.9	71.3

NA = Not available

Notes: For North Korea, the life expectancy estimates given for 1960-1965 are 1963 estimates; for 1970-1975, 1973 estimates, and for 1978-79, 1979 estimates.

Source: Eberstadt and Banister, *The Population of North Korea*, p.48.

end of the Korean War and the mid-1980s. Even more striking, perhaps, is the similarity of both the levels and the paces of increase in life expectancy in the two Koreas: over this long period, male and female life expectancy at birth in North and South Korea remained essentially indistinguishable from one another. When one considers the very different development paths embraced by the two contending regimes, and the fact that contact between the two populations was virtually nonexistent over those years, the result looks even more remarkable.

Preliminary analysis of the North Korean 1993 census would imply a life expectancy at birth for males of about 68 years, and for females of about 74 years. That would have been just below South Korea's levels, where the respective figures were estimated at 68 and 76 in 1991.²²⁾

Not surprisingly, divided Korea's overall life expectancy would have been lower—on average, roughly five years lower—than that of united Germany (where overall life expectancy for males and females in 1993/95 was estimated at 73 and 79, respectively). What may come as more of a surprise, however, is that the estimated differentials in lifespans between the two parts of just-reunited Germany look to be wider than the contemporaneous gap in still-divided Korea. In the early 1990s, according to demographic reconstructions, expectation of life at birth for males was less than a year higher in South Korea than in the North; in Germany, by contrast, life expectancy for men was about three years higher in the West than in the East.²³⁾ Given the generally presumed close correspondence between health and living standards (or productivity), and the widely-held perception that disparities both in living standards and in productivity were greater in divided Korea in the early 1990s than they had been in Germany before die Wende, the ostensible parity in life expectancy in the two Koreas in the early 1990s presents us with a seeming empirical paradox—one that remains to be

22) United Nations, *Demographic Yearbook 1995*, New York: UN, 1997, p.145.

23) *Statistisches Jahrbuch 1997*, p.76.

explained.

Since the early 1990s, steady improvements in life expectancy have been recorded in the ROK: according to the South Korean National Statistical Office (NSO), overall expectation of life at birth by 1997 had reached 70.6 years for males and 78.1 years for females.²⁴⁾ By contrast, North Korea's life expectancy has undoubtedly declined with the upsurge of mortality attendant to its ongoing food crisis—but it is unclear just how much it has dropped. Guesses about the toll of “excess mortality” exacted by the food crisis in the 1995-98 period vary by more than an order of magnitude: from the South Korean NSO's proposed figure of 270,000 to the three-million-plus numbers asserted by some other sources.²⁵⁾

The scale of the retrogressions in life expectancy that may have been suffered, of course, depends directly upon the scale of excess mortality. Under the NSO's conjectures, life expectancy in North Korea would have fallen by about 4

24) *Yonhap*, August 3, 1999; reprinted as “Average Life Expectancy in ROK 71 for Men, 78 for Women,” FBIS-EAS-1999-0803, August 3, 1999.

25) For report on the NSO estimate, see *Yonhap*, August 27, 1999, reprinted as “DPRK Population Estimated at 22.08 Million,” FBIS-EAS-1999-0827, August 27, 1999. For various sources placing the North Korean famine toll at around 3 million or more, see *Korea Times* (Internet version), May 11, 1998, reprinted as “South Korea: Around 3 Million Reportedly Die of Famine In DPRK,” FBIS-EAS-1998-131, May 11, 1998; *Yonhap*, March 13, 1999, reprinted as “Hwang: over 3 Million People Died of Starvation in DPRK,” FBIS-EAS-1999-0313, March 13, 1999; *Yonhap*, February 16, 1999, reprinted as “DPRK Report Says Population Reduced by 3 Million,” FBIS-EAS-1999-0216, February 16, 1999.

years between 1993 and 1998; by contrast, the projections offered by the US Bureau of the Census, which hypothesize “excess deaths” of over 1.1 million for the 1995-98 period²⁶), imply a conditional DPRK life expectancy of about 51 for the year 1998—which would in turn imply a drop of twenty years over the course of the 1990s. Though we cannot estimate the current level of life expectancy for North Korea with any precision, it is safe to assume that the gap in survival chances between North and South Korea has never before been as wide as it has been over the past several years.

In the wake of other Twentieth-Century catastrophes involving sudden and massive loss of life (viz., China’s 1959-62 famine, the Korean War), life expectancy typically rebounded rapidly. Once North Korea’s food crisis comes to an end, we might expect life expectancy to rise quickly toward its former levels. Yet unfortunately there is reason to think that the DPRK’s hunger problem may have a more enduring impact on the health of the North Korean populace. In late 1998, the European Union, UNICEF and the UN World Food Programme conducted a nutritional survey in the DPRK, measuring heights and weights for an ostensibly random sample of boys and girls.²⁷) Without downplaying the long

26) Calculation provided to the author by the International Programs Center, U.S. Bureau of the Census; based on unpublished data.

27) Summary results of the survey are reported in World Food Programme, *Nutritional Survey of the Democratic People’s Republic of Korea*, Rome: WFP, 1999.

odds of actually implementing a truly random survey under the DPRK's auspices, the results of that exercise were striking — and deeply troubling.

By comparison with data from other contemporary surveys, North Korea's children would appear to suffer a far higher incidence of acute malnutrition (“wasting”) than children from any country in Eastern Asia — or, for that matter, any population in the Indian sub-continent. (See Table 3) But North Korean children also reported an extremely high incidence of “stunting” — that is to say, of unusually low height-for-age, a condition consonant with serious long-term malnutrition. Note that the reported prevalence of child “stunting” in Table 3 is significantly greater in North Korea than in such low-income, high-illiteracy settings as Laos or Cambodia — and is indeed higher than the contemporary estimates for either Pakistan or Bangladesh. These data, furthermore, suggest that North Korea's hunger problem did not suddenly begin with Pyongyang's official public acknowledgement of a food emergency in the summer of 1995, but rather predated the announced crisis by some considerable stretch of time.

The current differentials in nutrition and health separating children in contemporary North and South Korea are suggested by Figures 1 and 2, which compare data on the heights and weights of 7-year-old boys. (See Figures 1 and 2) The data for South Korea come from the ROK Ministry of Education's annual measurements for school children — and since primary schooling has been essentially universal in South Korea since the mid-1960s, those figures are likely to be quite repre-

<Table 3>

Indicators of Malnutrition among Children under 5 Years:
Anthropometric Survey Data for DPRK and Other Asian
Countries

Countries	Year	Nutritional Measure (percentage)		
		Severe	Moderate/Severe	Moderate/Severe
		Underweight	Wasting	Stunting
Cambodia	1990-95	7	8	38
China	1990-95	3	4	32
Indonesia	1990-95	8	13	42
Laos	1990-95	12	11	47
Malaysia	1990-95	1	ND	ND
Mongolia	1990-95	ND	2	26
Myanmar	1990-95	16	8	45
Philippine	1990-95	5	8	33
Thailand	1990-95	4	6	22
Vietnam	1990-95	11	12	47
Bangladesh	1990-95	21	18	55
India	1990-95	21	18	52
Nepal	1990-95	16	11	48
Pakistan	1990-95	13	9	50
Sri Lanka	1990-95	7	16	24
DPRK	1998	32 ¹⁾	19	57

Note: 1) = Under 7 Years of Age

ND = No Data

Sources: UNICEF, electronic database; World Food Programme 1999.

sentative. For North Korea, the data are more problematic: there we draw upon a purportedly random sample for a single year, conducted by foreign organizations in the DPRK who were granted only grudging and limited cooperation by local authorities and in the event were only able to measure a total of 102 seven-year-old boys for their survey! We should not overly invest confidence in the exact figures recorded and computed on the North Korean side of the ledger. Even so, the results are arresting.

By the late 1990s, to go by Figure 1, the “average” (mean) seven-year-old boy in South Korea may have been as much as 20 centimeters taller than North Korean seven-year-old boys. If these DPRK data are even roughly accurate, moreover, South Korean boys this age were far taller three decades ago than North Korean boys are today. Although we lack the data to conclusively establish this comparison, it would seem reasonable, judging from ROK growth trajectories traced out in Figure 1, to surmise that the DPRK boys surveyed in the late 1990s were probably shorter than ROK boys of the same age had been back in the Korean War era!

Figure 2 seems to tell a similar story. If these data are reliable, North Korean seven-year-old boys would have weighed nearly 10 kilograms less than their South Korean counterparts around 1997-98. That is to say: at present, a seven-year-old South Korean boy would weigh roughly two thirds more than a North Korean boy of the same age. To judge by those data, furthermore, South Korean boys were not nearly so light thirty-five years ago as North Korean boys are today.

The data in Table 3 and Figures 1 and 2 are evocative. In starkly physical terms, they suggest that the health status of the North Korean population differs dramatically from that of South Korea today—likely more than ever before. These differences, furthermore, imply diminished or constrained capacities for the North Korean populace—and such constraints are inherently subject to only gradual relaxation over time.

III. Urbanization

The level and pace of urbanization provides some indications of a country's social and economic development. Data on urbanization in North and South Korea are presented in Figure 3. (See Figure 3) According to these figures, both North and South Korea have made the transition from a predominantly rural to a predominantly urban way of life.

North Korea's level of urbanization appears to have been higher than South Korea's for some time after the Korean War, but the DPRK seems to have been surpassed by the ROK during the 1970s. Since then the pace of urbanization has continued to be brisk in South Korea, whereas it appears to have stagnated in the North. These trends may be read as a commentary on overall development patterns in the two Koreas; one must caution, though, that the slow pace of urbanization in North Korea over the past two decades could also reflect non-economic factors (e.g., possible policies to disperse population for security or military reasons).

It is possible that Figure 3 exaggerates North Korea's urbanization in comparison with that of South Korea. North Korea's definition of "urban area" appears to be both undemanding and exceptionally elastic²⁸; consequently, many places that would not qualify as urban in the ROK may be counted as urban in the DPRK. One hint to this effect: whereas almost 60 percent of North Korea's population was defined as "urban" in 1987, only 37 percent of North Koreans at the time lived in cities of 100,000 or more. In South Korea, well over half of the entire populace lived in such cities in 1985. Thus, whereas only one in six urban South Koreans at that time lived in cities of less than 100,000, fully 3 out of 8 "urban" North Koreans did so.

IV. Militarization

The DPRK maintains an exceptionally — indeed an extraordinarily — militarized society and economy. Indications of just how militarized North Korea has become can be found in estimates of military manpower. (See Figure 4) (The figures for North Korea are reconstructions of the "noncivilian male" population, based upon official DPRK population data.)

Throughout the 1970s, 1980s, and 1990s, South Korea maintained a relatively stable number of men under arms. North

28) For more details, see "Our Own Style of Statistics," *loc. cit.*

Korea, by contrast, appears to have pursued a steady military buildup during the 1970s and 1980s. By the late 1980s, even though South Korea was fielding one of the world's largest armies, North Korea – with a population only half as large – was apparently billeting twice as many soldiers. By those numbers, North Korea would look to have been the most militarized country in the world at that time, with over 6 percent of its total population in the armed forces (a fraction similar to that of the United States in 1943), and fully a fifth of the country's men between the ages of 16 and 55 in the barracks.²⁹⁾

Just how large the North Korean armed forces are today is not clear. Pyongyang's 1993 census can be interpreted as indicating a military strength of just under 700,000; on the other hand, inconsistencies within that census – and between that census and earlier DPRK population registration data – are consistent with a proposition that hundreds of thousands of additional men of military age were deliberately overlooked in the 1993 count.³⁰⁾

Even if the lower, officially released, figure turned out to be close to the mark, North Korea today would be a country shouldering a tremendously heavy military burden. Moreover, it is entirely possible that North Korea's degree of militarization may actually have *risen* over the past decade: such an outcome could have been assured, in fact, simply by a more

29) For more details, see *The Population of North Korea, loc. cit.*, pp.86-97.

30) For more details, consult "Our Own Style of Statistics," *loc. cit.*

rapid tempo of economic decline in the DPRK's civilian sector than in its military sector. Given the North Korean government's adamant and explicit commitment to augmenting its military power³¹⁾ that possibility should not be regarded as fantastical. Unfortunately, for the time being all attempts to estimate the actual level of "military burden" for the DPRK economy amount to little more than rank guesswork.

If the two Koreas do eventually enter into a peaceful re-integration, there would be scope for a vast "build-down" of military forces on the peninsula. This would be especially true for North Korea, where a very substantial proportion of the population of "economically active age" could be released to other pursuits. As a consequence, most of the presumably high fraction of North Korea's capital stock currently devoted to supporting the military industries would have to be converted, or simply scrapped.

V. Labor Force

mation than ever before is available on the North Korean workforce. These data, to be sure, are not bereft of ambiguity: while one assumes that the figures include workers in the country's extensive military-industrial sector, for example, the

31) For a fuller description of North Korean military policy in the context of its economic development, see Nicholas Eberstadt, *The End of North Korea*, Washington, DC: AEI Press, 1999, esp. Chs. 1 and 2.

census does not spell this out. Such ambiguities notwithstanding, the census numbers provide insights into both social arrangements and patterns of development, and can be contrasted with the apposite data from South Korea. (See Table 4)

According to the figures in Table 4, North Korea's overall labor force in 1993 was just over half as large as South Korea's in 1995. Both workforces had made the transition from a primarily agricultural to a primarily non-agricultural pattern of employment. That said, the distribution of the labor force among economic sectors nevertheless looks strikingly different in the two Koreas.

Not surprisingly, "commerce" absorbs much less of the North Korean than the South Korean workforce (5 percent vs. 18 percent). More unexpected is the finding that North Korea devotes a rather smaller share of its manpower to construction than does South Korea (4 percent vs. 9 percent)—a reflection, perhaps, of the fact that by the early 1990s the troubled DPRK economy was simply not undertaking many new building projects.

In keeping with its traditional emphasis on development of industry (especially heavy industry), "manufacturing" absorbs more North Korean manpower than any other sector. On the other hand, "farming" also accounts for well over 30 percent of North Korea's employment, whereas it is less than 13 percent in South Korea. Table 5 places North and South Korean labor force participation rates in international perspective.

<Table 4>

Distribution of Labor Force: DPRK 1993 vs. ROK 1995

	DPRK		ROK	
	Total(1000s)	Percent	Total(1000s)	Percent
Overall Labor Force	11,004	100%	20,377	100%
Manufacturing	4,118	37.4	4,773	23.4
Farming	3,381	30.7	2,551	12.5
Construction	464	4.2	1,896	9.3
Transport and Communication	402	3.7	1,068	5.2
State farms	251	2.3	—	—
Commerce	509	4.6	3,763	18.4
Education, Culture, Health	844	7.7	1,312	6.4
Others	1,305	9.4	5,014	24.8

Sources: Derived from DPRK Central Bureau of Statistics, *Tabulation of the Population Census of the Democratic People's Republic of Korea*, and ROK National Statistical Office, *Korea Statistical Yearbook 1996*.

(See Table 5) Even for a Communist society, North Korea's degree of labor force mobilization appears to be remarkably high. Note further that these North Korean rates ostensibly pertain to the *civilian* population only. If military manpower were taken into account, the rate for "mobilized adult manpower" would be still higher — perhaps even historically unparalleled.

Clearly, a peaceful reintegration of the two Koreas would

<Table 5>

Labor Force Participation Rates for North and
South Korea and Selected other Countries, Recent
Years (percent)

<u>Country (year, age-group)</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>
North Korea, excluding army (1993, 16+)	76.0	84.6	68.9
South Korea (1995, 15+)	62.0	76.5	48.3
<u>Communist States</u>			
Czechoslovakia (1980, 15+)	67.8	75.5	60.8
East Germany (1981, 15+)	67.5	76.2	60.0
Hungary (1980, 15+)	60.5	71.9	50.2
Cuba (1981, 15+)	53.4	72.8	33.8
China (1982, 15+)	78.7	86.5	75.0
Vietnam (1989, 15+)	77.3	81.6	73.6
<u>Asian NICs</u>			
Hong Kong (1995, 15+)	62.8	77.3	48.0
Taiwan (1989, 15+)	60.4	74.8	45.4
Singapore (1995, 15+)	64.3	78.4	50.0
<u>Developed Market Economies</u>			
Germany (1995, 15+)	58.5	69.7	48.2
Japan (1995, 15+)	63.4	77.6	50.0
Switzerland (1995, 15+)	55.0	64.0	46.4
United States (1995, 16+)	66.6	75.0	58.0

Sources: Derived from DPRK Central Bureau of Statistics, *Tabulation of the Population Census of the Democratic People's Republic of Korea*; ROK National Statistical Office, *Social Indicators in Korea 1995* and *Korea Statistical Yearbook 1996*; ROC Executive Yuan, Department of Budgeting, Accounting, and Statistics, *Republic of China Statistical Yearbook 1990*; all others, ILO, *Yearbook of Labour Statistics*, various editions.

portend vast, possibly wrenching, changes for the North Korean labor market. If, as a very crude first approximation, we hypothesize that North Korean labor force participation rates were made to match those currently seen in the South Korean, over two million North Korean “workers” would immediately be redundant. (Posit massive military demobilization, and that total quickly approaches three million — out of a total adult population of about 15 million, and a total economically (or militarily) active population of about 12 million.)

But even these large numbers might underestimate the scale of labor force displacement, because at South Korean participation and distributional patterns, there would be only a little over a million “farmers” in the North (as opposed to the 3.6 million registered in the 1993 census), and only a little over two million workers in the manufacturing sector (as opposed to the 4 million plus reported by North Korea in 1993). Simply conforming to South Korea’s sectoral employment patterns and labor force participation rates would imply that very nearly half of North Korea’s workers would have to find new jobs or leave the workforce altogether (even more than half, if one envisions significant military demobilization and considers soldiers as “employees”).

Few available data pertain to the economic potential of today’s North Korean workers. The health and education of a workforce bear directly upon its capacity to produce. Yet at the moment, as already noted, we lack reliable current figures relating to the health of the North Korean populace. And while it would be helpful to know something about the

educational background of the North Korean labor force, the DPRK's population count, in contradistinction with most contemporary population censuses, evidently did not gather any information on educational attainment!³²⁾

Although information on the potential productivity of North Korea's workers is all but nonexistent, the DPRK's labor force distribution patterns provide hints about overall productivity levels, and trends, in that economy. Figure 5, for example, contrasts trends in employment in the "primary sector" (e.g., farming, forestry and fishing) in North and South Korea in the 1980s and 1990s. (See Figure 5) In 1993, "farming" occupied about a third of North Korea's workforce. Accounting for forestry and fishing (as does South Korea in its figures on "primary sector" workers) would presumably raise that fraction still further for North Korea.

Although a strict and mechanistic correspondence between

32) In an earlier study, though, Eberstadt and Banister showed that North Korea's episodically released numbers on school enrollments would have been consistent, by the 1980s, with near-universal primary school education, with relatively high rates of secondary school enrollment, and with quite a high proportion of adults with some post-secondary education. (*The Population Of North Korea, op. cit.*) These ratios, of course, tell us nothing about the quality or content of the education obtained.

The 1993 North Korean census did provide information on the distribution of so-called "technicians and specialists" within the workforce, but that certification looked to be decidedly non-educational in nature: whereas the highest incidence of post-secondary education would have been expected among persons in their late 20s, the proportion of "technicians and specialists" is by far the highest for workers over 60 years of age!

sectoral employment patterns and per capita output obviously should not be expected,³³⁾ it is nonetheless interesting to note that the last time “primary sector” activities occupied 35% or more of South Korea’s workforce was in the late 1970s—when per capita output in the ROK was roughly only a quarter as high as it is today. We may further note that the displacement of manpower out of agriculture appears to have been much more rapid in South Korea than in North Korea during the 1980s and 1990s (to judge at least by the DPRK’s reported figures on the share in its workforce of “farmers”—a class category, not an occupational category). These findings are consistent with the propositions that 1) even before the DPRK’s food emergency, the level of material attainment was much higher in the South than in the North; and 2) the pace of development has been markedly higher in the South than in the North for at least a generation—that is to say, since well before the DPRK’s post-Cold War economic troubles.

VI. Foreign Trade and Domestic Economic Infrastructure

“Mirror statistics” for North Korea and reported trade data

33) Despite the robust international patterns that have been identified here. See, for example, Moishe Syrquin and Hollis B. Chenery, *Patterns of Development: 1950 to 1983*, Washington, DC: World Bank, 1989.

for South Korea permit comparison of the two Korean economies in a number of meaningful ways (characteristic limitations of “mirror statistics” notwithstanding³⁴). The following estimates on trade turnover for North and South Korea are given in current US dollars — *not* real, inflation-adjusted dollars — for a variety of technical reasons.³⁵

Figures 6 and 7 contrast overall trade trends in North and South Korea between 1972 and 1997. (See Figures 6 and 7) Over those two decades, the nominal value of South Korea’s trade turnover exploded, jumping by a factor of almost 70 to reach \$136 billion in exports and \$144 billion in imports in 1997. Even after adjusting for rises in the international price level, South Korea’s trade expansion over this period was extraordinary: the real increase in trade volume for the ROK over this interval was probably over 20-fold,³⁶ indicating that real per capita imports and exports may have risen by something like a factor of 15.

34) On the general characteristics of “mirror statistics,” see Oskar Morgenstern, *On The Accuracy of Economic Observations*, Princeton, NJ: Princeton University Press, 1963, Ch. IX. An additional complication in North Korea’s case is the relatively large share of DPRK international commerce in illicit goods (weaponry, narcotics, and the like) that ordinarily do not show up in trade partners’ official export or import accounts.

35) Most important among these: the absence of any reliable index for converting current Soviet rubles (in which much of North Korea’s trade was denominated) into constant US dollars.

36) Series deflated against U.S. producer price index, as reported in U.S. Bureau of Census, *Statistical Abstract of the United States 1998*, Washington, DC: Government Printing Office, 1998, p.487.

The ROK's approach to trade and the international economy—a strategy described as “export orientation” in current economic literature³⁷⁾—was central to the country's great successes in economic development over the past three and a half decades. The determination to participate in, and compete in, the world economy opened the ROK to dynamizing pressures and opportunities, and played a major role in the amazingly rapid economic transformation that South Korea has experienced over the past generation and a half. (Though the economic shocks and adjustments, South Korea suffered in the wake of its late 1997 international liquidity crisis have certainly reminded those who needed reminding that ROK material performance over the past generation was no miracle, the short, deep recession of 1998/99 neither erased the tremendous gains that the country accrued under its export orientation policies nor cast serious doubt on the soundness of that outward-looking approach.)

In addition to dramatically expanding its aggregate trade volume, South Korea's trade composition has progressively shifted; agricultural commodities and labor-intensive wares

37) For expositions on the dynamics of export orientation by some of its prominent proponents, see Bela Balassa, “Outward Orientation,” in *idem.*, ed., *Policy Choices for The 1990s*, New York: New York University Press, 1989, pp.3-55; Anne O. Krueger, “Asian Trade and Growth Lessons,” *American Economic Review*, vol.80, no.2, 1990, pp.108-112; and Deepak Lal, “Foreign Trade Regimes and Economic Growth in Developing Countries,” in *idem.*, ed., *The Repressed Economy: Causes, Consequences, Reform*, Brookfield, VT: Ashgate, 1993, pp.169-197.

have steadily given way to complex manufactured goods and technology-intensive products. This was especially evident in the ROK's export sector. In 1972, machinery and equipment (in the SITC taxonomy, category "7") accounted for less than 11 percent of South Korea's merchandise exports; by 1997, that fraction had jumped to fully 50%. This dramatic shift in the composition of South Korean exports reflected the dramatic underlying structural changes in the economy generating those exports.

North Korea's trade patterns tell a very different tale. In 1972 with a population, remember, roughly half the size of South Korea's—the value of the DPRK's estimated merchandise trade turnover was about 27 percent of South Korea's; by 1997, it had plummeted to less than one percent of the ROK level. That decisive and overwhelming tilt in trade performance on the Korean peninsula spoke not only to South Korea's great successes in international commerce, but to jarring North Korean failures. If South Korea's achievements in expanding trade volume over the quarter century between 1972 and 1997 rank among the world's very best, North Korea's trade performance over that period ranks among the very poorest.

In quantitative terms, aggregate identified North Korean trade turnover rose by just 88 percent between 1972 and 1997 *in nominal dollars*. (By way of comparison: nominal trade turnover for the world as a whole is estimated to have increased by almost 1,300 percent over this same interim; and even the economically troubled African continent registered a nominal increase of about 650 percent over those same

years.³⁸⁾ Although North Korea's total population in 1997 is still a matter of some uncertainty, it is clear that the DPRK's population in 1997 was significantly higher than it had been in 1972; consequently, North Korea's nominal per capita growth in trade turnover would have been even lower than this. Given the prominence of transactions in nonconvertible currencies in North Korea's trade ledgers up through the end of the Cold War, and the problems of converting current Soviet trade rubles into constant US dollars, we cannot offer a precise estimate for the trends in North Korea's real trade volume between 1972 and 1997. If, however, we *were* to adjust North Korea's estimated current dollar trade series against the US producer price index, we could calculate an implied decline in trade turnover of about 40 percent between 1972 and 1997—and an implied drop in per capita trade turn-over on the order of 55-62 percent.³⁹⁾

In all, then, the proposition that North Korea's real per capita trade volume declined substantially between 1972 and 1997 looks like a fairly safe one. A substantial decline in real per capita exports and imports over a twenty-five year period, in turn, would have major implications for our understanding of the long-term performance of the North Korean

38) Derived from International Monetary Fund, *International Financial Statistics Yearbook 1998*, Washington, DC: IMF, 1998, pp.126-131. Note that the figures for Africa refer only to 1972-1996, and therefore somewhat understate the nominal expansion of trade for the continent.

39) Presuming mid-year 1997 populations of 21 million and 24 million, respectively.

economy. It would indicate either a significant turn towards autarky during the period in question; or a notable decline in output per person during the years under consideration—or within fairly broad parameters, the possibility of both increased autarky and decreased per capita output.

North Korea's trade performance, like all other aspects of its economic performance, has suffered sharply since the end of the Cold War and the collapse of the state's Soviet bloc benefactors. But it would be unwise to exaggerate the DPRK's trade performance even during its "Golden Age."

In nominal dollar terms, identified North Korean trade turnover reached its apogee (just under \$5 billion) in 1990. That would have made for a nominal 330 percent rise over 1972. Such a record hardly qualifies as a distinctive achievement: over those same years, beleaguered Africa registered a 425 percent increase.⁴⁰⁾ That nominal DPRK trade increase, in any case, would have amounted to only about 210 percent on a per capita basis—and if deflated by the US producer price index, would have implied a "real" per capita increase in trade turnover of under 10 percent! Any (slight) gain in real per capita North Korean trade volume during this "heyday" of North Korean international commerce, furthermore, could not be attributed to DPRK performance in competitive global markets. Instead, in purely arithmetic terms, it must be *entirely* ascribed to the growth of Soviet-DPRK commerce between 1984 and 1990—and that was a com-

40) *International Financial Statistics Yearbook 1998*, pp.126-131.

merce willed into existence by political figures in Moscow during the 1980s after Leonid Brezhnev's death. When Moscow's political will to subsidize that traffic evaporated, the commerce evaporated as well. North Korea's trade policies, in short, were not designed to be economically self-sustaining—and in the event have proved to be fatefully unsustainable. North Korea's bleak economic performance over the generation between 1972 and 1997 is underscored not only by trends in the aggregate volume of its international trade, but also by the composition of this trade. Unlike South Korea's steadily shifting export structure, North Korea's export patterns (as reflected by mirror statistics) were basically stuck in the same makeup between the early 1970s and the late 1990s. Over this period, identified (i.e., civilian-sector) exports consisted principally of extracted minerals (gold, magnesite), relatively simple manufactured goods (steel, cement, and later textiles⁴¹), and agricultural goods (rice, marine products). Exporting limited quantities of such merchandise, of course, hardly requires much technical attainment. And unlike other developing countries with largely urbanized populations and predominantly nonagricultural workforces, the DPRK evidently

41) Under the DPRK's last 5-year economic agreement with the USSR, a North Korean apparel industry was stimulated by Soviet design; clothing and textiles—mainly, Moscow-bound—came to account for a substantial share of North Korea's overall exports. With the end of the USSR, however, North Korea's textile and clothing exports entered into a slump from which they have not yet recovered. For further discussion, see Nicholas Eberstadt, *The End of North Korea*, *loc. cit.*, Chapter 5.

failed to develop any appreciable capability to export machinery and equipment. According to reports by its trading partners, “capital goods” would have accounted for less than 8 percent of North Korea’s international merchandise sales in 1995 – scarcely more than the negligible 4 percent recorded a quarter century earlier.⁴²⁾ The long-term stasis in the structure of North Korean exports (as reflected in “mirror statistics”) looks to be entirely consistent with the proposition that the North Korean economy has been beset by a pronounced technological stagnation for at least a generation.

Trade data and mirror statistics, as it happens, can provide further, and somewhat more specific, insights into the state of a country’s economic infrastructure. Figures 8 and 9, for example, trace aggregated trends in imports and exports of machinery and “capital goods” in the two Koreas. (See Figures 8 and 9) These figures attest to the continuing modernization of the ROK capital stock through the import of productivity-enhancing foreign machinery. As South Korea developed, machinery imports came to account for an ever-greater

42) We should note that somewhat different definitions of “capital goods” and “machinery and equipment” are being used for North Korean and South Korean merchandise trade. In practice, these definitional differences only slightly affect calculated results, and have no bearing whatever on the broad trends described in this section.

It is worth noting, however, that North Korean “mirror statistics” cover only the commerce its partners voluntarily report. Exports of North Korean military hardware, for instance, almost never show up in such numbers. Thus “mirror statistics” may not fully represent the technological capabilities of the DPRK.

fraction of overall ROK imports (roughly half the total by the mid-1990s).

In North Korea, on the other hand, 1975 looks to have been the high-water mark for capital goods imports, even in nominal terms; if trends could be measured in real terms, capital equipment imports may well have trended downward through the 1970s, 1980s, and 1990s. No less significant, the share of capital goods within DPRK imports appears to have declined progressively over these same decades. As a result of those longstanding patterns (and, presumably, the policy directives that created them), North Korea today surely has one of the lowest proportions of foreign machinery in its overall capital stock of any modern country. Thus, paradoxically, despite the DPRK leadership's seeming fetish for "investment," *effective* investment in industrial infrastructure—and thus potential for industrial production—has been severely constrained by the regime's own policies.

North Korea's marked allergy to capital investment on the basis of imported foreign machinery appears to have been unique even among Communist economies, let alone market-oriented economies. (See Table 6) One consequence of this allergy has been the aforementioned inability to generate exports of machinery or capital goods. On a per capita basis, North Korea's level of such exports is probably lower today than it was a decade ago—possibly even two decades ago.

Noteworthy also is the conspicuous lack of investment in "transport equipment" revealed by DPRK mirror statistics. Based on those numbers, it would appear that the DPRK has

<Table 6>
 DPRK and ROK Capital Goods Trade
 in International Perspective

Country/region	Capital Goods as a Proportion of Trade (percent)			Capital Goods Trade per person (current \$ value)		
	Import					
	1970s	1980s	1990s	1970s	1980s	1990s
USSR	35.9	37.1	—	45	18	—
CMEA Europe	35.7 ¹⁾	31.7 ²⁾	—	175 ¹⁾	303 ²⁾	—
Cuba	26.6	31.7	21.0	97	237	77
China	21.8 ³⁾	28.6	37.8	2 ³⁾	10	28
DPRK	27.7 ⁴⁾	19.8	16.4	14 ⁴⁾	17	9
ROK	28.8	30.2	35.1	68	238	774
Developing Economies	27.4	32.1	46.5 ⁵⁾	27	57	114 ⁵⁾
	Export					
	1970s	1980s	1990s	1970s	1980s	1990s
USSR	18.4	14.6	—	24	49	—
CMEA Europe	42.3 ¹⁾	46.7 ²⁾	—	192 ¹⁾	455 ²⁾	—
Cuba	negl.	negl.	negl.	negl.	negl.	negl.
China	3.7 ³⁾	3.3	13.9	negl. ³⁾	2	11
DPRK	3.8 ⁴⁾	6.9	10.4	1 ⁴⁾	6	6
ROK	14.8	32.3	45.0	32	294	922
Developing Economies	4.8	12.8	27.4 ⁴⁾	4	23	67 ⁵⁾

Notes: 1)=1970, 73-79; 2)=1980-88; 3)=1980, 75-79; 4)=1972-79; 5)=1990-94.

Trade volumes estimated in current \$ at official exchange rates, imports c.i.f. (except developing economies), exports f.o.b. "Developing Economies" defined per UN taxonomy (less China); per capita trade volumes calculated according to 1975, 1985, 1990/95 pop.

Source: Eberstadt, "Self-Reliance and Economic Decline"

been seriously underinvesting in means of transport for the better part of the past generation. The revolution in transp-

ortation that has swept up the rest of the world, to go by these data, has passed the DPRK by.⁴³⁾ To judge by the clues from mirror statistics, North Korea's transportation and communications infrastructures today are probably woefully underdeveloped.

Over the past decade several major economic studies have detailed the relationship between investment in capital equipment—including imported capital goods—and economic growth.⁴⁴⁾ These studies indicate that capital goods imports can serve as a critical means to reduce production costs and improve productivity in any country's domestic economic infrastructure. Outward-oriented trade policies and heavy investment in foreign machinery and equipment have made for a complete transformation of South Korea's economic infrastructure over the past generation, in the process facilitating sustained rapid economic growth and permitting the country to approach Western levels of productivity.⁴⁵⁾ North Korea's stringently enacted trade regimen, for its part, was set on almost

43) For more details, see "North Korea's Interlocked Economic Crises," *op. cit.*

44) Cf. J. Bradford De Long and Lawrence H. Summers, "Equipment Investment and Economic Growth," *Quarterly Journal of Economics*, vol.106, no.3 1991, pp.445-502; Jong-wha Lee, "Capital Goods Imports and Long-Run Growth," *Journal of Development Economics*, vol.48, no.1, 1995, pp.91-110.

45) In 1998—a year, recall, of acute recession in the ROK—South Korea's per capita GNP, measured in PPP dollars, was placed by the World Bank at 42 percent of the US level, 58 percent of the German level, and 94 percent of the Greek level. World Bank, *World Development Report 1999/2000*, New York: Oxford University Press, 1999, pp.230-231.

diametrically opposite objectives: that is to say, avoiding integration with the world economy and minimizing imports of foreign capital goods. The results of Pyongyang's policies were entirely predictable—and economically adverse. To infer from available data, North Korea seems to have constructed a high-cost, low-productivity industrial infrastructure—and a fragile one at that. Pyongyang's longstanding quest for economic “self-reliance” may have succeeded in building the envisioned “independent national economy” for the DPRK—but that assiduously created “independent” economy is presently incapable of supporting its own populace, and is thus structurally dependent upon the largesse of foreign governments for sustenance.

VII. National Output

With the 1997 IMF “fact finding mission” to the DPRK, official figures have been transmitted by Pyongyang on to the outside world concerning the country's national accounts and patterns of aggregate economic output. (See Table 7) Enormous unresolved questions weigh upon these disclosures: it is not clear, for example, if these numbers are meant to include the military economy or not; no price deflators were offered; presentation of output in terms of US dollars is, to say the least, a highly problematic proposition; and it is hardly self-evident that the DPRK would be capable of measuring value added in its economy under the best of circumstances.⁴⁶⁾ For

46) The problems with these data are discussed at greater length in “Our Own

<Table 7>
 Official Data on GDP and its Composition:
 DPRK and ROK, 1993

	<u>DPRK</u>	<u>ROK</u>	<u>Ratio</u>
GDP (current \$US million)	20,935	333,022	16:1
GDP per capita	990	7,600	7.7:1
Sectoral Output (current \$US million)			
Agriculture	8,227	23,978	2.9:1
Industry	4,689	89,916	19.2:1
Construction	1,256	46,290	36.9:1
Other	6,762	173,504	25.7:1
Sectoral Output (percent)			
Agriculture	39.3	7.0	0.18:1
Industry	22.4	27.0	1.2:1
Construction	6.0	13.9	2.3:1
Other	39.3	52.1	1.6:1

Note: US\$ values calculated on the basis of official exchange rates.

Sources: ROK: Derived from ROK National Statistical Office, *Korea Statistical Yearbook 1996*.

DPRK: International Monetary Fund, "Democratic People's Republic of Korea, Fact Finding Report"; and DPRK Central Bureau of Statistics, *Tabulation of the Population Census of the Democratic People's Republic of Korea*.

all these serious and unresolved problems, it may nevertheless be worthwhile to compare reported recent patterns of output in North and South Korea.

If we were to give credence to the numbers in Table 7,

Style of Statistics," *loc. cit.*

aggregate GDP in 1993 would have been about 16 times larger in the ROK than in the DPRK; per capita output would have been about 8 times higher in the South than in the North. By those same numbers, agricultural output in the South would have been “only” three times higher than in the North – a curiously small difference, considering that 1) the population of the South was twice as large as the North’s; 2) farm output in the South is valued at nearly twice world (international) prices; 3) the North in 1993 was only months away from publicly declaring a severe food shortage and seeking international emergency food aid on a humanitarian basis. In other sectors, reported gaps are vastly greater: recorded differences range from roughly 20-to-1 to nearly 40-to-1 – numbers that, if trusted, would imply differences of per capita output of roughly 10-to-1 to 20-to-1.

We have no way of testing, or replicating, these DPRK national accounts figures. It would be highly unwise to hamess those statistics to any exacting purposes. Suffice it to say that these figures comport with the prevailing assumption (supported by a variety of data not drawn upon in Table 7) that per capita output has been dramatically higher in South than in North Korea for some considerable time.

VIII. Concluding Observations

Given the imprecisions of any statistical comparison of contemporary North and South Korea, curiosity must be tem-

pered by caution. False precision will not serve our aims. Yet when all is said and done, our search for numbers about the North's social and economic circumstances may be said to reinforce, and indeed to enhance, a number of prevailing impressions about divided Korea.

Available data affirm the common perception that the DPRK economy has been, and continues to be, extraordinarily militarized, structurally distorted, and sheltered from interaction with world markets. They also trace out a most peculiar "development path" for North Korea since the 1953 Korean War ceasefire: a parabolic trajectory, in which rapid structural change and material progress gradually gives way to a period of stagnation, and thereafter to severe decay and decline. As best as can be told from available data, that phase of decay and decline has not yet abated for the DPRK. Quite the contrary: to judge by available empirical evidence, North Korea is currently suffering from economic and social retrogressions so pervasive and so serious that we may properly talk about a "systemic failure" in the contemporary DPRK.

Of all the post-World War II national "development experiences," there may be none other than the DPRK's in which such palpable early material successes were followed by such extreme and prolonged material failure. Attempting to explain the dynamics of North Korea's long-term performance would take us far a field.⁴⁷⁾ For the purposes of this volume, it

47) One attempt to illuminate those dynamics, however, may be found in my recent study, *The End of North Korea*, *loc. cit.*

may suffice simply to emphasize that the North Korean “development strategy” has proved to be manifestly unsustainable, and remains utterly unworkable today.

The long-gathering failure of the North Korean economic system is, very largely, responsible for the “developmental gap” that separates North and South Korea today. Per capita output is now obviously far lower in North than in South Korea, although it is impossible to say just how great that differential may be. By any relevant quantifiable measure — international trade volume, output of physical goods — that gap looks to have been widening over the past decade. As long as the current DPRK regime remains in power and cleaves to its traditional political economy, we may anticipate that the difference in per capita output between North and South will widen still further.

For most of the history of divided Korea, our few available indicators of human resource development pointed to remarkable similarities between circumstances in the North and the South. In particular, estimates of life expectancy at birth for the ROK and the DPRK were essentially indistinguishable for the 1960s, the 1970s and even the 1980s — that is to say, even after a yawning divide in economic productivity is generally thought to have opened between the two societies.

Over the past decade, unfortunately, an additional gap in “human development” between the two Koreas has made itself glaringly evident. The ongoing food crisis in North Korea is only the most vivid indication of that gap. Although we lack precise figures, it is apparent that trends in life expect-

tancy at birth have been moving in opposite directions over the past decade in the two Koreas. Available anthropometric data, furthermore, strongly suggest that North Korean and South Korean children, though identical in heritage and ethnicity, are now strikingly different in their very heights and weights. Such significant differences in weight and stature may well indicate that other meaningful differences in “human capital formation” now distinguish the North Korean populace from the South Korean populace.

Our attempt to provide a quantitative comparison of socio-economic conditions in the two Koreas points to the enormity of the challenges that lie in store in the event of a reunification. As a first order approximation, it may be the case that North Korea’s entire capital stock would be next to worthless under open, competitive, market conditions. And it is hardly unreasonable, in the light of the data we have reviewed, to imagine that most North Korean workers would have to find new occupations if their system were exposed to systematic market forces.

Yet daunting as these potential adjustments may appear, it is possible that they would pale next to the human resource problems to which we have alluded; in the final analysis, the DPRK’s legacy to a united Korea will be the human potential it contributes to the venture.

Given the proper institutional framework and enlightened governmental policies, rapid recovery and sustained development can be elicited in settings where economic infrastructure has been utterly destroyed and labor markets thoroughly dis-

rupted, but where human capital has been largely preserved (viz., postwar Japan and West Germany). But even under auspicious institutional and policy environments, the prospects and scope for recovery and development will depend critically upon the available human resources.

At the moment, we know amazingly little about the quality of human resources in the DPRK. While North Korea has a highly – indeed, extraordinarily – mobilized adult workforce, the capabilities of that population have not been adequately surveyed at this time. Virtually no data are available about the educational attainment of the populace. Such data as we have regarding mortality and health, however, seem to mark out ominous tendencies.

As we know, under certain auspices, policy regimens can be changed very rapidly; under particular political conditions, institutional frameworks can be reconfigured swiftly as well. Human resources cannot be altered so summarily: their augmentation and development can only take place over historical periods of time.

As we consider a possible Korean reunification, it is essential to think about optimal institutional arrangements and government policies – as we do in these volumes. But it is also important to recognize that the pace of economic recovery and development for the population of the North will also depend upon their levels of human resources – quantities whose dimensions are largely uncharted, and which lie beyond the immediate influence of policymakers.

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Economic Policy during and after Reunification in Korea

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I. Introduction

During the past half century, we have witnessed the relative merits of two competing economic systems: one based on socialist economic planning and the other on market and price mechanisms, as historical accidents gave rise to the division of nations into two states—one that adhered to the doctrines of socialism while the other sought a free-market system. These historical accidents are the formerly divided Germanys and the still-divided Koreas. While both systems appeared in their own ways to work well, global developments starting from the late 1980s have conclusively proven that, eventually, an economic system based on central dictates fails to ensure the well-being of the members of society. Aside from witnessing the astonishing collapse of the Soviet Union and the widespread famine in North Korea, perhaps the most persuasive evidence can be drawn from the fact that market economy-based West Germany has successfully managed to absorb socialist-communist East Germany.

For the purposes of this chapter, we hypothesize a merger of the two Koreas in which the Southern half will play a role akin to that of West Germany in its own reunification with its Eastern counterpart. Numerous studies conducted on the subject of Korean reunification have taken developments in Germany as a historical case from which lessons should be drawn. In these studies, there are two prevalent conclusions. First, it is broadly acknowledged that reunification

on the Korean peninsula will be a much more complicated affair, owing to factors peculiar to the two Koreas. For example, the two Germanys never experienced full-scale war, as was the case in Korea, where armed conflict lasted for over three years with millions of casualties on both sides. The second conclusion is that the economic burden of a German-style rapid reunification would be much higher in Korea. There are very simple reasons for this. The Koreas have a much larger income gap than the Germanys did at the time of their reunification. The Koreas also have an unfavorable North/South population ratio, which means that while every East German was effectively supported by taxes from about four West Germans, each North Korean will have to rely on less than two South Koreans.¹⁾

We intend to explore three issues in this chapter. First, what kind of assimilation policy should the South follow once it is faced with the same situation that West Germany was facing in 1990? Second, what should be the basic guidelines for economic policies during the transition period? Third, what should be the desirable role of the government

1) As of 1990, the populations of West and East Germany were 62.7 and 16.7 million respectively. In comparison, those of South and North Korea were 44.8 and 25.2 million respectively in 1995. On the other hand, the ratio of per capita GDP for West and East Germany was about 2.2 in 1990 (for the same year, the West German per capita GDP was US\$22,360), while the comparable ratio measured in terms of GNP was 10.5 for South and North Korea in 1995 (for the same year, South Korean per capita GNP was US\$10,076). (Sources: Lichtblau, 1998)

in promoting sustainable economic development in the post-reunification period?

With regard to the first issue, a large majority of studies support the view that a gradual approach is more desirable than a sudden one.²⁾ Our own view is also that gradual reunification is preferable and, ideally, two distinct economic zones should be administered for some time prior to the complete merger of the two economies. This choice is particularly applicable with respect to the speed of assimilation of labor markets and the general population of the two Koreas, which is one of the first decisions that need to be made. Two scenarios are possible. The first would allow for the completely free movement of residents of both halves of the country immediately following reunification, as was permitted in the German case. The second option is to only allow limited population movement in the early stages. This is akin to the 'one nation-two system' approach followed by China in preparing for its ultimate union with Hong Kong. These two options entail different consequences and hence different sets of policy prescriptions.

2) However, the opposing view is that a faster reunification might actually be necessary in order to halt the desperately deteriorating conditions in North Korea (e.g., Eberstadt, 1997). In addition to security-related concerns, economic reasoning for advocating a speedy reunification asserts that substantial benefits can be derived from reduced military expenditures. For example, despite the fact that Jo (1997) does not explicitly advocate early reunification, he does make a case for the substantial potential economic gains that could be created under this setting.

The main consideration behind such a conclusion concerns the huge economic burden that the South will have to bear. The German experience for the ten years since reunification also offers valuable lessons in assessing the two different courses of actions. Germany basically allowed full population mobility after reunification and many expected a rapid equalization of income between the two regions in the form of the East catching up rapidly with the West (Berentsen, 1990; Hallett and Ma, 1992; Barro and Sala-i-Martin, 1995). Generally speaking, the huge explosion in economic growth in the East that had originally been anticipated before 1990 has not taken place yet despite continued large fiscal injections by the West. A rapid rise in the wages of East German workers contributed to the persisting high unemployment problem in the Eastern regions. There continues to be a high level of resentment against the West on the part of the East.³⁾

No matter which policy is adopted, North Korea's inclusion into a fully functioning market economy will involve substantial costs. However, the initial costs will be higher if the 'fast track' approach is taken. The substantive income gap between the two regions will encourage massive population movement during the initial period, which would not only necessitate higher up-front costs (mainly in the form of income supports), but could also delay the development of

3) The unemployment rate in 1997 in the East was 19.4%, while it was 11% in the West. Various survey results compiled by Berentsen (1999) show that 72% of East Germans viewed the 'former citizens of the GDR (East Germany) are second-class citizens in reunited Germany.'

the North by potentially removing the most plentiful production factor, i.e., labor, from the region. In addition, 'fast track' policy recommendations focus on a quick currency union to remove a key potential source of financial instability, and on implementing a rapid industrial reorganization.

It is true that allowing full mobility of labor could have beneficial effects in terms of improving the efficiency of the combined Korean labor market in the medium to long run. However, owing to the backwardness of the North Korean industrial capability, the gap in marketable skills between Northern and Southern workers would likely be quite large. Thus, one immediate consequence of allowing full mobility for Northern workers would be to increase downward pressure on the wages of low-skilled workers in the South which migrating Northern workers can compete with relatively easily. Furthermore, the Korean economy as a whole would likely reap the economic benefits of an increased supply of labor as far as full mobility of capital, the other important factor of production, is allowed. This conclusion is reached by drawing from the basic theories of international trade regarding factor mobility and factor price equalization.

At the same time, the government does have an important and active role to play during the transition. In most transition economies, the apparent lack of market institutions — ranging from physical markets to commercial codes and contract laws — have given rise to anarchic conditions.⁴⁾ The

4) In some transition economies in Eastern Europe and Russia, the end of the

introduction of a basic set of economic regulations to the North should be a top priority.

During the transition period the government will likely undertake many added extraordinary roles. However, it is our view that such increased roles of the government should be curtailed as soon as the early stages of assimilation have successfully been completed. Any policy proposal should also include a clear exit strategy and be compatible with the ultimate vision of a market-based economy. A set of economic indicators might serve as a yardstick in determining when the two economies reach an acceptable level of convergence since a complete assimilation of the North and South Korean economies might take a long time.

For example, achieving a certain level of relative average income between the two regions could serve as an indicator. Once transition is completed according to such measures, the ultimate success of the government's role in managing the transition should be judged by how successfully it disengages itself from various areas of economic life. Thereafter, the government's role should be confined to preserving the spontaneity and endogeneity of the market order while cultivating a better environment for it. To this end, the government

socialist period was succeeded by very chaotic free-for-all conditions. Perhaps, the most extreme example of a 'get-rich-quick' scheme can be found in Albania, where nationwide pyramid schemes flourished in all parts of society. Eventually, such conditions led to the collapse of the government and an acceptable social order, not to mention the effect on well-functioning markets.

should establish a regime of fair competition in the economic and social systems so that the discovery function of the market order can be maximized.

II. Transition

1. Overview

It is foreseeable that a situation may arise in which large-scale emergency aid will be necessary. If there is a rapid implosion in the North, for any reason, the first task should be to stabilize the country by providing rapid aid on a massive scale. By definition, such a scenario would happen suddenly and thus would not give policy-makers in the South much time for on-the-spot planning. Hence, it is necessary to stabilize the North as soon as possible after reunification, with the government making rational and levelheaded assessments while proceeding according to well-thought-out plans made in advance. This scenario could also be affected by factors other than those directly related to the government's reunification policy. The recent economic turmoil in the South is a case in point. If the South Korean economy is in a serious downturn, the ability and willingness of the government to expend large financial resources may be limited. Hence, it is both prudent and practical for policy-makers to prepare some alternative programs to choose from, each with

different configurations of financial burden over the transition period. On the other hand, at times when the South's economy experiences a boom, reunification-related government expenditures and an increased money supply could prove inflationary. In such a situation, at least, the burden of financing temporary increases in fiscal outlays will be alleviated by temporary tax increases.

Assuming that there will be no catastrophic developments in the North with hard-to-predict consequences, at least two distinct scenarios concerning population movements can be considered. The first allows for the completely free movement of residents of both Koreas. This was the method followed by Germany and here we call this the 'fast track' approach. The second allows only limited population movement, and for this reason we call it the gradual approach. A real world example of a similar approach can be found in China's integration of Hong Kong and Macao to the mainland. These two options entail very different sets of policy prescriptions. Table 1 summarizes the likely outcomes and policy options for each of the two approaches. In both cases, we assume that capital can move freely across the two regions.

In making reference to the two approaches to reunification, it is imperative to take a look at the major costs and benefits involved. In this regard, Jo (1997) offers interesting estimates of the expected benefits of reunification (a reduction in the cost of maintaining the status quo). The cost estimate for 1995, for example, runs at about 5% of the

<Table 1>

Likely Outcome and Policy Options
for the Fast Track and Gradual Approaches

	Fast Track	Gradual
Population mobility	<ul style="list-style-type: none"> • Full and immediate mobility 	<ul style="list-style-type: none"> • Limited and gradual mobility
Fiscal Policy	<ul style="list-style-type: none"> • Large up-front costs • Income support and worker training • Identical tax policy (No initial tax base in the North) • South will have to bear most of the costs 	<ul style="list-style-type: none"> • Small up-front costs • Infrastructure building • Separate tax policies possible • A partial burden sharing by the North possible early on
Monetary Policy	<ul style="list-style-type: none"> • Immediate removal of the North Korean currency • Single sphere of economic activity 	<ul style="list-style-type: none"> • Two currencies could co-exist • Exchange rate between the two currencies become important policy tool • Gradual currency reunification (EMU model)
Development Policy	<ul style="list-style-type: none"> • Little indigenous demand in the North • More incentive necessary to induce investment in the North • Need to encourage re-migration of population back to North • Radical industrial reorganization possible 	<ul style="list-style-type: none"> • Modest indigenous demand in the North • Less incentive necessary to induce investment in the North • Industrial reorganization might be slower
Potential Conflict	Either approach might conflict in places with the optimal political schedule	

potential GNP for that year. According to his calculations, freeing up and shifting resources in the South (manpower, land) from the area of defense to more economically productive areas will have growth-enhancing effects starting in the first year after reunification and increasing thereafter. However, this consideration may not be so important in assessing the two approaches considering the fact that the benefits will eventually arise regardless of the speed of reunification. The gradual approach might entail the cost of maintaining a large border police force. However, the costs will be considerably smaller compared to that of having to maintain two large separate military forces in the North and South. We hasten to point out that the type of border control we have in mind under the gradual assimilation approach is a different variety from the East German patrol units before reunification, but more along the lines of U.S. border controls vis-à-vis Mexico.

2. Size of Expected Migration

Our focus on population mobility as the key demarcation point perhaps requires some explanations. Many existing studies assume an orderly process of population movement during and after reunification. For example, Koo (1997) offers a careful examination of the issue by estimating the expected level of migration from the North to the South using detailed data on demography and wage differentials for various job

categories. (In a related study, Koo (1997) estimates that each job vacancy in the South will bring in 2 to 4 migrants from the North.) However, it is our view that this kind of gradual and orderly movement of the labor force seeking better pay elsewhere is not very likely to take place. More or less normal and reasonably stable employment conditions, by implication stable overall economic conditions, will have to prevail in the North for its residents to make their migration decision based only on wage differentials between the two regions. However, it is also highly unlikely that such a tranquil atmosphere will prevail in the immediate post-reunification period. Rather, there will be widespread disruptions of economic activity as well as general societal and communal chaos. The key factor that will contribute to these disruptions is the void created by the collapse of political and governmental leadership in the North. In such a tumultuous period immediately following reunification, a different kind of indicator might be more appropriate in predicting the degree of potential large-scale population movements.

A long established practice in the North is to sort the general population into three categories: the core group, the neutral group, and the hostile group. This categorization, officially instituted during the early 1970s, is based on the ideological history of family members and their social class throughout the generations (i.e., the family of a Korean War veteran is favorably looked upon while the descendants of landlords are not). According to 1980 data, the three groups made up 28%, 45%, and 27% of the population respectively

(Park, 1997). However, these proportions have changed as the proportion of the population born after the Korean War has steadily increased. According to Park (1997), the three groups now approximately make up 30% (the core group), 50% (the neutral group), and 20% (the hostile group).

It seems quite plausible that those North Korean residents categorized as members of the least popular group will have strong incentives to move away from a society in which they were treated unfavorably in such key areas as education and job opportunities for almost three decades. Given that North Korea has completely relied on state-directed rationing and distribution systems in the allocation of all necessities, it is not hard to imagine the extent of the prejudice a typical member of the 'hostile group' might have been subjected to.

It is quite possible that the political environment in the North could change dramatically with the advent of reunification, thus enticing this sub-group of the population to stay. However, unless there is a complete overhaul of government workers at all levels after reunification, there is a good chance that a large number of personnel involved in running the North Korean government and various local agencies under the previous regime will hold on to their positions. For the simple practical consideration of maintaining the administrative structure, the new leaders of the North, be they administrators sent from the South or newly appointed leaders from the North, will have to rely on the local officials' expertise and knowledge.⁵⁾ The point is that even with a change in the political environment after reunification, members of the most

avored group that previously made up the administrative ranks will likely continue to occupy their position. In turn, members of the previously disadvantaged group, lacking a proper education as well as professional experience, will not be in a strong position to move into better jobs. For them, Southward migration will still look more advantageous compared to remaining in the North despite improved outlooks. Thus, it might not be unreasonable to assume that about 20% of the overall population in the North, about 5 million, would migrate given the opportunity and capability to do so.⁶⁾

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- 5) This situation will be similar to the Korean experience after it gained independence from Japanese colonial rule. Despite much public distaste, many Koreans who worked under the Japanese colonial government as well as police were retained by the provisional American military government and subsequently by the new Korean government.
- 6) Of course, this number is meant to be a suggestive benchmark to facilitate the comparison in the following section. According to Wagner (1998), about 0.8 million people (about 10% of the East German total population at the beginning of 1990) migrated from East to West Germany in the 1989-1990 period. In 1990, an East German adult's net income was about 34% less than that of a West German (Wagner, 1998). The income difference measured in terms of GNP per capita between South and North Korea in 1995 was about 11 to 12 times (Lichtblau, 1998). Thus, if the income gap is the most important determinant of migration decision, 20% of the North's total population assumed above might be understating the scope of potential population movement.

3. Fast Track Approach

The fast track approach might end up being less of a choice and more of a *fait accompli* if the process of reunification is sudden, and hence, hard to control. Consequently, this scenario puts greater emphasis on early preparation in terms of contingency planning and ensuring plentiful reserves of financial resources. Political demands to address immediate instability would be overwhelming. Such an environment would make it extremely difficult to implement policy measures that are compatible with long-term goals. Key policy decisions need to be made quickly. What is the conversion rate going to be between the two currencies? How will the issue of property rights be resolved? What kind of administrative mechanisms will be used in implementing income support programs? Examining some aspects of the German experience should be useful in planning for this scenario.

Fiscal Policy

It would not be absurd to predict immediate heavy spending as a necessary tool of absorption. A rapid and large-scale migration to the South is highly likely if the current income gap between the two regions persists until reunification. The fact that the North Korean government has kept population mobility at a very low level within North Korea could mean that large numbers of Northern residents might move when the opportunity arises. For example, the population mobility

ratio, which measures the proportion of the population that moves across certain administrative units, was 5.9% in the North while the comparable ratio was 22.6% in the South (Koo, 1997). It is quite possible that there exists a substantial number of people who would prefer to relocate. For those people, the opening of the border between the two Koreas will make Seoul as attractive and accessible a destination as Pyongyang. Of course, the number of migrating North Korean residents will partly depend on various income support and general aid programs put in place in the North. However, it might take some time for such programs to become effective and reduce the number of people moving south. Going beyond the stage of offering emergency supplies, any long-term program will require some degree of stability in population movement for them to be viable. There also might be non-negligible gaps between the time when the old North Korean security regime that hindered the free movement of population is disbanded and when various support programs are put into place to offer effective incentives for Northern residents to stay put.

Large numbers of southbound immigrants would not find a job, not only due to the limited number of newly available jobs, but more importantly because an overwhelming proportion of the new immigrants would lack marketable skills. Some would undoubtedly find employment in low skill areas. Of course, economic conditions in the South will importantly affect job availability for the new immigrants as well as public opinion toward them. However, as shown by Koo

(1997), every single open position in the South will likely attract two to four job seekers from the North. Thus, even favorable cyclical economic conditions are not going to greatly mitigate the excess migration problem. Subsequently, if the government wants to avoid the formation of a large refugee under-class, it will have to launch substantial income support drives as well as worker-training programs, partly because of mounting public demands for an end to the social problems associated with surging numbers of unemployed refugees. Absorption programs would require a particularly large budget considering how much more it would cost to support a North Korean population at the much higher standard of living in the South.

One instructive way of gauging the cost of supporting Northern immigrants in the South is to use some recent benchmark figures from South Korea. One useful figure is the minimum wage, calculated on the basis of the minimum subsistence level of income. As of 1998, the monthly minimum wage was about 340,000 won (about US\$280 using a 1200 won per dollar conversion rate). This is about 30% higher than the minimum subsistence income of 234,000 won for the same year. The corresponding annual figures for minimum wage and subsistence income respectively are 4.1 million won (US\$3,360) and 2.8 million won (US\$2,340). To provide subsistence income to the 4.5 million people from the North would cost roughly US\$10 billion in the first year alone. This is no mean sum, considering that the South Korean central government's budget for 1997 was about US\$60

billion. Let us not forget that the number of immigrants moving to the South could be even larger if the dire economic conditions in the North persist, thereby raising the costs even higher.

Monetary Policy

Monetary policymakers in the South should already have started calculating the exchange rate between the two currencies. A massive movement of people and goods will take place immediately following reunification and therefore there will be little time to think of and establish a coherent exchange rate policy at that time. Under this scenario, the issuance of currency in the North would have to stop immediately and monetary policy should then focus on taking all North Korean currency out of circulation. This could be done either through a once-and-for-all absorption approach or by following a fixed conversion schedule. It might be best to try the one-time currency conversion approach and completely withdraw all outstanding stocks of North Korean currency. Achieving currency reunification early would have the effect of removing a potential source of disturbance in the economy. When the goods and labor markets are assimilated, having two currencies presents an artificial barrier to transactions.

Monetary policymakers in the South need to have a clear understanding of the economic value of various productive assets and the outstanding quantity of money stocks in the North. The estimated exchange rate should not be fixed at

the same level from now until the time of reunification, but should be made to fluctuate over time as economic conditions improve or deteriorate. Of course, once these steps are completed, monetary policy should be conducted according to the macroeconomic conditions of the whole nation, and not used as a development policy tool solely for the North.

As was seen in the case of Germany, two issues arise from currency conversions. One concerns the conversion rate — it is very likely that the conversion rate calculated on the basis of economic reality will place the Northern currency at a lower value than that demanded by political considerations. In this regard, cyclical economic conditions in the South are going to be important. If the Southern economy is experiencing a boom, an artificially high conversion rate in favor of the Northern currency will have an inflationary impact. On the other hand, if the Southern economy is going through a sluggish phase, a somewhat over-valued Northern currency could substitute for an expansionary monetary policy — a one-time money injection.

The second issue involves the limit on how much each individual would be allowed to exchange. Given the regimented nature of the Northern economy, the distribution of money generally reflects that of power and privilege enjoyed by Northern residents. It seems fair that this formerly privileged group should bear some of the costs of the demise of their economy. By setting an upper limit on the allowable amount to be converted into Southern currency, this group

will find their remaining North Korean wealth effectively confiscated.

Development Policy

Development of the North could be slower early on under the fast track scenario, say during the first five-year period after reunification. For one thing, there would be less indigenous demand in the North compared to the gradual approach scenario to be discussed later simply because of a larger out-migration. The sudden reduction in the population would shrink the pool of economically viable producers supported regionally. The formation and growth of businesses in the North might also be slow. A massive exodus of working age people would reduce the labor pool and deter businesses wanting to locate production facilities in the North because of a lack of workers. A reversal of the population flow (from South to North) might take much longer than the initial flow from North to South, as there would be many disparities in terms of amenities and perceived opportunities in the North in comparison with the South.

It might be necessary to provide tax incentives and other benefits to firms investing in the North. One industry in the North that has great potential is tourism, due to the strong desire of countless Southern residents to visit destinations in the North. Strongly supporting this industry could well be the first step in encouraging the formation of local businesses in the North. Other sensible areas to focus on include electricity generation and the building up of road and rail systems.

Given that the South already faces a chronic need for electricity, it should be easy to find immediate market demand for power. Furthermore, an increased electricity-generation capacity will be important in attracting future production facilities to the North.

One potential advantage of this approach is that radical industrial reorganization will be possible with little attention paid to the issue of worker displacement. Such massive restructuring will enable the preparation of the groundwork necessary for a well thought out, longer-term industrialization plan for the region.

4. Gradual Approach

Under the assumption of gradual population and labor force assimilation, it would be possible to implement a distinct set of policies in the North during the transition period. It might involve temporarily closing the border between the two Koreas and allowing limited population movements based on clear humanitarian considerations such as family reunion and visitations. In addition to infusions of resources to stabilize the living conditions of the general population immediately following reunification, various short- and long-term policy measures could be used to develop an economic basis for the Northern region to become a productive partner to the unified economy. This option would entail smaller up-front costs but require a clear vision regarding various

aspects of economic affairs. The most pressing concern is how best to encourage the formation of a viable and self-sustaining economy that could be merged with the South further down the road. Sustaining some existing firms as well as encouraging new businesses would be one aspect of the policy mix. Compared with the fast track case, the selection criteria for choosing firms to be rehabilitated would be somewhat less critical. Another aspect would be the provision of some minimum social safety net for the population. The size of the economic burden created by the social safety net would partly depend on how well and how fast the rehabilitation and formation of businesses progress over time. As for eventual currency reunification, the multiple-stage approach taken for the EMU provides a possible model for emulation.

Fiscal Policy

Compared with the fast track option, the up-front costs for gradual integration would be lower. The contrast will be most visible in terms of the financial costs of supporting displaced Northern residents. Let's use the same population group used in the previous section with the assumption that the Northern half will function in a completely controlled environment. We will use detailed data on the average cost of living in the North compiled by Noh and Yeon (1998).

To support 4.5 million people at the low-end of the average standard of living in the North (including expenses for education, medical care, pension), we estimate a cost of

approximately 3.6 billion North Korean won. To apply the 1998 North Korean official exchange rate of 2.2 North Korean won per one U.S. dollar, this translates into US\$1.6 billion. Although this is hardly a small sum, it is only about one-fifth of the estimate for supporting the same people in the South at the local subsistence standard of living. Additionally, the use of the official exchange rate between the North Korean won and US\$ produces a higher cost estimate than seems necessary. The range offered by many studies (see Lee and Lee, 1998, and citations therein) puts the realistic conversion rate between the two currencies at 200-500 Southern won per one Northern won. To extrapolate from this, the realistic North Korean won to US\$ exchange rate is about 5.5. If we substitute for this figure, the cost estimate stands at much less than US\$1 billion.

However, this approach will entail a steady stream of fiscal outlays over the duration of the transition period. For example, there could be outlays over several years in terms of industrial subsidies to production facilities that would have been shut down under the fast track scenario.

To build a basis for a self-sustaining economic unit, it will be imperative to provide incentives to businesses for them to offer employment to workers in the North. The package could include a host of things: upgraded infrastructures (roads, railroads, ports, telecommunications), lower and uniform corporate income tax rates, and no minimum wage. In addition, in terms of the tax system, a consumption-based tax (CT) would be preferable to an income-based tax. The CT has the

advantage of encouraging savings, and the formation of capital should be encouraged to meet the high demand for savings.

As the North Korean economy becomes more vibrant, it would have to expand tax revenues raised in the North to take over some of the financial burden of providing a social safety net as well as investing in infrastructures. Once this kind of burden sharing becomes routine, a more complete merging of the two economies is more likely to come about. Eventually, the tax systems of the North and South would also have to be reconciled to prevent one side handicapping the other.

Monetary Policy

During the transition, the North Korean currency could conceivably co-exist with the South Korean won. North Korea could maintain its monetary policy anchored on the exchange rate between the two currencies. In the early stages, it might be desirable to adopt a flexible exchange rate approach so that policy makers need not engage in defending a rate that is not sustainable. Gradually moving towards a system with a pegged rate with a trading band around it might be desirable once a stable trading range emerges. For the complete integration of the two economies, the exchange rate will have to be pegged first, then completely converted into a single currency. It is important that the monetary authorities in the South maintain control over the monetary policy in the North for this process to be completed successfully. Other-

wise, incentives to push up the money supply in the North might be created and attempts might be made to expand the monetary base at the last minute to exploit conversion opportunities.

As mentioned in the previous section, the South's monetary authorities need to guard against an undue inflationary momentum caused by the merger of the two currencies. A basic rule of thumb would be to set the exchange rate between the two wons according to the relative size of the two economies. This is based on a version of the 'real bills doctrine.' There should not be much inflationary pressure as long as the existing amount of money roughly equals the amount of economic activity.

In this regard, the recent study by Lee and Lee (1998) is instructive in that it offers an estimate of the money stock in the North and also offers a sense of whether or not a 'money overhang' condition currently exists there. They suggest that there is a money overhang of about 40%. This figure might have worsened in recent periods due to the rapid shrinkage in the North's economy since the early 1990s.

At the same time, capital inflows to the North need to be encouraged. Due to the limited scope of (industrial) goods the North is able to export to the South, a current account imbalance could persist for a while. However, this should not pose a serious problem.

Even during the transition, maintaining the currency's purchasing power would be very important for new entrants to the market economy. Indeed, it would help build confidence and

develop a proper understanding of the monetary system. Also, for a basic banking system to take hold, people would need to be encouraged to use banking facilities. A wide range of banking services such as various types of saving accounts as well as lending facilities should be offered. Recognizing the time value of money, i.e., the concept of interest payments, as well as developing an individual sense of responsibility in terms of making saving-borrowing decisions would be particularly important for Northern residents who would have had very little experience with such basic ingredients of a market economy.

Development Policy and labor mobility

With most of the Northern population staying put with a non-negligible purchasing power boosted by income assistance programs, there will be a fair amount of indigenous demand for various consumer products. This could offer significant support for sustaining and rehabilitating old production facilities and starting new ones. However, the utmost consideration for deciding whether to sustain it should be based on the economic viability of the facility. Unemployment as well as income support considerations should not override the viability criteria. For the ultimate formation of a flexible labor market, it will be much more desirable to proceed according to strict economic efficiency. Displaced workers will have to be dealt with as a problem of the labor market as well as an income support issue and not as an industrial policy issue. In order to effectively disseminate labor skills,

the government will need to implement policy measures encouraging the flow of labor within the North and some between the North and South. Making income support transportable will be important. Each person could decide for himself whether to stay or move to a different location based on the economic opportunities available at each site. Any measures to enhance mobility and flexibility should be encouraged. People moving for economic reasons would contribute to the prevention of labor market rigidity in very basic ways.

In principle, the scope of such mobility should include the South. However, a temporary restriction of say, five to ten years, on such movement could be considered. During this temporary period, immigration to the South could be permitted for people who have demonstrated that they are both productive and have secured legitimate employment. At the same time, they would have to give up the income entitlement enjoyed while in North Korea. For instance, a company that has established manufacturing plants in the North could decide to shift a number of competent workers who are interested in the opportunity to similar jobs in the South. Requiring a minimum amount of work experience that can be verified by the employer would ensure that the population inflow to Southern Korea is indeed productive and economically viable. This would reduce the chances for social discrimination against North Koreans from developing and would hasten the acceptance of Northerners as fully functioning equal members of society.

III. Peace Dividend

The resources tied to defense-related areas are enormous. The three most easily identified areas where economies can be realized in the post-reunification period are: a) compulsory military-service related manpower, b) reduction in defense budgets (to a lesser degree, reduction in the diplomatic costs of dual representation of the two Koreas), and c) better use of land. In the South, every able-bodied man faces compulsory military service for two to three years. Although military service might bring some skill-enhancing benefits to a small segment of the population, it is an economically unproductive use of time. The compulsory military service is even more taxing in the North. One way to quantify this potential benefit is to anticipate expected reductions in the size of military personnel in the post reunification period. Various studies (Park, 1991; Kim, 1992; Lee, 1993; Jo, 1997) put the optimal number of military personnel for a unified Korea at about 400,000. This translates into about 270,000 for the South. Just to compare related figures for the South, the current size of the military is about 680,000 (as of 1995). Thus, the expected reduction in military personnel is about 390,000. The first direct benefit will be a commensurate reduction in defense expenditures required to maintain a lower level of forces. We will discuss this issue shortly. However, a rough economic benefit estimate for the additional 390,000 able-bodied workers can be obtained by calculating the ex-

pected income that group can generate. For this we use the 1998 average wage rate of 1.3 million won per month, or a little over US\$1,000. Given that nominal wages actually fell in 1998 after continuously rising for close to ten years running, using the 1998 figure should not bias this estimate upward. Every year the group of new workers could earn US\$4.7 billion (390,000 persons \times US\$1000 \times 12 months). This is a simple calculation that does not include related benefits in the North.

In terms of the budget, defense expenditures take up about 30% in the South and more in the North. A large part of this can be saved almost immediately following the ending of hostile conditions between the two Koreas. According to Jo (1997), the defense expenditures to GNP ratio was about 3.7% in 1995. Out of this total defense expenditure, about 70% was spent on troop maintenance, while the rest was spent on equipment. Thus, a reduction in the size of troops will approximately yield a 1.7% yearly reduction in the South's share of defense expenditures to GNP.

Cutbacks in military holdings will not only mean savings in the nation's budget; large tracts of land will also become available for economically productive uses. According to Kim (1995), about 8.8% of the land in South Korea is off-limits to civilians due to military-related usage. The economic value of this land, based on the average price of land in 1993, was estimated to be 152 trillion won (or about US\$127 billion) according to Jo (1997). The border area between the North and South (De-Militarized Zone) is heavily fortified at present and

contains large amounts of potential agricultural land and areas rich with pristine natural vegetation that can be converted into large scale natural parks or resort areas (once it has been de-mined). The situation in the North should be similar in that they have large areas only for military use. A good part of those restricted areas in both Koreas will become available for commercial and residential use.

This section does not aim to give an exhaustive list of expected economic benefits. Rather, our aim is to show that there would be substantial and tangible peace dividends in the wake of reunification.

IV. Role of the Government after Reunification

In this section, we discuss the issue of the role of the government in post-unification Korea. In particular, we argue that the merging of the two halves should not alter the course of the transition from government-led to market-based economic management that started in the 1990s. A temporarily interventionist government should retreat once the early stages of assimilation have been successfully completed. In some sense, the ultimate success of the government's role in managing the transition should be judged by how successfully it disengages itself from various areas of economic life in the period following reunification. We will briefly review, first, the history of South Korean (Korean for short, henceforth)

economic development as well as its legacy, and then present our view of an “appropriate” role for the government in a market economy. Here, we will argue that the role of government policy should be confined to cultivating a better environment for the workings of the market order in which the optimal outcome is found through competition.

1. Korea’s Development Experience

Korea has achieved remarkably high economic growth during the last thirty years. A government-led export promotion strategy was followed and the government actively involved itself in almost every important aspect of economic decision-making, while the private sector has followed the signals given by the government.

Through this process, Korea developed a very peculiar macroeconomic management pattern. While the economy was subject to inflationary pressure stemming from base money and credit expansion out of concern for maximum resource mobilization, monetary policy instruments such as control over money growth became non-operational. As a result, direct controls on important individual prices and even on economic activity within the private realm became widely used as the main instruments for maintaining macroeconomic stability. In sum, the macroeconomic policy function was performed through micro regulations.

Governmental macroeconomic management tends to rely

on direct regulations, such as credit rationing over open market operations for money supply control, and on wage-price controls over aggregate demand management for anti-inflationary policy. In addition, governmental microeconomic policy takes the form of picking the winners before the market process works itself out, and of providing the means (such as financial support) necessary for the chosen ones to win.

However, in order for this type of economic management to be successful without causing distortions in resource allocation, the government must have informational superiority over private market participants. In addition, the government should have a complete set of solutions ready to be put into action against a host of difficult economic policy issues that may potentially arise. Furthermore, the requirements that must be fulfilled for government intervention to be beneficial are difficult to satisfy as the economy grows in size and complexity.

More than thirty years of active government intervention into private economic matters have created many legacies that pose serious stumbling blocks to a policy regime shift toward greater private sector participation. Even as the informational requirements for efficient economic policymaking become increasingly difficult to satisfy, economic policy makers, including economists who are accustomed to the mind-set of the past regime, still think that they can and should manage the economy down to the finest details. This mentality poses a serious obstacle to economic reform and liberalization.

They even think that they can and should regulate deregulation.

To compound this problem, many private economic agents have lost their sense of independence and fear that liberalization will create chaos. Therefore, they often seek government intervention, even in the affairs of the private sector, and ask the government to “control the process of economic liberalization.”

Moreover, active government economic management has created various barriers to entry that have produced monopolistic and oligopolistic economic structures. The tendency to rely on direct regulations for economic management has also produced widespread regulations over prices and quantities that have created distortions in the economic incentive structure. As a result, these phenomena have tended to discourage the individual economic agents’ will to economize and his motivation to innovate.

Finally, as government intervention has become more widespread, thereby creating an excess demand for intervention beyond its real capabilities and necessity, the effectiveness of government economic management is rapidly declining.

2. Role of the Government

One of the most important economic conditions for a market-oriented economy to prosper is the stability of the

macroeconomic environment. Maintaining macroeconomic stability is understood as a precondition for efficient long-term economic decisions and therefore regarded as the government's most important responsibility. For example, the World Bank (1993) has consistently contended that the most important contributing factor to the East Asian economic miracle was macroeconomic stability. One can also argue in the current context that maintaining macroeconomic stability is just like providing a better exogenous environment for the market order and should belong to the realm of active government policy making.

Other than ensuring a stable macroeconomic environment, the merging of the nation's halves should not alter the course of the transition from government-led to market-led economic management that started in the 1980s. In particular, a temporary surge in interventions by the government should end once the early stages of assimilation in Korea have been completed. In a sense, the ultimate success of the government's role in managing the transition should be judged by how successfully the government disengages from various areas of economic life in the period following reunification.

Once the transition period has been successfully weathered, a unified Korea will offer a significant market for both domestic and foreign businesses. Harnessing the benefits of an enhanced pool of overall resources, Korea could transform itself into a more mature economy with a diversified economic landscape and self-assurance. It is imperative in this context that the interventionist instinct of the government so perva-

sive in the past be checked in a unified Korean environment since the size and complexity of the overall economy will be such that information superiority by the government cannot be guaranteed. Thus, the government's role should be confined to preserving the spontaneity and endogeneity of the market order and to cultivating a better environment for the working of the market order.

V. Conclusion

This paper explored basic guidelines for economic policies during the transition period around the time of the eventual reunification of Korea, and discussed what role the government should assume in order to promote sustainable economic development led by private sector initiatives in the post-reunification period. Basically, there could be two possible approaches to the transition, delineated by the speed of assimilation of the population.

Under the fast track scenario, the fiscal burden on the government would be heavy to begin with and the conversion of currencies would have to take place rapidly. Perhaps the most serious drawback of this path would be that it would take longer to establish a vibrant sphere of economic activity in the North. At the same time, the potential benefits would be that a forced rapid assimilation could help speed up the closing of the skill gap between workers in the North

and South, thus ultimately contributing to the closing of the income gap between the residents of the two regions. However, a crisis-like development in the North could start a chain of events leading to a large sudden Southward flood of refugees and thus make this scenario a forced reality rather than a matter of choice.

The gradual approach would entail fewer up-front costs and a more orderly adjustment process. It might involve temporarily closing the border between the two Koreas and allowing limited population movements based on clear humanitarian considerations such as family reunion and visitations. In addition to an infusion of resources to stabilize the living conditions of the general population immediately following reunification, various short- and long-term policy measures could be used to develop an economic basis for the Northern region to become a productive partner to the unified economy. One downside of this option is that it might extend the transition period.

The estimates for the costs of these two scenarios differ by wide margins as it would be less costly to support a displaced Northern population if they remained in the North. Furthermore, a massive population movement from North to South could bring about general instability in the South. Thus, based on these considerations, a gradual approach, unlike in the German case, seems more advisable.

Reunification has been quite a rare event in recent history and thus the German experience remains the most familiar and perhaps the only case study for industrialized states.

Consequently, it poses a real challenge to researchers and policy makers in the South to chart a course of action that is different from the one that was followed by West Germany in the face of the enormity of the various related tasks that the senior partner in reunification has to assume. However, the over-arching reality is that South Korea faces a much larger per-capita economic burden both in terms of financial and material resources to close the income gap in a short period of time. Furthermore, the very rigid isolation of the North Korean population in a strict command economy with limited industrial capabilities places them in an extremely disadvantageous position compared to East Germans when German reunification took place. It would be rather naive to follow the German example without really assessing whether the German model makes economic sense in the Korean context. The one-nation two-system concept behind the current arrangement between China and Hong Kong might offer a more useful framework to devise workable contingencies and the infrastructure needed to implement a gradual approach.

The merging of the nation's halves will be a major event that will have various long-lasting ramifications. However, it should not alter the basic course of the transition for the Korean economy from government-led to market-led economic management that started in the 1980s. In particular, a temporary surge in economic intervention by the government should end once the early stages of assimilation in Korea have been completed. The increase in uncertainty about the consequences of an interventionist government action under globali-

zation already has weakened the information superiority the government enjoyed in the past in many resource allocation decisions. The unified Korea will present a far more complicated and diverse economic system that will make it more difficult to micro-manage. Thus, the government's role should be confined to preserving the spontaneity and endogeneity of the market order and to cultivating a better environment for the working of the market order.

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Economic Institution Building

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I . Introduction¹⁾

While Socialist regimes collapsed in all Eastern European countries in the beginning of the 1990s, North Korea has kept its Socialist order to this day. Although North and South Korea have moved closer together in recent times, there are hardly any signs that the North Korean orientation will change in the near future. However, as long as the economic crisis in the North persists, and as long as the people in the North are suppressed by its Communist regime, thinking about political and economic reform in this part of the country seems to be necessary.

But it is not only the matter of economic (and political) reform that is on the agenda. The fact that Korea remains virtually the only nation in the world that is divided in two economically and politically divergent states seems unnatural as well, taking into consideration the previous long history of a united Korean nation. Therefore, from a long-term pers-

1) This paper was in its main parts terminated before recent developments in Korean policy – i.e., the meeting of both presidents and forthcoming contacts between South and North Koreans. While this increases the probability of the gradual unification scenario developed here, it is not clear whether relaxation will really continue. So both scenarios given in this article are still of importance.

The main proposals for economic reform that are made in this article are independent of the way unification might come about, as they describe the essentials of economic reform from a centrally planned to a market economy. Therefore, only smaller corrections and adaptations were made in response of recent developments.

pective, the major goal of Korean policy should be the matter of unification of South and North Korea. The recent opening of the North gives hope that this goal can be achieved, albeit at the moment unification still is more a dream than a real political option. However, thinking about ways and means of a possible unification will prove to be helpful in reaching this goal in a realistic time-span.

In some respects, the situation in Korea today parallels that of Germany before 1990, and at first sight, one might consider taking German unification as a blueprint for the building of a unified Korean state. However, there are differences that make it difficult to treat the Korean case in the same manner as the German one. It is not the incompatibility of official ideologies that forms the main difference as this held also for the two Germanys before 1990, but the divergent attitudes of the people in the North and in the South. In contrast to the Korean case, contacts between the German Democratic Republic (GDR) and the Federal Republic of Germany (FRG) had never been cut off completely — in Korea, it was only recently, that such contacts were allowed on a small scale basis again. Due to private communication and television, people in the GDR had at least a rough (although quite too positive) impression of West Germany — in North Korea, most people do not have the technical means to communicate with the South or to watch South Korean television. And although even West German officials from the beginning of the 1970s rarely doubted the existence of two independent German states, the idea of a unified

Germany had survived in both parts of the country—in North Korea, at best, perhaps some elder people may be able to imagine the existence of one single Korean state. Therefore, when the Communist system collapsed in 1989, mainly for economic reasons, neither in the West nor in East Germany serious resistance to unification emerged. On the contrary, people in Leipzig (GDR) were the first to demand unification, and one of the first reasons was to attain the West German standard of living. And, as the West German system was clearly considered superior to the socialist order of the East, there was little discussion about the shape of the economic and political order in a unified Germany. Overall, the West German economic and political system was almost instantaneously introduced in East Germany, solving one major problem of the transformation process, i.e., the shaping of the future economic and political order. That proved to be a major advantage to other countries in transition.

There are signs that in the Korean case the North as well as the South would accept unification only if their own system was introduced in a future united Korean state. Presumably, even the population of North Korea would accept this view, mainly due to ignorance of the South Korean economic and political system. Officially, there is only an armistice agreement holding the peace between the North and the South since the Korean War.²⁾ Official

2) This seems to be another major difference, as GDR and FRG accepted relations being characterized as “peaceful coexistence” during the 1970s

contacts between both countries are rare, with private contacts being even rarer. That is why the people in the North know hardly anything about South Korea, as information is nearly impossible to obtain. Thanks to a strong ideological influence, even distrust of the South cannot be excluded. Therefore, a “peaceful revolution,” leading to the collapse of the existing order and to unification as was the case in East Germany is not probable in the Korean case.

For these reasons, the situation in Korea today is not comparable to that of Germany prior to its unification. Nevertheless, there are experiences from the German case that might be valuable for Korea as well, although not as a blueprint but as a reference model of how to avoid the mistakes that have been made in Germany. As Germany was not prepared for unification at all in 1990, transformation of the East German system as well as unification itself took place through a spontaneous process, resulting sometimes in second-best or even third-best solutions. Koreans can avoid this as proper strategies for different scenarios can be developed in advance. Therefore, throughout this chapter reference to German unification is made wherever this seems appropriate.

However, the matter of Korean unification consists of two problems: The first one is, more importantly, how to transform the prevailing economic order in North Korea into a market economy. This question is important because it is

and 1980s. To support the East German population, FRG even gave a loan of 1 bio DM to GDR in the early 1980s.

impossible to imagine unification occurring without substantial political and economic reform in the North. The second problem is how to handle Korean unification itself. That is, how to achieve political and economical integration of these two systems. Of course, economic reform need not necessarily come before unification; for analytical reasons, however, it seems favorable to separate these two problems.

There are some experiences from transformation processes in Eastern European countries (including the former GDR) that might be a useful benchmark for North Korea to take into account. Nevertheless, the scope of available options is much smaller in Korea than it what was available in the Eastern European countries (with the exception of the GDR) if it is assumed that the future economic and political system of a unified Korea will follow that of the South; this assumption is realistic as long as South Korea is the economically more powerful partner in the unification process. Although it might become necessary to make adjustments to the South Korean order as well, no propositions for reforms in South Korea are made in this chapter.

The rest of this chapter is organized as follows: In the first section, some thoughts on the possible ways to unification are made. This seems to be necessary because other authors in this project group might entertain different ideas on how Korean unification can be handled. Additionally, some basic thoughts about transformation strategies and the relevance of institution-building during the transformation process are developed. The following sections deal with selected

aspects of the institutional setting; that is, the introduction of the constitutive conditions of a market economy, the question of monetary union, the role of financial reform in North Korea, and the design of a proper tax system for the transition period in North Korea. The chapter ends with some concluding remarks on the allocation of competence during the transformation process.

II. General Assessment

1. Ways to unification

Given the political situation in North Korea, it is unlikely that a Korean unification will come about very quickly. For ideological reasons, North Korean officials for long were opposed to the idea of collaboration with the South Korean government, and this makes unification by cooperation very improbable. This is even true during the summer 2000, as it is not quite clear whether the new contacts between officials of the North and the South will indeed signal the beginning of a new period of inter-Korean policy: It is difficult to imagine that North Korea can succeed by (even careful) economic liberalization without political reforms, but it is rather unlikely that the orthodox regime in the North will give up political influence soon.

Given this restriction, South Korean policy has to seek a

stepwise economic integration of the North Korean economy into the Southern one. The official position is that it is necessary “to persuade the North to perceive the creativity and efficiency of market economy and to get out of the rigid planned economy system by itself.”³⁾ Indeed, this seems to be the only strategic option South Korea has as the first move to reforms (and—beside that—to unification) must come from the North Korean side. However, although information about political processes in the North is scarce, no signs can be seen at the moment that the existing economic and political system of *juche* is to be abolished.

Nevertheless, as this definitely is the *condition sine qua non*, the main question is how changes in the attitude of the political leaders in North Korea can be achieved. Presumably, the present unwillingness to start substantial reform might be overcome only after further deterioration of the economic situation in North Korea since any substantial improvement of the economic situation in the North would stabilize its political establishment and thereby make a unification still less probable.⁴⁾ Given this setting, two different scenarios are possible:⁵⁾ A sudden collapse of the North

3) Cf. ROK Ministry of Unification, Task to be Done in Preparation for Unification 2: Building an Economic Community, <<http://www.unikorea.go.kr/eg/load/c32/c323.htm>>.

4) Maybe, in the meanwhile economic situation is bad enough to force economic reform.

5) Cf. Young-Sun Lee, How and When Korean Reunification is Possible: A Survey Study on Korean Unification, in: Ku-Hyun Jung et al. (ed.), Ger-

Korean economy with a political and economic union as the only rescue or a process of sneaking decay inducing reformatory steps to the existing system. This scenario could lead to a gradual opening of the North Korean economy to the South with formal unification as the final move. This first way is comparable to the one most Eastern European countries (including East Germany) took, while the second scenario is similar to the Chinese attempt to overcome the existing economic order. To predict, however, which option is more likely to be chosen is impossible at this point, although the second scenario seems a little bit more probable at this moment.

Of course, neither scenario leaves much to be desired from a South Korean point of view as any deterioration of the economic situation in North Korea will broaden the gap between the North and the South, making unification an even more difficult adventure, as even now economic differences (with respect to per capita-income, for example) between South and North Korea are much greater than those that had existed between FRG and GDR in 1989 (East German productivity was estimated at about 35 to 40 percent of West German levels). Additionally, as experience from all countries in transition shows, opening up a formerly closed economy will lead to severe competition problems for existing firms, bringing about further deterioration of the economic situation. Achieving unification with a prospering

man Unification and Its Lessons for Korea, East and West Studies Series 38.

North Korean economy must therefore be regarded as an illusion at best. This poses further restrictions on the path to unification, and it will make transfer payments to the North an unavoidable side effect. Because of the foreseeable financial burden to South Korea, recovering the strength of the South Korean economy itself is a necessary condition for a reunification.

Obviously, South Korean policy options vary with respect to the two scenarios described above: In the first case (“the shock scenario”) economic integration on a fast track is nearly unavoidable, and unless visible and invisible borders (which have other problems) are maintained, it entails high economic and social costs for the South Korean economy. In the second case (“the gradual adjustment scenario”), short-run costs for South Korea might be lower, but as long as North Korea is allowed to go its own way of transformation, it might take quite a long time until unification can be achieved at all as it is not certain whether both systems will fit. As these two options have to be considered likely at the moment, both must be taken into consideration in the following sections. Nevertheless, some arguments hold for both of them.

Common to both scenarios is that the main problem to be solved is not so much the unification matter itself but how to transform a centrally planned economy into a market economy. Therefore, this chapter will concentrate on aspects of how economic institutions in the phase of transition should be constructed. The main difference between the two is the

length of the transition process. In the shock scenario, all necessary reforms have to be initiated at once; in the gradual adjustment scenario, they may be introduced step by step. While in the first case it is the risk of social unrest due to unemployment and even falling income levels in the short run that is most important, it is the risk of delaying unpopular decisions that are nevertheless unavoidable in the second scenario. This is why a proper strategy for the transformation should be defined in advance.

2. Transformation of Economic Order

As the experience of Germany and other Eastern European countries with the transformation of their economies showed, a number of steps can be identified that have to be done at the very beginning of the transition process. The theoretical concept of “orderly market economics” by *Eucken* et al. that forms the basis of the *Social Market Economy* in West Germany, tells us which steps these are.⁶⁾ According to *Eucken* (1952), there are two ideal types of economic order, each of which can be characterized by a few basic constitutive principles. The fundamental characteristic of a market economy, in his notion, is the existence of individual plans

6) *Eucken's* concept of “orderly market economics” was the theoretical concept of nearly all strategies that were discussed in West Germany in 1990 and 1991. Cf. M. Packeiser/J. Ragnitz, *Erwartungen für die ostdeutsche Wirtschaft aus der Sicht des 1. Halbjahres 1990*, in: R. Pohl (ed.), *Herausforderung Ostdeutschland*, Berlin 1995.

being coordinated through market mechanisms. Under competitive conditions, prices will adjust according to relative scarcity, leading to an efficient allocation of resources. In contrast, in a centrally planned economy the coordination problem is solved through central planning of production, making an efficient allocation of resources impossible as long as consumption can not be predicted accurately. Therefore, market economies are superior to centrally planned economies with respect to output criteria.

In short, the constitutive principles of a market economy are the conditions in the standard textbook model of microeconomics: private ownership of goods and of production factors, flexibility of prices of goods and factors combined with perfect competition. This is supplemented with two more conditions: price stability and consistency of economic policy, to assure investors' confidence. Largely, these principles are fulfilled in the South Korean economy but not in the North Korean case, as it is generally organized in the pure form of a centrally planned economy.

As the theoretical discussion in Germany during the unification period, as well as the practical findings in Eastern European transition countries has shown, a stepwise introduction of these constitutive principles of a market economy is not possible. A market economy can not function unless all of these principles are fulfilled at the same time, and so the simultaneous establishment of these constitutive conditions is necessarily the first step in the transformation process. Gradual strategies of introducing only single elements of a

market economy are excluded by this. The reason for this is the incompatibility of the two divergent systems: a combination of selected elements of a centrally planned economy with those of a market economy is not possible as both exclude each other. It is most important to recognize this in advance; otherwise serious drawbacks are unavoidable.

To show this, a starting point could be the introduction of individual property rights; this includes the right to start a private business without state interference. Although there seems to exist an illegal market for certain kinds of foods, this right does not appear to exist in North Korea at the moment. Instead, production and distribution of goods are organized by state owned firms according to a central plan. To fulfill these central orders, the allocation of productive resources must be organized centrally; so, markets in terms of market economics do not exist either. The introduction of private property rights, however, will inevitably destroy the foundations of central planning as this implies the right to contract with other individuals at conditions that are not centrally determined. Without formal ex-ante coordination, these decentralized plans will normally not fit to each other, and so markets have to be established. Then, to avoid excess demand or supply, prices have to be introduced that react to relative scarceness. But this means that the system of centrally set prices can not be continued either. The introduction of private property rights therefore requires the existence of markets with a price system reacting to demand and supply conditions.

Prices must be allowed to adjust to market conditions; therefore a pure reform of the price structure without abolition of the price setting mechanisms (as it was recommended by GDR-economists in 1990) is not sufficient. However, a liberalization of prices requires competition. As long as state-owned firms still have a monopoly on their respective markets, this would lead to inefficient structures and to exploitation of the population. Therefore, measures to realize competition have to be introduced. Again, this destroys the foundations of the existing system, namely the existence of state controlled monopolies.

Of course, to introduce a market economy in North Korea does not mean that the responsibility for the success of the transformation process is given to market participants alone. On the contrary, the state has to perform important tasks during the transition period: Governmental action is strongly needed to control the functioning of markets, and it is needed to support North Korean enterprises that do not have any experience with a market economy yet do adjust to those new conditions. Therefore, for some period of time official interference in North Korea will persist on a stronger level than in South Korea.

However, while the basic principles of a market economy have to be established in a single step, it does not to be adequate to introduce the complete South Korean regulatory framework in North Korea at once. In this respect, a gradual strategy is to be preferred, and this is true even for the shock scenario described above. Nevertheless, again, this

refers only to those regulations that are not constitutive for a market economy.

This does mean that regulatory frameworks in North and in South Korea will differ for some time even if a formal unification will occur. This requires some kind of continuing separation, but German unification has shown the negative consequences of a sudden adoption of rules designed for a highly developed economy by a centrally planned economy. There, the constitutive principles were introduced in still-existing GDR with the “*Staatsvertrag*” (laying the juridical foundations for the currency union, July 1st 1990), while the complete West German legal framework was introduced in East Germany with the “*Einigungsvertrag*” (unifying GDR and FRG, October 3rd 1990). It became obvious that social, political and economic regulations that had been developed in West Germany over a long time, and which suited that country well, could not meet the demands of an economy in transition:

- Firstly, especially in the beginning of the transformation process, West German rules and regulations had proved to be too complicated for people who were used to a completely different legal and economic system. As the new framework for economic activity naturally was widely unknown in East Germany, officials as well as private investors tended to delay decisions in order to prevent mistakes. This led to friction in the process of restructuring the East German economy. Additionally, some West German businessmen tried to take personal advantage

of the East Germans' unfamiliarity with those "new" rules and regulations, for example by buying ground or even buildings for a price below market value. The preferred way of solving these problems by education or provision of information might take too much time.

- Secondly, the West German system of decision-making is designed to balance the interests of the various social groups. Therefore, there are institutional precautions in place to include representatives of different interest groups in the decision-making process. For example, (informal) negotiations between those interest groups and the administration before changes in the legal system are common in West Germany. In the beginning of the transformation process, those interest groups did not exist in East Germany (or, if they existed, they were not accepted by West German partners), so some decisions concerning the transformation process in East Germany were made ignoring characteristics of East Germany. This might have led to unfavorable decisions concerning the transformation process. The most striking example for this was the decision about the return of expropriated private property to its former owners. Because of the difficulties related to resolving the restitution demands, investment in East Germany was blocked for several years in some cases.
- Thirdly, problems arose from applying the existing West German social system in the former GDR. Although social assistance for East Germans who were laid off

during the transformation process was widely accepted, the pure adoption of the West German system (with support for pensioners and unemployed persons according to previous income levels and past working time) led to high payments to East Germans, since a greater share of the population had legal claims on social security. High transfer payments from West Germany to East Germany partly reflect this.

To avoid such consequences in Korea, a full integration of the North does not seem appropriate in the very beginning. During the phase of transition, North Korea could benefit from a simplified system of social and legal rules, concerning, for example, the tax system, the competitive framework or some special treatment for investing firms. In the medium or long run, however, it does not seem appropriate to have different legal and social systems in one state.

These propositions hold for both scenarios described above, the gradual adjustment scenario and the shock scenario. The introduction of the constitutive principles of a market economy in one single step is definitely necessary in both scenarios but for all other regulations, a gradual approximation to South Korean standards is recommended. This is simpler in the gradual adjustment scenario than in the shock scenario, of course.

III. Special Issues

1. Price Formation and Competitive Framework

As already mentioned in the last section, one of the most important issues in the transition period is the simultaneous installation of the constitutive principles of a market economy. The question is how to proceed with this.

1. To liberalize prices, it is only necessary to allow existing firms to set prices independently of official interference. This, of course, must be accompanied by an abolition of subsidies to firms as this will distort competitive price formation processes. For the same reason, product specific taxes must be abolished, too. It is not a real problem in the beginning at least as these prices will not fit to market conditions; without any experience in the market economy, firms cannot not know the “right” price of their goods or services. Only in some markets for tradeable goods (mainly industrial goods) foreign prices could give some hints, but it would be unrealistic to imagine North Korean goods as comparable to South Korean ones. Therefore, it might take some time for them to observe demand and supply conditions, but as soon as firms learn to react to market imbalances with price adjustments, this problem will be solved automatically.

However, for a short time period price controls for

basic goods (as food) might still be necessary for social reasons because still monopolistic firms might demand too high a price for those goods. However, even high prices for food are positive in the sense that this gives farmers an incentive to expand their production. Therefore, in the long run, even these price controls have to be liberalized. Social transfers to the poor are always a better way to help than interventions in the price mechanism.

2. To introduce competition in North Korea, several things have to be done. Firstly, private business start-ups must be allowed—and it can be fostered by subsidized loan programs and the like. This is exactly what Germany did in 1990, and indeed, more than 500,000 private firms existed in former GDR in 1998. As German experiences shows, firms will be established mainly in such markets where competition from abroad is not very fierce, where only little knowledge and technical equipment is required, and where demand conditions are favorable. Presumably, in North Korea, sectors like farming and services will be candidates for business start-ups.

Second, openness seems to be one of the most effective ways to reach a competitive framework. Firms from abroad must be allowed to trade with North Korea and to establish branches there. Additionally, foreign direct investment is a way to foster competition. Presumably, financial incentives will be needed to

induce foreign firms to invest there (although some enterprises have already declared their interest in establishing branches in North Korea due to low labor costs). This will bring about fierce competition at once, especially for already existing manufacturing firms. And third, the competitive framework for all firms should be more or less equal—this requires, inter alia, that existing state owned firms are not subsidized any more (or only for a short period during the transition).

3. Additionally, to establish a private sector in North Korea, state-owned firms should be privatized. For smaller firms—like farms, retail trade and so on—this can be done best by way of “small privatization”, giving these firms to North Korean residents (e.g., by way of a management buy-out). However, for manufacturing plants, this way cannot be recommended as these firms need more than a pure financing: Most important for these firms is human capital, that is knowledge about markets, about production methods, and about technological skills. To achieve this, some form of privatization similar to what took place in Germany should be chosen: There, the privatization agency (*Treuhandanstalt*) tried to find potential investors for these firms from West Germany or abroad, and then persuaded them to invest in East Germany by providing large subsidies. Although *Treuhandanstalt* made huge losses (about DM 270 billion), it managed to save more than two thirds of the East German firms,

most of them successful now.

Some of these propositions are elaborated further in other sections of this *handbook*. So, the next sections deal with some other topics of the transformation process in North Korea.

2. Monetary Policy

One of the key elements of the German unification process was the monetary union between the GDR and the Federal Republic, coming into effect on July 1st, 1990. It established strong ties between the two German states making unification (occurring only 3 months later) a nearly unavoidable consequence. Moreover, the introduction of the D-Mark in East Germany proved to be a prerequisite for introducing a market economy according to West German standards. The question arises whether monetary integration in an early stage is also a feasible option for Korea.

In economic theory, there has been a long controversy concerning monetary integration of different economies. Following the theory of optimum currency areas, a common currency is recommended only if several conditions are fulfilled. Most important is the distinction between regions and states, where regions are characterized by a cross-border mobility of capital and labor that states lack, i.e., the degree of factor mobility defines the extent integration between different economies is possible without strong disturbances with respect to employ-

ment, income, and price stability. Given incomplete flexibility of factor prices, several regions may form a currency union while states may not.

The reason for this is quite simple. Asymmetric demand or supply shocks can be compensated by factor movements between regions, leaving combined output and employment virtually unchanged. As factor movements between states are not possible by definition, changes of output and employment can only be avoided if there is an exchange rate between both areas, i.e., if there are two currencies. Exchange rate flexibility in this case compensates for the lack of factor mobility. Only if factor prices are sufficiently flexible can non-integrated states also form a currency union without running the risk of underutilization of factors or inflationary pressures. In this case, an adjustment of factor prices might substitute for the flexibility of the (non-existent) exchange rate.

However, there is another—more politically inspired—model of currency unions where economic integration is not considered a prerequisite for monetary integration as the latter is used as a vehicle for achieving real integration. In this model, monetary integration forces economic agents to adjust to divergent shocks. The proponents of this theory usually assume high flexibility of prices as well as a high speed of structural change, leaving real activity virtually unchanged in case of regionally divergent shocks. Even if these conditions are not met in the beginning, unemployment or inflationary pressures may arise, but it is just this that will demand adjustment of prices, speeding up the real integration process

itself. Finally, as a common currency is considered a fundamental characteristic of a unified state, the goal in this model is not economic integration but political unification.

While the history of European Monetary Union in the Seventies and Eighties forms an example of a gradual integration process,⁷⁾ the German Currency Union of 1990 clearly followed the second way. As for political unification it was successful indeed; with respect to economic processes, however, it was a not: Industrial production in East Germany decreased by about 70 percent from 1989 to 1991 and unemployment (including hidden unemployment) peaked at a rate of more than 30 percent in 1993. Only fiscal transfers totaling nearly DM200 billion a year could help avoid social unrest and the total economic collapse of East Germany.

However, the reason for the collapse of the East German economy in the earlier 1990s was not a result of the formation of a currency union itself but a policy that did not respond to the needs of a currency union between two regions with high income differentials. Unification being an asymmetric shock (affecting East Germany in a negative way and West Germany in a positive way), the collapse could have been avoided (1) if factor prices especially in East Germany had been sufficiently flexible to prevent high unemployment rates, or (2) if mobility of capital and labor

7) The Maastricht Treaty of 1992 can be seen as a policy shift as the European Monetary Union will come into effect by 1999 even if real integration is not yet completed. Indeed real integration between several states of the European Union is not deep enough to justify an currency union at this time.

had been high enough to induce factor movements on a large scale bringing capital from the West to the East and labor from the East to the West. But these two conditions were not met: Wages in East Germany rose because unions as well as employers expected a quick recovery of the East German economy and rising wages made capital investment in East Germany less attractive. Only in part could this be compensated by fiscal incentives for investments in East Germany. The conclusion therefore is that from a purely economic perspective, initial monetary integration in Germany has proven to be too costly a way to unification.

So German experiences suggest that fast monetary integration can be recommended for Korea only if factor prices are sufficiently flexible and/or factor mobility between both Koreas is sufficiently high. However, as information about North Korea (concerning mobility of labor and flexibility of factor prices) is scarce, it is difficult to answer the question whether one (or both) of these conditions are fulfilled in North Korea. One can imagine two scenarios:

- As the North Korean economy will presumably slip into a recession for a lack of competitiveness when a market economy is introduced, wages (and goods prices) have to fall to compensate for the effects of a recession such as unemployment. The future behavior of wages and prices, however, will depend on the institutional setting of the North Korean labor market. Only if wages can be kept low there, might North Korea be attractive for capital investment (though infrastructure is presumably in a bad

state), but it is not known whether North Korean people will move to South Korea because of high wage differentials. Further, wages in the North are at a level making it difficult to survive. It is difficult to imagine that wages can even fall further.⁸⁾

- If factor prices are not adequately flexible, unemployment is inevitable. While there is little incentive for capital investment in North Korea, chances for a rapid recovery of economic activity are not very good either. Further, as a comfortable social security system (like in Germany) is not available in Korea, people who lost their job will face poverty. Again, this might induce large-scaled migration of labor from the North to the South.

So it all ends in the question of whether migration of North Korean people to South Korea is to be permitted on a large scale. From a North Korean perspective, transformational problems (such as rising unemployment or decreasing income levels) can be “exported” to the South by the movement of labor, but this will bring about severe problems in the South. Of course, as in the German case, this might be avoided by

8) Theoretically, there is the possibility that South Korean firms will move to the North due to low labor costs, making necessary a downward adjustment of South Korean wages. However, this case is not very realistic on a large scale as infrastructure in the North is in a bad state and as productivity of the work force seems to be lower than in the South due to a lack of qualifications.

transfer payments from South Korea to North Korea to substitute for low incomes or even unemployment in other words: to “pay” the North’s population for staying there. In Germany, transfer payments for this end came up to 4.5 percent of West German GDP per annum. Therefore, the question is what price South Korea is willing to pay for unification. As long as South Koreans regard migration on a large scale or enormous transfer payments too high a price, monetary integration in an early stage (like in Germany) is not feasible.

Instead, a flexible exchange rate can partly absorb the negative unification shock that is inevitably expected for the North Korean economy, and it can also insulate the South Korean economy from disturbances resulting from the transformation processes in the North. Negative consequences arising from a lack of competitiveness, i.e., rising unemployment and/or decreasing incomes (in terms of prices of North Korean goods) can then be avoided by a devaluation of the exchange rate. Even more, it can help make North Korean production cheap enough to sell on the world market. This, in turn, would dampen the competition problems of the North Korean economy.⁹⁾ Additionally, a flexible exchange rate has the advantage of helping to find the market value of the North Korean *won* right before the coming into effect of

9) Of course, the same can be achieved by flexible prices and wages. A flexible exchange rate, however, can react more instantaneously to imbalances than goods prices or wages can.

a currency union at some later point in time. In Germany, the determination of a reliable conversion rate proved to be a major problem because nothing was known about money demand in East Germany. Therefore, in 1990 the Deutsche Bundesbank especially feared inflationary pressures once people could change their savings into D-Mark. Finally, the conversion rate (1 DM: 1.8 M for money stocks, on average) was set by political considerations, not by economic ones.¹⁰⁾ This problem could have been avoided if both currencies had been traded on a functioning exchange market for some time previously.

Of course, postponing the monetary integration does mean that a complete economic integration cannot occur either, as it is difficult to imagine having two (different) legal currencies within a unified state without some form of border between separating the two. While in the “gradual adjustment scenario” this can be achieved without large problems, in the “shock scenario” this is much more difficult to accomplish as this proposition implies keeping existing borders inside one Korean state at least for some forms of economic transactions and for labor migration. In particular, the fact that the convertibility of the North Korean *won* to the South Korean *won* can not be achieved immediately under this regime might be considered a problem as it leaves some impediments for trade and direct investment. Nevertheless, with ongoing real integra-

10) For flows, the exchange rate was fixed at a rate of 1:1; however, this was unimportant because prices began to adjust soon after monetary union.

tion, these obstacles can gradually be removed without entering in a currency union. For reasons of social psychology, however, people in North Korea should be given a perspective for a common currency to be introduced in the medium run. This can be achieved by setting a timetable with a fixed expiration date (the date of the currency union). Such a strategy is feasible in the shock scenario described in section II.1 as well as in the gradual adjustment scenario.

The existence of two currencies provides the opportunity to pursue those macroeconomic policies in each part of the country that fit the real economic developments best. For example, continued strong growth in South Korea can be accompanied by an adequate monetary expansion while slow growth in the North requires only moderate growth of the money stock. However, this raises the question of institutional setting. Should one central bank be responsible for both currencies or should there be two central banks, acting more or less independent of each other? With respect to the ideas given above, the answer is clear: Since unification remains the final target, there are strong arguments for one single central bank (as this is true for other institutions) which is responsible for monetary control in the South as well as in the North. In case of two central banks acting independently of each other, there is a high risk that policies will be inconsistent with the final unification target. Nevertheless, while one might prefer the solution of one Central Bank for economic reasons, one might accept two Korean Central banks for reasons of national prestige or social psychology. In this

case, it is necessary to find institutional environments that address conflicting monetary strategies.

Of course, the Central Bank shall be assigned the task of maintaining internal price stability in the medium run¹¹⁾ with respect to both Korean currencies. Nevertheless, in the beginning, when price formation is liberalized in the North, a temporary rise in the aggregate price index due to the abolition of subsidies on basic goods might occur. These price increases have to be accepted as they reflect, at least to a certain degree, an adjustment of relative prices, not inflation. A restrictive monetary policy at this stage of the transformation process would mean that the adjustment of relative prices must come from decreasing the prices of those goods—prices that have been set overly high by the central planning agency in contrast to their relative scarceness. As this might lead to a kind of deflation (adding even more unemployment to the North Korean economy), such a strategy cannot be recommended during the first round of price adjustments.

In the medium run, however, monetary policy should be obliged to defend price stability—and only this: It should not be assigned the task of stabilizing the exchange rate between

11) In North Korea, however, level and structure of prices will adjust to market conditions soon after liberalisation. Although this might result in price increases on a macroeconomic level, the Central Bank has to accommodate this in order to avoid deflationary pressure. The extent to which prices will increase depend on the size of an eventual monetary overhang in North Korea.

the North Korean and the South Korean won or the rate *vis-à-vis* some other currency like the U.S. Dollar, as exchange rate adjustment are one important means of regaining competitiveness. Additionally, monetary policy must not take any responsibility for regional or industrial policies. Of course, to fulfill these tasks properly, the Central Bank has to be given not only adequate instruments but also, more importantly, independence from the government.

3. Financial and banking system

During the phase of transition, reform of the financial and banking system in North Korea is another urgent institutional step. Prices of goods and factors can not be liberalized unless the allocation of liquidity is carried out by some proper system, independent of political considerations, acting largely consistent with generation of profits. This is why the reform of the banking system is a keystone to all other reforms:¹²⁾ Banks must give loans to the private sector according to marginal returns and it is difficult to imagine that this task can be performed by some central agency which is subject to state control.¹³⁾ In both scenarios, this aspect of reform

12) Cf. G.A. Horn, R. Pohl, and D. Vesper, The Transformation of Institutions, in: H. Flassbeck (ed.), German Unification - An Example for Korea? Berlin.

13) Despite this proposition, there will be need for an central organisation giving loans to existing firms to enable them to pay wages and rents; this is comparable to short term loans given by the *Treuhandanstalt* in East

must be made at the beginning of the process.

As in the GDR before 1990, the institutional setting in North Korea today does not meet the requirements of a market oriented banking system. As far as it is known, the banking system consists of the Central Bank that falls under the jurisdiction of the State Administration Council. The Council is responsible for monetary control in accordance with the guidelines of national economic plans. There is no decentralized system of commercial banks as in most industrial countries; the Central Bank controls savings deposits and credits for state owned enterprises. Hence, the Central Bank is the only supplier of state budgetary funds. Additionally, there are a number of different banks for external transactions including foreign trade and international finance. But these banks are subject to control of the Central Bank or the State Administration Council. However, as external transactions are of only limited relevance, this part of the banking sector does not seem very important. Thus, all payments that are performed via the banking systems are under more or less direct control of the central planning authorities and credit policy seems to be an important tool in order to fulfill the goals of the central plan.

In a decentralized economy, however, a two-tier banking system is best for reaching allocative goals, with a Central

Germany in 1990 and 1991. Private banks probably will not do so as profits are uncertain in this case. However, liquidity loans of such an agency must be restricted to a short period in time as they will disturb factor allocation severely.

Bank, being responsible for monetary control, and a competitive system of commercial banks, being responsible for allocating private and public deposits in the economic system. For such allocative reasons, the existing banking system in North Korea should be reconstructed in such a way that it leads to a private banking sector acting independently of the monetary authorities. This can in part be achieved by privatizing the existing banks, but foreign banks should also be allowed to do business in North Korea at the same time. This seems necessary as foreign banks generally have more experience with credit businesses than formerly state-owned banks do. Of course, this proposition calls for the possibility of repatriating profits from North Korea and for independence of banking activities from governmental intervention. Notwithstanding, it is quite natural that South Korean banks will engage in activities in the North, bringing about an inflow of foreign capital to North Korea. Again, the East German experience gives some useful hints for the Korean case: While private banks were not allowed under the Socialist system before 1990, West German banks began to install a system of offices and branches even before a German currency union was established and the existing state-owned banking system was more or less completely taken over by the West German *Deutsche Bank*. Private banks not only helped to conduct the introduction of West German DM in Eastern Germany, but also assist in shifting loanable funds from West German credit markets to the East.

Although the allocation of liquidity and credits is an

important task for (foreign) commercial banks acting in North Korea, there is something else: As only foreign banks possess knowledge about the firms' behavior in a market economy, they can advise existing firms and newly-founded enterprises in adjusting to the new situation. This feature of the banking system seems to be even more important than its role in the allocation of liquidity, and this function of private banks should be exploited during the organization of the transformation process. Indeed, the judgement of credit worthiness by West German banks (or their East German affiliates, respectively) is still one of the most powerful instruments in giving subsidies to East German firms.

However, with respect to commercial banks' activities in the loan market, private banks from abroad may be unwilling to give credit to private investors in the North if they have to bear heavy risks. As long as the individual return of investment in the North is not sufficient to compensate for higher risks, engagement will be restricted to an extent that is not optimal with regard to social returns. Therefore, some kind of private-public risk sharing should be established. One possibility known from Germany are guarantees given by the state; however, this requires a public judgment of risk and return of individual businesses to be financed in order to avoid unnecessary high losses for the public. Therefore, interest subsidies to the banks (allowing for a compensation of higher risks) seem to be a better choice in order to minimize bureaucracy costs. In this case, the judgement of creditworthiness of the credit taker is left to the private

bank, allowing for a decentralized selection of firms that obtain financing capital. Of course, such subsidies must not be so high that they leave an extra profit to those banks; it should only compensate for general risks of a capital loan to North Korea (but not for firm-specific risks).

Additionally, as commercial banks do business with private actors, some regulations seem to be necessary to secure private partners. One major institution known from Germany is an insurance against wealth losses due to bankruptcy of banks. In Germany, all commercial banks are obliged to contribute to a common fund (*Einlagensicherungsfonds*) that guarantees private investors the repayment of their funds in case of a shut down of their respective banks. This assures confidence in the banking system, allowing for low interest rates. Such insurance (maybe on a pan-Korean base) should be introduced in North Korea too. This might be completed by regulations concerning information about an investment's risk and return (for example by universal accounting standards) that are useful in allowing lending institutions to check the creditworthiness of their customers. On the other hand, there should be some regulations concerning information about credit cost to assure comparability of loan offers. As North Koreans are not familiar with the modern banking business, regulations of this kind seem necessary at least for the first stage of the transformation process. Interest ceilings (as they are known in South Korea) can not be recommended, however, as they cause severe disturbances to the market mechanism.

Finally, a money market has to be established where temporary excess liquidity between banks can be traded; in addition, this is necessary to guarantee a functional monetary policy in the North. However, as long as only private banks (and not private investors) act on such a money market, official interference with respect to the security of private non-banks is not necessary. Instead, suitable instruments to insure for credit risks will develop automatically when private banks come into existence, as they will install rules that best fit their needs.

Albeit private commercial banks can do a good job in the allocation of capital, the establishment of a formalized capital market for long-term bonds might become necessary too. Commercial banks are presumably not willing to offer sufficient amount of long-term capital without the option of trading, as the deposits of private investors are mostly short-term. A bond market (or even an equity market) will allow private enterprises to raise long-term funds needed for long-term investment, and it will also allow the state to finance long-term public investment, e.g., in infrastructure. Additionally, this is the best way to induce an inflow of long-term private capital to North Korea. While it does not seem necessary to have all those elaborate financial instruments that are known from Western stock and future markets, some kind of bonds and/or stocks could be helpful in completing the financial system. However, some standards with respect to the quality of bonds and stocks, on the one hand, and trading, on the other, are considered necessary in order to prevent specul-

ation. Rules applied in South Korea today might be a good yardstick for the shaping of these regulations. At least some kind of supervisory institution should be established that is able to control financing institutions and exchanges.

4. Tax system

Another aspect of institutional reform is the shaping of the future fiscal system. Reforms in the area of public finance require adjustments on the expenditure side and on the revenue side of the budget as well. Nevertheless, it is mainly the revenue side that is important as the volume of the state's tax revenue limits the room for public spending. Of course, a good deal of public expenditures in North Korea will be financed by fiscal transfers by the South (or by international sources) if unification becomes a realistic option; however, by all modern principles of taxation, there should be a rough equivalence of utility and cost-bearing. So, a suitable tax system must be introduced in North Korea too.

While in centrally planned economies public expenditure (that consists mainly of subsidies to firms¹⁴) is to a large extent financed by confiscating profits from state-owned enterprises, in market economies there is usually a more or less ambiguous tax system, consisting of a combination of different taxes on income, spending, and wealth. There is a

14) In North Korea, about two thirds of public expenditure is designed to economic goals. Information via internet by www.unikorea.go.kr (enk18.htm).

long debate about the shaping of an optimal tax system in economic literature which will not be repeated here; however, some considerations of this debate are useful for the Korean case too.

- From a purely economic point of view, the tax system should be designed in a way to affect the price mechanism as little as possible. Relative prices should reflect the scarceness of different goods and factors, not political or social goals. This leads to the conclusion that each economic transaction should be taxed at the same rate, leaving relative prices virtually unchanged. A general sales tax that does not discriminate between different kinds of goods fulfills this requirement best. Something similar holds for a uniform income tax although this raises some problems with respect to social equivalence.
- Additionally, the design of the tax system can be used to reach distributive goals. While this view is not a purely economic one, it is quite common to set the tax rates in a way that some sort of distributional equity is promoted. In most countries, this goal is achieved by a progressive income tax. Some countries also set differential tax rates for consumption taxes (i.e., a low rate for basic goods such as health care, housing or food and a high rate for luxury goods).
- Finally, the tax system may be used to influence different kinds of economic activity. In this case, the tax system corrects the allocation of resources brought about by the market mechanism. Examples for this are lower tax rates

for investment expenditures and/or savings (in order to enhance economic growth) or taxes on goods like alcohol and cigarettes that might harm health.

Additionally, the tax system must be easy to administrate by the authorities as well as by the tax payers; this might stand in contrast especially to the principle of distributional equity as some form of administrative control is required. However, in an economy in transition a simplified design of the tax system should be preferred, as people have to become accustomed to quite a lot of new things. This is even more true because in the beginning at least, income levels will not differ much in such an economy, making distributional equity a less important matter.

The shaping of a tax system for North Korea should take into account these propositions of economic theory. Most important of these is a design of taxes that supports investment and growth. It is obvious that economic reconstruction will afford high investment by private firms as well as by the government. The infrastructure in North Korea has to be improved especially quickly to make North Korea attractive as a location for investment. Additionally, as the improvement of infrastructure will take time, investment subsidies for firms might become necessary to compensate for remaining infrastructure deficits. The German experience shows that it is difficult to attract external private capital when there are no such incentives because of path dependencies in investment decisions. Internal capital, on the other

hand, is limited in North Korea due to a lack of savings. Therefore, a tax system has to be installed rendering “enough” revenues to the state and giving incentives to private investment at the same time.¹⁵⁾ Even then, there will be additional need for assistance from South Korea even in the gradual transformation scenario with two independent states.

Given the need for a growth oriented tax system, a high tax burden for firms engaged in the reconstruction of the North Korean economy would be counterproductive. Low tax rates for earned profits would be one possibility to prevent this from occurring. However, another way would be to realize a consumption-oriented tax system in North Korea. This is in accordance with economic theory that has shown the superiority of a consumption-based tax system as opposed to an income-based system. This means that, to some extent, the South Korean tax system can be considered a model for the North: As the public sector in South Korea is small, with taxes amounting only to 20 percent of GDP, incentives for private activity seem to be much higher than in other OECD countries.¹⁶⁾ The same is true for the structure of taxes: Average income earners as well as corporate firms

15) A difficult question is whether there should be some kind of tax discrimination in favor of selected industries as it was quite common in South Korea in the past. While such sort of industrial policy seems to be reasonable at first sight, it requires knowledge of future comparative advantages of the North Korean economy that is hardly known at this moment. Therefore, it would be better to refrain from such a policy of tax discrimination.

16) Cf. OECD, *Economic Surveys: Korea*. Paris, 1994, 1996.

face only small marginal income tax rates, while taxes on consumption are rather important. However, even the system of consumption taxes realized in the South is complicated because of a variety of different taxes on selected goods beside the general VAT.

Generally, the introduction of the South Korean tax system in North Korea seems quite reasonable with respect to low taxation of incomes and profits. Nevertheless, some simplifications should be made, mainly with respect to the structure of the consumption-based taxes. This can be brought about by a general value added tax that seems to fit better to North Korean needs than a diversity of taxes on special items.

Additionally, local authorities should be given not only the revenues of certain taxes, but should be allowed to set tax rates autonomously in order to attract investments and to finance those tasks that are considered most important on a local basis. At least in the medium run, such a decentralized system might be advantageous for the transition process in North Korea.

IV. Concluding Remarks: The Assignment of Responsibility

In the previous sections, several aspects of institutional reform in North Korea with respect to a possible unification of North and South Korea were examined in greater detail.

However, a still open question is the assignment of competence to institutions as well as the design of these institutions in this process.

The relevance of this aspect is obvious as it is necessary that these institutions must feel obliged to be consistent with the goals of unification. To assure this, it seems to be useful to have pan-Korean institutions shape the transition process at the very beginning stages. While there are no major obstacles to this proposition in the shock scenario because of an early unification, in the gradual adjustment scenario there might be two legal institutions (one in the North, and one in the South) that do not necessarily cooperate with each other in respect to unification matters. In this case, some kind of assistance of South Korean institutions seems to be useful. But even in the shock scenario, the question has to be solved how to recruit qualified personnel, as availability of such qualified people may be in short supply in North Korea. In the case of Germany, these problems were quickly solved by assigning responsibility for pan-German duties to existing institutions in West Germany: The federal ministries as well as the *Bundesbank* (designed to keep price stability), the *Bundesanstalt für Arbeit* (designed e.g., for the qualification of people), and the *Kartellamt* (designed to preserve competition). Only the *Treuhandanstalt* and the *Bundesamt zur Regelung offener Vermoögensfragen* were newly founded for special (economic) tasks in East Germany, namely the privatization of formerly state-owned enterprises and the restitution of properties. However, although these institutions were newly

founded, most personnel came from West German and international backgrounds as a means of guaranteeing a strictly market oriented approach to transformation. Finally, to help East German *Laender* build up their administration, many West German civil servants were sent to East Germany.

After all, the assignment of the competence for the transformation process to West German institutions and experts which were familiar to those tasks has proven to be a successful method. Therefore, with regard to a Korean unification, it is also useful to employ existing South Korean institutions in lieu of corresponding North Korean institutions. As the way unification takes place is highly important for its success, these competences should be given to a high-level institution like the already existing ROK Ministry of Unification.

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Korean Unification and
the Privatization of
North Korean Economy

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I. Introduction

The unification of Korea can not be complete without the integration of the South and North Korean economies. But given the large South-North gap in their respective economic systems and economic performances, the integration of the two Korean economies is a daunting task. While the reform of the economic system and improvement of economic performance in North Korea are both essential for a successful economic integration, the nature and time-frame for the two tasks are somewhat different. For the reform of the economic system, all the essential programs have to be implemented up front in a comprehensive and synchronized manner, while the improvement in economic performance can only be achieved over a long period of time. In this paper, I focus on one of the most immediate issues of system integration, i.e., the privatization of North Korean economy.

One fundamental question for a unified Korea is: “What kind of economic system is it going to build?” Basic and logical as the question may be, the answer is simple and clear. It is not socialism, but market-oriented economic system. Indeed the weakness of socialist economic system is now well understood and there is abundant evidence of its dismal performance. In light of the failure of the socialist economic experiment in the former Soviet Union and East European countries, a unified Korea under socialism is out of the question. The market-oriented economic reform in China and

Vietnam provides further support for the conclusion.

It is evident that the root of the current economic difficulties of North Korea lies in its socialist economic system. The planned socialist economy failed to provide adequate incentives for work. It also failed to achieve efficient allocation of human and non-human resources. With the recent collapse of most of the former socialist economies, the international network of socialist economies evaporated and the survival, let alone prosperity, of a lone socialist economy became even more precarious. Without going into a detailed discussion of the pros and cons of alternative economic systems, I proceed with the conclusion that a unified Korea must be built on the principles of market economy.

Market economy is based on voluntary exchange of goods and services, which is possible only when private ownership is clearly defined and well established. In North Korea, however, most properties in industries, finance, transportation, communication, electric power generation, agriculture, housing, and so on, are owned by the state or cooperatives. Indeed, nationalization and collectivization of properties in North Korea were pursued to a degree unparalleled in other socialist countries. Therefore, one of the first steps for economic integration of the South and North Korea is privatization of the North Korean economy. In North Korea, the scope of privatization need to be much broader than in most other former socialist countries because nationalization and collectivization had been carried out on an extreme extent in the first place.

In this paper, I attempt to develop a program for privatization of the North Korean economy in the context of Korean unification. The feasibility and effectiveness of a privatization program depends critically upon the economic and political conditions under which it is implemented. However, Korean unification is heavily surrounded by uncertainty and it is difficult to ascertain which one of the many apparently plausible unification scenarios is more likely than others. The difficulty of predicting the future course of the North Korean economy further complicates the analysis. In order to cut through these uncertainties and describe succinctly the economic condition of North Korea on the eve of the privatization considered in the paper, I assume that unification suddenly comes to Korea.

The assumption of sudden unification has three implications. First of all, it indicates that the pre-privatization North Korea is characterized by the socialist economic system as we know of it today. In particular, it is assumed that most real properties are owned either by the state or by cooperatives and central planning is the dominant mode of resource allocation. Second, it opens up the choice for the agent of privatization. I assume that the privatization is carried out by a democratic and market-oriented unified Korea that intends to integrate the two Korean economies.¹⁾ Third, it indicates that the post-unification North Korea has easy access to the

1) I assume that a unified Korea pursues privatization along with other transition policies including liberalization and stabilization.

world markets for technology and capital. At the same time, it is open to foreign competition. The assumption, however, need not be interpreted literally. Most of the analysis goes through without unification.

The paper is organized as follows. In order to provide historical background of the current property ownership in North Korea, Section II reviews the North Korean land reform of 1946 and the subsequent nationalization and collectivization of private properties. Section III analyzes some of the basic issues of privatization and proposes guidelines for privatization. In particular, I consider the issues of “what” and “how” to privatize, compensation and restitution, debts in the state enterprises and cooperatives, and the speed of privatization. Section IV puts together a comprehensive privatization program for large enterprises, small and medium-sized enterprises, agricultural properties, and housing. Section V is the conclusion of the paper.

II. Property Ownership in North Korea

1. Land Reform of 1946

Prior to liberation of Korea from Japanese colonial rule in 1945, most property was in private hands. The economy was primarily agricultural and Koreans owned most of the agricultural land. In 1946, 74.1% of North Koreans were farmers

or farm workers, and agricultural production was 260% of industrial production.²⁾ By contrast, the Japanese owned virtually all of the large industrial firms. In North Korea, while the Japanese owned roughly 6% of the total agricultural land, they owned almost all of the industrial firms. Consequently, when the Japanese retreated from Korea at the conclusion of World War II, there was an enormous vacuum in property ownership, especially in the ownership of industrial properties.

Immediately after World War II, North Korea was placed under the military administration of the Soviet occupying forces. The Provisional North Korean People's Committee, with the blessing of the Soviet Union, stepped in quickly to fill the vacuum in the property ownership. The committee introduced drastic measures to take control of the properties formerly owned by the Japanese, and began to build a socialist economy on what the Japanese left behind. The first major economic program took the form of a land reform in the spring of 1946. The Provisional People's Committee promulgated the land reform law on March 5. The reforms were implemented at a lightening speed and were completed by the end of March, taking only twenty-five days!

During the land reform, the People's Committee effectively confiscated about one-half of North Korean agricultural land and distributed it at no cost to small peasants and farm laborers. Most of the confiscated land had been previously

2) Ko (1993), pp.118-121.

owned by the Japanese (11.2%), landlords with land in excess of 5 *jungbo* (23.8%), land owners who rented all of their land (62.1%), churches and temples (1.5%), and “traitors” (1.3%).³⁾ No compensation was made for the confiscated land and, understandably, many of the landlords felt politically insecure, dismayed, and fled to the South. It is noteworthy, however, that the primary economic goal of the land reform was to equalize the distribution of agricultural land ownership, and private ownership was still the principal mode of property ownership in North Korea.

2. Collectivization of Agriculture

As noted above, private ownership of agricultural land survived the land reform of 1946 and, until the end of the Korean War in 1953, agriculture was predominantly a private business in North Korea. In 1953, private farms owned 94.8% of agricultural land and accounted for 91.5% of agricultural output, whereas state farms and cooperatives owned only 5.2% of agricultural land and accounted for 8.5% of agricultural output (Table 1). Similarly, in the same year, only 1.2% of farm households and 0.6% of farmlands were owned by agricultural cooperatives (Table 2). However, North Korea shifted its agricultural policy drastically after the Armistice Agreement was signed in July 1953.

3) Ko (1993), p.60.

<Table 1>

Agricultural Land and Output Composition by
Ownership Category

(unit: %)

	State Farms		Cooperatives		Private Farms	
	Land	Output	Land	Output	Land	Output
1946	0.0	0.0	0.0	0.0	100.0	100.0
1949	1.9	3.2	0.0	0.0	98.1	96.8
1953	4.6	8.0	0.6	0.5	94.8	91.5
1954	-	8.2	-	3.3	-	88.6
1955	-	12.2	-	43.2	-	44.6
1956	5.3	9.6	63.5	65.4	31.2	25.0
1959	8.0	-	92.0	-	0.0	0.0
1960	6.0	16.1	94.0	83.9	0.0	0.0
1963	8.0	16.0	92.0	84.0	0.0	0.0

Source: Chung (1974), p.11, Table 3.

In August 1953, the North Korean Labor Party proposed collectivization of agriculture as a basic strategy for agricultural development. The collectivization proceeded fast and, by August 1958, all the private farms disappeared and farmlands were owned either by the state or by agricultural cooperatives.

Agricultural cooperatives took one of the following three forms:⁴⁾

Type 1 (Embryonic Stage of Socialism): Farmland and other means of production were privately owned, but some means of production such as draft animals, machinery were used cooperatively. Output belonged to the owners

4) Ko (1993), p.63.

of the land.

Type 2 (Transitory Stage of Socialism): As in type 1, farmland and other means of production remained in private hands, but they were pooled together for cooperative production and management. Output was distributed in accordance with labor and land contributions.

Type 3 (Highest Stage of Socialism): All means of production were owned by the cooperative and outputs were distributed in proportion to labor contribution only.

<Table 2>

Collectivization of Agriculture: Cooperatives

(unit: %, 1,000 households, thousand jungbo¹⁾)

	# of cooperatives (coop)	# of farm households in coop.	% of farm households in coop.	Area of Farm land in coop.	% of land in coop.
1953	806	12	1.2	11	0.6
1954	10,098	333	31.8	576	30.9
1955	12,132	511	49.0	885	48.6
1956	15,825	865	80.9	1,397	77.9
1957	16,032	1,025	95.6	1,684	93.8

Note: 1) 1 jungbo is 9,915 square meters or 2.35 acres. It is close to 1 hectare, or 10 thousand square meters.

2) Figures are for November, 1958.1

Source: Ko (1993), p.68.

In 1954, 78.5% of the agricultural cooperatives were of Type 3 and the remainder were of Type 2 (Table 3). By 1958, all the

cooperatives were converted to Type 3. Formally, members of the cooperatives were allowed to choose from one of the three types. However, the fact that all the cooperatives were converted to Type 3, in which land contribution does not count in the distribution of harvest, suggests moral persuasion or coercion applied to the land owners. Private ownership of land was officially abolished in January 1959.

<Table 3>
Agricultural Cooperatives by Type

(unit: %)

	# of cooperatives	type2	type3
1953	806	-	-
1954	10,098	21.5	78.5
1955	12,132	7.8	92.2
1956	15,825	2.5	97.5
1957	16,032	1.2	98.8

Source: Ko (1993), p.72.

3. Nationalization of Industry and Financial Institutions

After the completion of land reform in March 1946, the Provisional People’s Committee turned to nationalization of industry and financial institutions. In August, the committee nationalized industries, transportation facilities, telecommunication and postal services, banks, and other businesses that had been previously owned by the Japanese and “traitors.” With a single stroke of the pen, North Korea nationalized 1,034

major industrial enterprises, which accounted for 90% of North Korean industrial capacity in 1946.

Since all the Japanese had retreated and the “traitors” had either fled or become politically incapacitated, the properties to be confiscated were already under the control of the People’s Committee. As the Japanese had owned most of the key industries, nationalization of industries was much easier than land reform. The nationalization law was mainly to provide a legal basis for the state ownership of *de facto* state properties.

The nationalization law applied to the properties owned by the Japanese and “traitors,” and ownership of industrial properties by North Koreans remained intact. In October 1946, the People’s Committee even announced measures to protect the ownership of private enterprises and promote entrepreneurial creativity. Such policy on industrial ownership was in line with the agricultural ownership policy of the same year that preserved private ownership in the land reform. However, private enterprises withered quickly as the state fostered a business environment that was extremely hostile to them. For example, private firms were placed under government control in the allocation of labor and raw materials. They were also subjected to price controls and were placed under tight constraints regarding operation and expansion of factories.

The effect is evident in Table 4. In 1946, state enterprises produced 72.4% of total industrial output and the remainder was produced by private enterprises.⁵⁾ The output share of private enterprises declined sharply as the shares of state

enterprises and industrial cooperatives increased. By 1958, all industries were either state owned or collectivized. With the complete abolition of private ownership in agriculture and industries in 1958, North Korea entered a new stage of socialist economic system.

<Table 4>
Composition of Industrial Output by
Ownership Category

(unit: %)

	State	Cooperatives	Private ¹⁾
1946	72.4	0.0	27.6(4.4)
1949	85.5	5.2	9.3(1.5)
1953	86.2	9.9	3.9(1.0)
1954	88.9	7.3	3.8(1.1)
1956	89.9	8.1	2.0(0.7)
1957	90.6	8.1	2.0(0.5)
1958	87.7	12.2	0.1(0.1)
1960	89.7	10.3	0.0
1963	91.2	8.8	0.0

Note: 1) In the parentheses are the proportions of small merchandise industry.

Source: Chung (1974), p.61, Table 18.

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- 5) The output share of state enterprises was lower than their capacity share which was around 90%. There were two major reasons. One was that high level Japanese managers and engineers withdrew to Japan, and it took time for Koreans to master the skills necessary to run the industries at full capacity. There were also instances of flooded mines and damaged factories caused by the Japanese in retreat.

III. Basic Issues in Privatization

1. “What” and “How” to Privatize?

Most issues concerning privatization may fall into one of two categories: “what” and “how” to privatize. The question of “what” to privatize is inherently linked to the division of the roles between the public and private sectors. Unfortunately, there is no universal standard by which one can judge whether a particular activity will be best performed by the public or by the private sector. Unquestionably, every country in the world has a unique pattern of division of roles between the public and private sectors. Nevertheless, there are certain criteria upon which we can rely in determining the scope of privatization.

The most important criterion is the relative efficiency of the public and private sectors. In the market economy of a unified Korea, ownership of property must be placed in the sector where it can be most efficiently used. This efficiency criterion implies that most industrial, agricultural, financial, housing, and other service sector properties ought to be privatized. Clearly, the private sector is not always more efficient than the public sector. It is well known that when strong externalities are involved private sector can do worse than the public sector. The performance of the market is also sensitive to the condition of the market. If certain markets are missing, or underdeveloped, or distorted, the efficiency of

the market is again thrown into question and the government may be able to improve the situation.

Privatization of a former socialist economy does not mean indiscriminate transfer of property from the state to the private sector. For efficient operation of the private sector, a healthy and properly functioning public sector is necessary. Therefore, properties essential for proper operation of the public sector ought to be left in the public sector. At a minimum, properties for the provision of basic public services (defense, administration, education, public health and recreation, etc.) should be left in the public sector. Land for public transportation (road, railroad, airport, etc.) and properties essential for protecting and promoting other vital public interests should also be set aside from privatization.

Many privatization issues are related to the “How” part of the question and many useful guidelines can be developed. One of them is future oriented policy making. In privatization, policy makers have to deal with many situations where diverse interests conflict with one another. In particular, the well-known tension between equity and efficiency is likely to arise quite frequently. Equity and fairness is important. At the same time, setting up the best possible initial condition for economic growth is essential for the welfare of post-unification North Koreans. As usual, the difficult part of policy making is to strike a proper balance between the conflicting objectives. What is unusual in privatization is that the benefits from a good set of initial conditions can be very large.

Given the large income gap between the South and the North, the speed of catch-up by North Korean economy is critical for the success of a unified Korea. Indeed, privatization is the starting point of the all important catch-up, and it can shape the transition path of the post-unification North Korea. More specifically, a future-oriented privatization policy can attract new capital and ideas to North Korea. It can also help preserve existing jobs and create more and better ones. Maximizing efficiency of the privatized asset is no doubt important for preserving and creating jobs. However, the experience of transition economies in the 1990s suggests that newly established firms can be the engine of growth and the spawning ground of new jobs.

There are many policies that the unified Korea may pursue in order to create an attractive business environment. For example, the privatization agency may coordinate its policies with public investment programs to facilitate the provision of infrastructures such as transportation, water, electricity, and housing. To attract investors to the privatization of small and medium-sized firms, the agency may sweeten the deal with flexible payment schedules and low financing costs. The agency may also facilitate the establishment of new firms by making reserved business land readily available to new investors. Facilitating the development of industrial complex is another way of creating profitable business conditions.

2. Restitution and Compensation

In the land reform of 1946, the Provisional People's Committee confiscated as much as half of all agricultural land in northern Korea. In addition, after the Korean War, private properties in North Korea were effectively confiscated during the process of nationalization and collectivization that culminated in the abolition of private property ownership in 1958. In this regard, three fundamental questions arise regarding privatization of the North Korean economy. First, is it socially desirable to honor the original ownership of the confiscated properties? Second, if it is desirable to honor the original ownership, is it possible to define, verify, and restore the original ownership? Third, if restoration of original ownership is impossible, is it then desirable and/or feasible to make compensation for the confiscated properties?

Restitution is not just a way of transferring property ownership from the state to individuals. At first glance, restitution carries with it a strong sense of justice in the sense that the government must return improperly confiscated properties to the original owners or their heirs. Compensation has a similar ring to it as it may be considered an alternative way of honoring the original ownership. However, a more careful analysis casts doubts on the wisdom of honoring the original ownership in North Korea. Even if restitution or compensation was desirable as a matter of principle, effective implementation of such programs seems to be practically impossible.

I conclude that honoring the original ownership is neither desirable nor feasible. Specifically, restitution is ruled out for the following reasons.

First, it is not clear how to define the legitimate original owners: Should the original owners be those who owned property before the land reform of 1946 or should they be those who owned the property after the land reform but before nationalization or collectivization? Even if the original ownership is somehow defined, verification may be difficult. Since it is believed that North Korea had deliberately destroyed the old land registers, if the original ownership is assigned to those who owned the property before the land reform, identification of the original owners is difficult. It becomes even more complicated if the original owner had died and legitimate heirs have to be determined. On the other hand, honoring the ownership established after the land reform, but before the nationalization and collectivization, may be unfair to the property owners, mostly landlords, whose property was confiscated.

Second, as the East German experience shows, restitution will hamper investment and slow down economic development of North Korea. In the case of Germany, restitution was allowed for properties confiscated by the government since 1933. But the properties seized by the Soviet occupying force in 1945-1949 were excluded from restitution.⁶⁾ Even

6) Restitution of the properties confiscated since 1933 helped restore the ownership of properties that were left behind by the Jews who had to flee Ger-

with this limited restitution, the court system was hopelessly overburdened and the uncertainty surrounding property ownership scared away potential investors. In North Korea, restitution will wreak havoc in the real estate market and delay investments that are critical for North Korea to acquire international competitiveness and catch up with South Korea.

Third, if restitution is to be made to the pre-land reform property owners, about half of the total agricultural land in Northern Korea will have to be returned to the former landlords, many of whom left North Korea. It then is inevitable that the land available for the other people in the North will be reduced. In addition, revival of the pre-land-reform pattern of property ownership may imply the resurrection of an important part of the feudal economy. Such an outcome can create serious social conflicts and may well be politically unacceptable. In this regard, it is worth noting that by denying restitution of the properties seized under the Soviet occupation, Germany was able to prevent the revival of property ownership that originated from the feudal age of the past.

If original ownership has to be somehow honored, compensation has advantages over restitution in that it is less harmful to investment. Indeed, if new ownership is unambiguously established and investors are protected against the claims

many but were unable to properly dispose their properties. On the other hand, exclusion of the properties confiscated by the Soviet occupying force substantially limited the scope of restitution.

of original owners, there is no reason why investment should be hindered. Original owners who show up later may be compensated financially. Nevertheless, it seems desirable to rule out compensation as well. First of all, as in the case of restitution, it is extremely difficult to sort out conflicting interests and define original ownership that is acceptable to all former property owners. It is also very difficult and costly to verify evidence and establish old ownership.

Second, compensation places heavy financial burden on the national treasury of a unified Korea that has to meet the urgent needs of securing social safety net for North Korean people, restarting the North Korean economy, and integrating the North Korean economy with the South Korean and the world economy. In addition, to pay compensation for almost one half of the total agricultural land in North Korea is simply too much for the South Korean taxpayers to bear. One may argue that privatization revenue may be used to compensate the original owners. However, there is no guarantee that a positive net revenue will be generated in the privatization process. A realistic estimate would be that whatever revenue that may be raised in the process of privatization will not be sufficient to pay for even the most urgent post-unification public spending programs targeted to North Korea. Notice that by the time privatization was complete in the former East Germany, the balance sheet of the Treuhand showed a huge deficit.

Third, it may be argued that if compensation for the confiscated properties in North Korea is justified, so is the

compensation for the South Korean landlords who suffered economic losses in the 1950 agricultural land reform of South Korea. It is true that the South Korean government paid compensation for the land seized for redistribution. However, landlords were forced to give up their title to the farmland and the real value of the compensation, which was denominated in nominal terms, evaporated due to the high inflation during and after the Korean War.⁷⁾

Denying original ownership will no doubt alienate former property owners both in the South and in the North. However, history has created along its tortuous path diverse and conflicting claims on the properties of North Korea and, to a lesser extent, in South Korea as well. It seems to be impossible to sort them out neatly and do justice to everyone involved. Restoring the original ownership is costly to the individuals involved and the society as well. It is also likely to create politically damaging social tension and conflicts of interests. Doing justice to the original property ownership, however it is defined, is only one of the many important

7) In the South Korea, the *Agricultural Land Reform Act* was promulgated on March 10, 1950, and the distribution of land was completed by April 15, 1950. Landlords were forced to give up their farmland in excess of three jungbo, and the collected land was redistributed to small farmers, peasants, and farm laborers. The landlords were compensated with public bond denominated in nominal terms, and those who received farmland paid for the land in kind (grains). The nominal value of compensation at the time of the land reform was estimated to fall short of the fair market value. See Yun (1997) for more details.

tasks of a unified Korea. Perhaps an even more urgent and valuable national goal may be to set up a good initial condition for the take-off of the North Korean economy. It may be wiser to let bygones be bygones and prepare for a new era of growth and prosperity.

3. Methods of Privatization: Voucher Privatization vs. Direct Sales

In most transition economies, voucher privatization and direct sales were the principal methods of privatization. In general, voucher privatization was used for large enterprises and direct sales (and lease) for small and medium-sized enterprises. East Germany and Hungary were the exception in the sense that they did not use voucher and privatized large enterprises through direct sales. In East Germany, most of the investors in large enterprises were West Germans (and foreigners). Hungary and Poland used direct sales method for large enterprises mainly to attract foreign capital.⁸⁾

In other countries, free distribution based on voucher was the standard method of privatizing large enterprises and direct sales were used for small and medium-sized enterprises.

8) West German firms bought 74.1% of the Treuhand firms. The remainder was accounted for by East Germans (20.0%) and foreigners (5.9%). Dyck (1997), p.571. In Hungary, foreign investors accounted for about half of the State Property Agency's privatization revenue in 1990-1993. Brada (1996), p.71.

Voucher privatization starts with the distribution of vouchers to eligible citizens who are willing to register and pay fees. Voucher coupons are then used to pay for the claims on the privatized property. Since, voucher fees were very small compared to the value of assets to be privatized in all the countries where a voucher method was used for privatization, voucher privatization was practically equivalent to free distribution of state properties.

Voucher privatization can take many forms. As a matter of fact, no two countries used the same procedures in voucher privatization. In Poland, voucher holders received a fixed fraction of privatized assets while, in the Czech Republic, people were allowed to participate directly in auctions or invest indirectly through investment funds. In Poland and the Czech Republic, transfer of voucher was not allowed while, in Russia, voucher was freely traded. Investment funds also differed greatly among nations. In Poland, the government set up National Investment Funds, but the Czech Republic and Russia relied on investment funds that were established spontaneously.

Voucher privatization is an attractive way of returning “people’s assets” to the people. It is also equitable, fast, and useful for generating popular support for reform. However, one serious shortcoming is that there is no guarantee that an efficient and responsible governance structure will emerge.⁹⁾

9) In small and medium-sized enterprises, corporate governance is not a serious problem.

In the Czech Republic and Russia one may have to wait for a long time before efficient and responsible governance structures emerge through the process of natural selection. In Russia, especially, due to the generous concessions allowed for the managers and workers, old stakeholders seem to have firmly entrenched themselves, making restructuring difficult.

Unlike voucher privatization, direct sales method has the advantage that it guarantees efficient governance. As a result, fresh capital, new technology, and new managerial skills may easily be brought into the enterprise. In this regard, it is useful to note that the Treuhand sold most of the large enterprises to West German and foreign investors who have business operations in related areas. However direct sales method has its own limitations. Sinn and Sinn (1992) argue that cash sales method of the Treuhand caused the price of East German assets to plummet, which was an important reason why the Treuhand ended up with a huge deficit. In addition, they argue that cash sales make restructuring difficult as it dries up the funds of investors.

Another problem with the cash sales method is that it may be used only when there are investors who can pay for the state properties. This problem is particularly acute in the context of post-unification North Korea where ordinary people do not have financial assets worth mentioning and even the privileged class can not have legitimately accumulated large amount of personal wealth. Thus, cash sales method can not be used for large enterprises unless South Korean and foreign investors are allowed to participate in the privatiza-

tion. If South Korean and foreign investors are allowed to buy state properties, it may be difficult to return the “people’s assets” to the people in a visible manner.

In sum, both free distribution and direct sales methods have its advantages and disadvantages. A natural question is whether it is possible to combine the voucher and direct sales methods to take advantages of both. We consider such an approach in section IV.

4. Voucher and the Role of Investment Funds

In many transition countries, vouchers were distributed in equal amount to all eligible citizens who are willing to register and pay a nominal fee. However, by altering the rule slightly it is possible to take into account the recipient’s contribution to the “people’s assets” to be privatized. The idea is to vary the amount of voucher with the age of the recipient. A young person may be entitled to a small amount of wealth because his contribution to the “people’s asset” is presumably small. Similarly, a person in his fifties may receive more than a younger person because he is assumed to have contributed to the “people’s asset” more than the younger person. The amount of voucher need not increase monotonically with age because people tend to consume more than they produce at advanced age.

Since most North Koreans have virtually no personal financial wealth, voucher may be used as the basic means of

payment for all privatization purposes. Due to the North Koreans' lack of experience in dealing with financial assets, trading of vouchers may not be allowed. For similar reasons, transfer of individual claims on the privatized property may also be banned for one or two years.

In the privatization of large and medium-sized enterprises, mediation of investment funds is essential for efficiency. We can think of two basic models of investment funds: the Czech and the Polish models. An Essential difference between the two models is in the way corporate governance is handled. In the Polish model, corporate governance of a large enterprise is established through a lead National Investment Fund (NIF) that is assigned a controlling block of shares.¹⁰⁾ In contrast, in the Czech model, the Investment Privatization Funds (IPFs) competed for shares in public auction.¹¹⁾

We combine the German direct sales method with a voucher method for the privatization of large enterprises. In essence, the controlling share is sold directly to an investor in the manner of the German Treuhand, while the remaining share is distributed in voucher privatization. The role of

10) In Poland, 60% of the shares were distributed to the fifteen NIFs, and one of the NIFs became the lead shareholder (core investor) and received 30% of the shares. The other fourteen NIFs shared equally in the remaining 27% of the shares. The remaining 40% of the shares was divided between the government (25%) and the employees (15%).

11) The IPFs collected 72% of the total voucher points in the first wave of the voucher privatization and 64%, in the second wave. The largest fourteen IPFs controlled 55.5% of all available points in the first round. Barada (1997), p.73.

direct sales is to provide a basis for efficient governance structure and the voucher method is used to distribute the people's assets efficiently. Investment funds are not expected to become lead shareholders for large enterprises. We choose the Czech model of investment fund for two reasons. First, it gives more choice to the voucher holders than the Polish model. Second, investment funds need not assume the role of lead shareholder for large enterprises.

In the Czech model, anyone who has the necessary expertise may establish an investment fund. However, the government needs to regulate the funds in order to secure transparency and fairness, and prevent excessive speculation. Investment funds collect vouchers from individuals in exchange for a share of in the funds. Then they use the vouchers to bid for the shares of privatized enterprises. In this way, investment funds facilitate auctions and reduce transaction costs of privatization. A fund may try to secure controlling share of small and medium-sized enterprises or become a passive investor in large and small enterprises.

5. Debt of State Enterprises

In a socialist economy, most prices are controlled and enterprises try to meet the output targets rather than maximize profits. As a result, losses and profits of a state enterprise do not necessarily reflect business performance of the enterprise. Similarly, debts of state enterprises (and cooperatives) are partly

the results of government planning. The balance sheet of a state enterprise may be interpreted as an extension of government budget. In any case, the debt on the balance sheet of a state enterprise must be dealt with in privatization.

If the debts are not directly related to the business of the enterprise, there is no reason to clutter the balance sheet with such debts. It is best to cancel the debts of state enterprises and let them start with clean balance sheets after privatization.¹²⁾ This procedure will insulate the future business prospect of the enterprises from the remnants of economic planning by the past socialist government. Canceling debts will also simplify privatization without affecting the net value of the state properties. The logic reveals itself when the government sells the enterprise. Even if the debts are not cancelled, what the government can get is the value of firm, net of debts.

As the government cancels the debt of the enterprises to be privatized, it must assume the liability for repayment. However, much of the process is just an accounting exercise because most of the debts are likely to be owed to state banks and other state enterprises. Once all the dust settles the liabilities of one state enterprise are canceled against the assets of other state enterprises, including financial institutions. In some cases, however, individuals and foreigners may hold a fraction of the debts in the form of deposits and loans. The government must honor these private and foreign claims.

12) See Phol (1990) and Dornbusch and Wolf (1992) for similar arguments.

6. Speed of Privatization

The central assumption in this paper is that Korea is suddenly unified and the market-oriented unified Korea is to carry out the reform of its Northern economy. Under a sudden unification, it would be difficult, if not impossible, to keep the North Korean and the South Korean economies separate. Given the large difference in the living standards between the two regions, there is bound to be a large flow of North Koreans moving to the South. The flow of migrants will put enormous pressure on the socio-economic system of the South. A sudden unification will also expose the North Korean economy to competition from the South and the rest of the world.

Considerable confusion and adjustment costs may be inevitable until the North Korean economy is stabilized and integrated fully with its southern counterpart. Nevertheless, by pursuing a well-choreographed set of policies, a unified Korea can expedite stabilization and transition of the North Korean economy and, as a result, reduce the social cost of adjustment and dislocation. One of the important guidelines for a unified Korea is to implement the economic reform of North Korea as swiftly as possible. Speedy transition toward a market economy can increase the likelihood of inequity somewhat. However, in light of the large South-North income gap, creating new jobs and stimulating economic growth may be dynamically much more important than losing

the time to grow by pursuing strict equity in the distribution of existing state properties. Moreover, unless the confusion and waste in the post-unification North Korea is quickly put under control, jump-start of the North Korean economy may be jeopardized and the resulting social loss will be enormous.

The problems in post-unification Korea are likely to be very similar to those of Germany. The unified Korea will face the dual task of building its Northern economy and integrating two parts of the nation, socio-politically and economically. Without swift transition to a market system, the Northern economy may be decimated by foreign competition and the livelihood of the people seriously threatened. Speedy transition clearly has its own share of shortcomings. But delays and procrastination in economic transformation spells misery for all. Slow transition may allow the Northern economy to collapse and place heavy burdens on its Southern counterpart. Broad and drastic restructuring is required virtually in all sectors and quick actions are critical for success.

To the extent reasonably feasible, it is necessary to ease the pains of adjustment and restructuring. For this purpose, a well-knit social safety net needs to be provided to the people in the North. At the same time, Korean and foreign investors need to be encouraged to participate in the privatization process and a profitable and friendly business environment must be fostered for them. Investors need to be encouraged to start new businesses and financial institutions must be allowed to play active roles in the privatization of enterprises. In some cases, the government may have to inject

public funds for restructuring or for clean-up of pollution.

IV. A Privatization Program

1. The National Trust Company

In order to manage the privatization of state enterprises and cooperatives, the government needs to establish an agency similar to the German Treuhand.¹³⁾ We refer to it as the National Trust Company (NTC). The NTC is a temporary holding company for the privatization of state properties in the post-unification North Korea. The task of the NTC includes distribution of vouchers, evaluation and preparation of state enterprises and cooperatives for privatization, management of the bidding for controlling share, administration of public auction for minority shares, and the privatization of small and medium-sized enterprises, agricultural cooperatives, housing, etc.

The NTC will take control of all the state properties designated to be privatized. It should be financed by the government of the unified Korea. Managers of the NTC are compensated on a performance basis, and certain incentives

13) The Treuhand of Germany was once the largest holding company in the world, employing four million people in 8,000 firms (14,000 firms if spin-offs of large enterprises are counted separately). It privatized as many as 14,000 firms and parts of firms in a period of four and a half years.

may be offered in order to minimize problems associated with principal-agent relationship. The NTC should be dissolved after a specified period of time, say, four years. The NTC distributes vouchers and sets up rules for voucher and investment funds. The rules may include the following:

- (a) Vouchers are distributed to all eligible residents of North Korea who are willing to pay a nominal fee and register to participate in privatization.
- (b) The amount of voucher distributed to an individual may depend on his age, reflecting his contribution to the “people’s assets.”
- (c) Voucher is the principal means of payments in all privatization and is not transferable among persons.
- (d) Anyone (including South Koreans and foreigners) who meets certain criteria required by government may be allowed to set up investment funds.
- (e) Investment funds may compete for the controlling share of small and medium-sized enterprises.¹⁴⁾ They may also participate in public auction of minority shares of large enterprises where vouchers are used as the means of payment.
- (f) Individuals with voucher may participate in auctions personally or through investment funds.

14) They may also bid for the controlling shares of large enterprises. In this case, however, they should compete with restructuring plan backed by capital, technologies, and managerial skills. See below.

The NTC is responsible for the preparation of state enterprises for privatization. The following steps and rules may be necessary:

- (a) All industrial, commercial, and financial enterprises are to be privatized. Properties essential for public purposes are excepted.
- (b) Local government may also acquire the ownership of certain properties.
- (c) Debts of (financial and non-financial) state enterprises and cooperatives must be cancelled and the government takes responsibility for the net claims of individuals and foreigners on state enterprises and cooperatives.
- (d) Separate non-business purpose properties, such as day-care center and kindergarten, from state enterprises.
- (e) Reorganize large and medium-sized enterprises into stock companies.

2. Privatization of Large Enterprises

In privatizing large enterprises, it is important to make sure that the control of enterprises be transferred to investors with the capacity to restructure and operate them efficiently. One way of securing responsible and efficient corporate governance over the privatized enterprises is to adopt a selection process for the winner of the controlling share that is similar to the one used by the German Treuhand. The NTC starts the privatization process with an estimation of

the value of the enterprise prior to restructuring. It also evaluates the competing restructuring plans and places monetary values on them. Valuation of the enterprises and the restructuring plans must be a difficult task. However, the German experience shows that it can be done. Once the winning plan is selected, the NTC and the winning investor negotiate the division of shares between them.

Unlike in the Treuhand approach, however, the controlling share represents the capital, technology, and managerial skills the investor brings to the firm. The pre-restructuring value of the enterprise is represented by the government shares, which will be distributed later in public auctions. Since most of North Korean industries are built around obsolete technologies and the equipment and structures are dilapidated, new investments for restructuring will be adequate for securing a controlling block of shares in most cases. In the cases where that are not true, arrangements need to be made to guarantee controlling share for the restructuring investors.

The advantage of this approach is threefold. First, by distributing NTC's shares in the privatized enterprises through auction, it is possible to return the people's asset directly to the people. Second, it guarantees responsible and efficient governance for restructuring and operation of the enterprise. Third, since the investor does not pay for the existing properties of the enterprise, all of his resources can be invested for restructuring, avoiding some of the difficulties that afflicted the Treuhand approach.¹⁵⁾ In sum, the proposed approach realizes the advantages of both the Czech and the

Treuhand approaches and avoids their shortcomings.¹⁶⁾ The key steps are summarized in the following:

- (a) Estimate the pre-restructuring value of the enterprises.
- (b) Solicit restructuring plans from investors, and estimate the value of the plans.
- (c) Negotiate transfer of controlling share to the winning investor. The investor's share represents his contribution to restructuring, and the government share represents the value of the state enterprise prior to restructuring.
- (d) If the value of the winning restructuring plan is not adequate for controlling share, allow the winner investor to buy additional shares.
- (e) Distribute the government share through public auction where vouchers are used for payment.

Since no North Koreans are expected to have legitimate personal wealth large enough to secure controlling share of a large state enterprise, South Korean and foreign investors must be allowed to participate in the privatization of large enterprises. German experience suggests that the controlling share of the majority of the large enterprises will be given to South Korean or foreign investors who operate similar lines of business. Such outcome may well be efficient as the privatized firm can benefit from the parent companies. Since

15) On the shortcomings of the Treuhand approach, see Sinn and Sinn (1992).

16) Our approach is similar to the "participation model" of Sinn and Sinn (1992), pp.124-139.

the industrial capacity of North Korea is small relative to that of South Korea, there does not seem to be any major problems related to monopoly that need to be addressed in the process of privatization. Openness of the post-unification Korean economy will further strengthen this line of reasoning.

3. Privatization of Small and Medium-sized Enterprises

The principal method of privatization for small and medium-sized enterprises is direct sales where payments may be made either in cash or in voucher coupons. Since vouchers are distributed to North Koreans only and are non-transferrable, South Korean and foreign investors have to pay in cash, while North Koreans can pay either in cash or in voucher coupons. If small and medium-sized enterprises are privatized through direct sales and cash is the only means of payments, South Koreans and foreigners will dominate the scene. However, since voucher is an acceptable means of payment, North Koreans are given the opportunity to participate in the privatization of small and medium-sized enterprises on equal footing with South Korean and foreign investors. They can even take control of enterprises. If they establish an investment fund, there is no limit on the amount of voucher they can collect.

On the other hand, there may be North Korean investors who would not like to share ownership with others or wish

to share ownership among only a small group of people. In these cases, they may not have enough vouchers and need external financing to take control of an enterprise. Another common financial difficulty for North Korean entrepreneurs may be the lack of adequate funds for restructuring, even if North Koreans somehow take control of state enterprises.

Since the economy is poor and private financial institutions may not be able to provide adequate amount of investment funds in North Korea, the government may have to take measures to alleviate the financial difficulties of North Korean investors. As the owner of state properties to be privatized, the government can provide various financial arrangements for investors. For example, the government may rent state properties to investors and give them the option to buy the properties later. It may also transfer the ownership of an enterprise with debt claims attached to it. Alternatively, the government may become a silent partner with non-voting shares. To a limited extent, the government may also be able to extend public loan to investors. Indirectly, it can also provide incentives for partnership of North Koreans with South Korean and foreigner investors.

4. Privatization of Agriculture

The main problem of North Korean agriculture is the lack of adequate economic incentives for production, a common disease of socialism. The results are low efficiency in produc-

tion, reduced output, overuse and poor maintenance of properties and the like. The recent food shortage that brought North Korea to near starvation can be attributed partly to these deficiencies in North Korean agriculture sector. Therefore, any sensible long-term agricultural reform program for North Korea should strengthen the incentives for work and for efficient use of resources. Privatization of agricultural land provides the most effective incentive for agricultural production.

Most of the farmland in North Korea belongs to agricultural cooperatives, with state farms accounting for about 10% of the total. In theory, the ownership of a state farm belongs to the state, while that of a cooperative belongs to its members. At a first glance, it may appear that privatization applies only to the state farms as the agricultural cooperatives are already in private hands. However, in North Korean agricultural cooperatives, labor is the only factor of production that counts in the distribution of outputs. As far as income distribution is concerned, collective ownership of properties in the agricultural cooperatives is similar to state ownership.

Given the similarities between the ownership in the state farms and agricultural cooperatives, it is convenient to ignore the differences in the historical background and legal status of these two forms of agricultural organization and treat them similarly in privatization. It follows that cooperative ownership as well as state ownership of agricultural properties must be transferred to individual farmers. In 1946, it

took only 25 days to confiscate and redistribute one-half of all the farmland in North Korea. Privatization of agriculture, however, is much more complicated and hence will take longer time.

It is not practical to put up each parcel of agricultural land for public bidding. Instead, we need a manageable framework for the distribution of agricultural properties. Privatization of an agricultural cooperative may be based on the assumption that, at least logically, the ownership of a cooperative belongs to its members. Then it may be reasonable to allow the members to decide the future of the cooperative. Managers and workers of state farms may be allowed to do likewise. However, if a cooperative or a state farm is endowed with too much or too little properties, compared with an average cooperative, the NTC must be allowed to make appropriate adjustments.

In principle, an agricultural cooperative (or a state farm) may be reorganized into a joint stock company. Alternatively, only a part of the cooperative may become a joint stock company while the rest is liquidated or distributed to individual farmers. Given the strong incentive effects of land ownership on the efficiency of agricultural production, however, it may be best to distribute land ownership to individual farmers. Certain machinery, storage space, processing unit, procurement and sales operations may be liquidated or reorganized into a joint stock company.

One may worry about the loss of economies of scale when the properties are divided up among members of the

cooperative. However, economies of scale in North Korean agriculture, if there are any, seem to derive primarily from cooperative use of labor and machinery in cultivation and processing, rather than from joint ownership of land. The history of Korean agriculture and the current practice of South Korean farmers suggest that these sources of economies of scale can be preserved even if land is distributed to individual farmers. In addition, the high productivity of private cultivation of small plots in North Korea is convincing evidence that the incentives from private ownership of land are much more important than the economies of scale.

In order to distribute the land of an agricultural cooperative to individual farmers, the NTC needs to divide the land into small parcels and then put them up for auction to assign ownership to each of them. Although individual farmers may be allowed to bid in the auction, the auction can be simplified substantially if family is taken as the basic unit of bidder and the total number of land parcels is close to the number of farm households in the cooperative. In order to avoid confusion and overcrowding of the auction by non-member bidders, preferences may be given to the members of the cooperative. The preferences may also be useful for preventing excessive fluctuations in auction, preserving network effects, and reducing social dislocation of farmers. Similar procedures may be used for state farms.

5. Privatization of Housing

Before privatization, each housing unit must be evaluated. As in the case of agricultural land, each housing unit can not be put up for public bidding. Rather, some preferences may be allowed for current occupants. These preferences will simplify the privatization process and minimize the disruption of the occupants' daily lives and reduce socially costly dislocation. To own a large or unusually valuable housing unit, for which the occupant can not pay in full with voucher, he has to pay the excess amount in cash or make arrangement for deferred payments.

V. Summary and Concluding Remarks

After a brief review of the history of property ownership in North Korea, I examined some basic issues and put forward a privatization program for the post-unification North Korea. The analysis and the proposed privatization program are based on the assumption that unification suddenly comes to Korea. Specifically, I assume that pre-privatization North Korea is characterized by the socialist economic system in its present form. I also assume that the privatization is carried out by a democratic and market-oriented unified Korea. Finally, I assume that post-unification North Korea has easy access to the world markets for technology and capital while at the

same time being open to foreign competition.

Under these assumptions, I derive some basic guidelines for the privatization. I recommend future oriented privatization with emphasis on the growth of the North Korean economy and oppose restitution and compensation. For the privatization of large enterprises, I propose a method that combines the voucher method and the direct sales method similar to the one used by the German Treuhand. Direct sales method is proposed for small and medium-sized enterprises, where both cash and vouchers may be used as the means of payment. The main role of voucher and investment funds is to expedite distribution of the people's asset and reduce the transaction costs of privatization. In order to simplify the privatization process and to avoid confusion in the evaluation of the properties to be privatized, I propose that the debt of the state enterprises and the cooperatives be assumed by the government. Finally, I emphasize speed of privatization to facilitate transition toward a market economy and maximize growth.

In order to design and implement the privatization programs, I propose that the government set up a national holding company referred to as the National Trust Company (NTC). The NTC will manage all aspects of privatization. It will also coordinate privatization with other government policies to promote national interests. The privatization program of the NTC distinguishes four types of properties: large enterprises, small and medium-sized enterprises, agricultural properties, and housing. In the privatization of large enterprises,

special emphasis is placed on the establishment of efficient and responsible governance structure. The NTC is encouraged to create a business environment attractive to new capital and ideas.

Although the analysis in this paper is predicated on the assumption of sudden unification, changes to this assumption will still make the analysis valid. In fact, under the alternative assumption that privatization is carried out before unification occurred, much of the analysis remains the same as long as the socialist economic system in its present form is in place on the eve of privatization. Clearly, however, under the alternative scenario of privatization without unification, the North Korean government will become the agent of privatization and the international investors may not be eager to participate in the privatization process. Nevertheless, South Korea may stand ready to help and many South Korean investors will be willing to participate.

If one believes that transition toward a market economy is the best way for North Korea to escape from its current economic difficulties, altering the assumption of sudden unification takes on a special meaning. It is true that most economists believe that there is no hope in socialism anymore and a fundamental reform of the North Korean economy is long overdue. In particular, for North Korean policy makers, it must be sobering to realize that most of the socialist countries that befriended North Korea in the past lost faith in socialism and took the road to market economy. North Korea is left virtually alone in the front line of

socialism, paying dearly for its ideology. In this backdrop, it is not inconceivable for North Korea to initiate the transition toward market economy.

Considering the urgency of a fundamental economic reform in North Korea, early and drastic transition of the North Korean economy is welcome with or without unification. In this sense, extending the current analysis explicitly to deal with the case of privatization without unification must be highly rewarding.

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Constructing a Social Safety Net for Korean Unification

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I. Introduction

There have been many discussions regarding the myriad of different scenarios on the timing and method of Korean unification. But recent evidence of the failing economic situation in the North seems to suggest that without drastic economic reform, both internal and external, the North may soon face abrupt collapse in both her economic and political systems. Unification of the two nations may then be forced upon the South.

Unification of the two Koreas means, in terms of the economy, transition from a planned to a market economy and integration of markets under a unified market system. Systematic integration will necessitate privatization and the creation of markets in the North Korean economy with market integration being accompanied by, initially, mobility of factors and commodities and, ultimately, equalization in their prices.

During the transitional period, the northern part of a unified Korea will face socio-economic disruption similar to that of recent experiences of transitional economies and Germany. Transition from rationing to the market system in transaction of goods and commodities including basic necessities may result in severe instability of the market until the price level in the North is fully aligned to that of the South. Unemployment and search for jobs will be forced, not as unusual affairs, upon the people in the North who had previously been

used to job-rationing and full (at least nominally) employment, irrespective of the level of underemployment or capacity underutilization.¹⁾ The release of underemployed workers, restructuring of uncompetitive industries and discharge of soldiers will easily lead to an increase in the unemployment rate in the North from 0 to about 25% (Park, 1996, pp.82-86). Added to this, an enormous gap in the standard of living between the North and the South upon unification will induce massive migration from the North to South, whether adaptable or not, beyond the capacity of the South Korean labor market. Desirability of migration in terms of social cost-benefit will not be of concern to the migrants who would have been living under subsistence levels.

Viewed from this perspective, construction of a social safety net for the people in the North will be of utmost necessity in a unified Korea, not only as a means to support the minimal level of living for the people in the North but also as an effective deterrent to massive migration. The social security system in the North is currently based on the rationing of jobs as well as basic necessities for the working age population, which is augmented by national pension programs for the population both retired and disabled. On the other hand, the social security system in the South is based on providing social insurance for those with income above the poverty line and public support for those below the

1) The underemployment rate in the North is estimated to be around 30-40% while as of 1992, the rate of capacity utilization was around 26-40% for heavy industries and 24-25% for the light industries (Park, 1996, p.83.).

poverty line. While the system in the North covers the whole population, by contrast, in the South it is focused on covering employed people, with the degree of coverage varying among specific insurance programs and contribution rates depending on their earnings level. Therefore, transition of the North to the market system will leave a majority of the northern population uncovered by the current system of social insurance available in the south, short of treating them as the object of public support programs.

Because of the limited coverage of the social insurance, system in the South, employment and wage policies for the North in a unified Korea will emerge as one of the most important issue after unification. In addition, the formulation of labor market policies concerning employment and wage in the northern part of the unified Korea will have to take into account potential migration from the North to the South after unification.

This chapter is composed of three parts: The first part deals with migration and labor market policies. The prospect for and the efficiency of north-south migration after unification are discussed along with the desirability of anti-migration policies such as the introduction of a permission system during some transitory period during a course toward a market system. A system of subsidized minimum wage is recommended while employment policies are discussed in three sections: (i) employment policies during the transitional period, (ii) education and occupational training during the transitional period and (iii) policy measures to stimulate “catch-

up” expectations on the part of the North.

The second part deals with differences in social security and welfare systems between the North and South. A comparison of the existing systems of both regions is made to ascertain the degree of compatibility for integration. Specifically discussed are pension programs, employment insurance, industrial accident compensation insurance, medical insurance, and public support programs.

The last part deals with how to establish an integrated social security system in a unified Korea and then a conclusion follows.

II. Migration and Labor Market Policies

If the current condition²⁾ of the labor markets in the South and the North prevail, integration of labor markets between the two regions will result in excessive north-to-south migration, far more than the absorptive capacity of the labor market in the South. North-to-south migration, caused initially by massive unemployment problem in the North will persist as long as the disparity in expected income continues to exist between the two regions. The question arises whether early integration of the labor market is desirable for a unified Korea,

2) The ratio of South/North wage differential ranges between 7.5-24.1 depending on occupation, while the ratio of wage over living cost ranges between 0.19-0.98 for the North and 0.18-0.48 for the South.

and if not, when it would be desirable and then what kinds of measures are needed during the interim period.

1. Migration Policies

Under the market system, migration plays an important function of redistributing human resources, as an important factor of production, from low-income (productivity) areas to high-income (productivity) areas. In the process, migration not only eliminates the regional income (productivity) gap but also raises productivity and hence the income of a nation as a whole. The so-called gains from allocation efficiency through migration will be so much greater if mobility of population is higher. Migration may be desirable for the general welfare of a unified Korea in this instance.

However, north-south migration immediately after unification, in other words, early labor market integration for unified Korea, does not seem to be desirable. There are several reasons for this.

First, the prospect of the number of migrants appears to exceed the capacity that the South Korean labor market can bear. The social burdens to accommodate the excessive number of migrants, which is beyond the attention or interest of individual migrants, will be unbearable by the South. The South already suffers from high population density from as early as the 1970s. In addition, if southward migration is concentrated on a specific region, a tremendous burden will be

placed on the local government. It is far more likely that social costs incurred by migration exceed the gains to be obtained from allocation efficiency. It may be that south-north instead of north-south migration is desirable if the social costs are included in the cost benefit account of migration.³⁾

Second, north-south migration will become truly beneficial, not only to the society but also to migrants themselves, only after they have become adaptive to the market system and have been equipped with appropriate skills. Otherwise, hasty migration may result in excessive private cost and public burden.

Third, a unified Korea has good prospects for development northward since the North is geographically situated having easy access to big potential markets compared to the South. The North, situated contiguous to the continent, has good prospect of exploiting these potentially large markets. Considering this, south-north migration is not only more desirable but also more likely to occur in the long run. In that case, the north-south migration immediately after unification will become only transitional, leading to a “U-turn” migration in the end. North-south migration may then be a mere trial and error process when viewed from a longer-term perspective⁴⁾. What is important in this regard is the expectations by the north that it has good prospects of catching up

3) The cost of creating equivalent jobs in the North may be cheaper than the social accommodating costs incurred by migrants in the South.

4) Of course, U-turn migration will be desirable in so far as the social benefit exceeds the social cost.

to the south. However, this expectation will not be much of a deterrence to migration and therefore, any positive expectation will be wasted.

In view of this, for some period immediately after unification, migration should be allowed only on a permission basis⁵⁾ in order to minimize its inefficiency. The policy of migration control will become more effective if it is linked to the ownership of property rights which will be redistributed during the privatization process, to the social welfare and security system which will have to be reformulated or revamped after unification, and to the occupational retraining program which will be required to adapt people in the North to the market system.

Thus, integration of the labor market in the sense of free mobility of labor may require a phasing in period, e.g., 5 years, which could be considered a transitional or preparatory period for the adoption of a market system and adaptation of people in the North to the new system.

An arbitrary measure like a permission system may be necessary but not sufficient to meet the pressures of north-south migration. Such migration would be beyond the capacity of the unified Korea to bear in the absence of proper wage

5) Most socialistic countries including North Korea have actually been under a permission system with regard to their residential and occupational migration. Vietnam maintained a similar system even after adopting a market system in 1986 and there was relatively small interregional mobility of people until recently in spite of substantial regional gaps in the level of earned income.

and employment policies. In order for the permission system to be effective, the people in the North must be able to sustain a basic standard of living. The key would be to convince the North to forego temptations for migration now in return for expectations of catching up to the South in the future. Therefore, labor market policies addressing wage and employment in the North will be crucial for the success of a permission system. Moreover, massive unemployment may be generated in the North by privatization and the creation of markets. Therefore, ensuring job security and decent levels of income to the working age population in the North will be one of the most fundamental issues related to the formulation of a successful social safety net after unification.

2. Wage Policies

One problem of a labor market in the North becoming competitive is that the North may face either a downward wage rate even below the current subsistence level or massive unemployment. The reason for this may be attributed to labor productivity being far below the current wage rate because of low capital intensity and technology in the North.

Underemployment is prevalent in the North because of the shortage of jobs relative to workers and because of the practice of job rationing. Although the wage rate for each production unit may partially reflect marginal productivity as a group, wage rate for individual workers within a produc-

tion unit depends on average productivity rather than marginal productivity.

As of 1994, the monthly average income in the North is estimated to be 6% to 9% of that in the South. Labor productivity in the North is less than one tenth of that in the South. Differential in labor productivity is known to be far greater in the nonagricultural sector (South/North= 11.8) than in the agricultural sector (South/North=4.6). Therefore, the unit labor cost (wage/labor productivity) in the North is about 1/2 or 1/3 of that in the South. However, if we allow for the non-monetary labor costs and the obsolescence of the production process, the North may not have relative advantage in labor costs over the South and it may not be attractive enough for the business firms in the South to purchase and add additional investment to the existing production capacities in the North.

A unified Korea cannot assume the high wage policies that Germany did. The reason for this is not only because it results in massive unemployment and scrapping of existing capital, but also because the wage gap between the North and the South is incomparable. However, the initial level of wages at the time of unification may be set at the average productivity of labor⁶⁾ in the North which is estimated to be about 50% higher than the current wage level in the North (Koo, 1997, p.364). It is recommended that this initial wage

6) Paying average productivity means that everything produced in the North, i.e., GDP in the North, is paid to the people in the North.

level be set as a sort of minimum wage in the North.

In determining the level of minimum wage, care should be taken to ensure that its level guarantees the minimum standard of living in the North and, at the same time, be low enough to be internationally competitive especially against neighboring countries like China. But in order to contain employment even at this level using existing facilities in the North where the market system will be newly adopted, substantial amount of wage (or employment) subsidies⁷⁾ will be required to fill the gap between marginal productivity and wages.

The system of subsidized minimum wage seems to be the best alternative if we want to contain workers who would otherwise have been laid off in the process of transition toward the market system. Budgetary burden for the subsidy will be gradually relieved as the productivity of marginal firms rise through the inflow of exogenous capital and/or through the release of redundant workers to other employment opportunities caused by the cheap wages in the North. However, the minimum wage should be maintained at internationally competitive levels in order to induce additional

7) A rough estimation suggests 3.2% of South Korean GNP as of 1994 (Koo, 1997, p.365). Wage subsidies can substitute unemployment insurance and prevent economic loss due to underutilization of resources. Once built in, workers will consider it as a part of wage and so any effort to reduce it later on will be strongly opposed by the workers. Therefore, care needs to be taken to eliminate this tendency.

demand for labor. If maintained at a fixed level, the rising market demands will be able to eliminate, within the transitional period, the redundant workers from existing facilities of the North.

The above suggests that some subsidized minimum wage needs to be established and maintained at the level of average productivity of the North during the transitional period. The market demand will soon begin to bid off the redundant workers away from existing facilities in the North. If the market wage level in the North begins to rise in general over the initial level of the minimum wage, then the subsidy is not needed any more and the transitional period will be over.

3. Employment Policies during the transitional period

It will be convenient to discuss employment policies in two steps: one is employment policies during the transitional period when the subsidized minimum wage system is maintained and the other is employment policies after the transitional period.

Employment policies during the transitional period may be discussed in the context of two closely related aspects: one is how to absorb redundant workers from marginal firms which will undergo restructuring during the privatization process while the other is how to restructure the industries

of the northern economy in which not all of the workers are wage earners. We may discuss this matter in three broad industrial categories.

Farmers account for 30% or approximately 3 million North Korean workers. Considering the productivity level which is less than a one half that of the 2 million South Korean farmers in approximately the same agricultural land size, all of them may be contained relatively comfortably compared to other northerners employed in the sector without much assistance from the South by way of capital input and technologies. Experiences of Vietnam during the process of de-collectivization shows that subdivision of land made in the process of privatization of cultivation rights did not result in any loss of productivity. However, in order to prevent migration from this sector, privatization of cultivation rights needs to be connected to the residential requirement.

Industrial workers in mining and manufacturing sectors account for 40% or approximately 4 million workers in the North employed mostly by State Owned Enterprises (SOE). These people will be the most vulnerable to labor market policies related to wage and employment after unification. Assuming a linear marginal productivity curve, about one half of the workers in this sector will have below average productivity, i.e., minimum wage level. The mid-point of the curve can be considered a kind of turning point (Lewis, 1954; Ranis and Fei, 1961), from which wages in the North starts to rise in the presence of additional demand for labor.⁸⁾ It implies that 2 million workers should be absorbed from industrial SOEs

to reach the turning point. This does not seem to be too difficult if the South accepts 1 million migrant workers and labor-intensive manufacturing sectors are newly created to provide an additional 1 million jobs in the North. However, implementation of the policy of selective migration requires careful planning and entails administrative costs, while massive investment are required to improve infrastructure in the North to facilitate the establishment of new firms and to induce investment from the South. Construction of industrial complexes around large cities and provision of fiscal and financial incentives would be urgently required at least during the transitional period in order to accelerate the process.

Jobs for service workers, which currently account for 30% or 3 million in the North, will be self-generated as the North approaches the market system via privatization. Soldiers and public officials will suffer mostly during the transition period, which may be alleviated to a certain extent by creation of construction works and service jobs.

In sum, it is recommended that during the transitional period, some subsidized minimum wage system should be maintained until the redundant workers in the SOEs of the North are fully absorbed either through north-south migration within some permissible number or through transfer of workers to newly established firms in the North. It is desirable that the

8) If minimum wage is near that of farm productivity, it will become a turning point for the northern economy in general.

agricultural sector retains farmers until the industrial sector fully undergo the transitional stage. In the meantime, soldiers and administrative workers will have to be absorbed in the newly generated service sectors during the transitional period.

4. Education and Occupational Training during the transitional period

Education in the North is obligatory for 11 years, including kindergarten, and colleges charging only nominal fees. The two systems become consistent with each other if free education is extended to high school in the South while kindergarten is abolished in the North. Cheap college education in the North may have to be maintained until the northerners become ready for adjustment. Needless to say, the existing curriculum in the North will have to be completely revamped to take into account the new political and economic system. Participation of the private sector needs to be encouraged not only to share the budgetary burden but also to diversify the education system. Transfer from the South to the North of teachers, as well as fiscal resources, will be inevitable during this time period. At the same time, a large number of teachers in the North will have to be retrained or discharged while many students need to be exchanged between the North and the South in order to facilitate the integration process.

After unification, there will be an enormous demand for occupational training and information services, not only for

the new entrants but also for the laid off workers and job-changers. The demand for training and information services will be high for the administrative and office workers, soldiers, farmers, and service workers, especially among women. Therefore, a unified Korea will need extensive and well-organized occupational training programs and information networks. Since the public sector can hardly bear the whole burden, private sectors will have to play a major role through various incentives.⁹⁾

5. Post-transition Period: Policy Measures to Arouse Catch-up Expectation

Because of the income differential between the North and the South, which has accumulated over the past several decades, large income differential¹⁰⁾ will remain even after the

9) In the case of Germany, the job information centers of the Ministry of Labor played significant roles in informing and relaying opportunities for occupational training. On-the-job training is encouraged especially for small firms (less than 20 employees) with 60% of the cost provided as the subsidy from the government while off-the-job training, complementing on-the-job training, facilitated job transfer, especially for women whose unemployment rate had been relatively higher. Distance subsidies or scholarships were provided to enhance individual motivation for job training. At the same time, the government supported establishment of joint training center among firms and encouraged transfer of technology between industries and training centers. Also, success cases of East German firms are widely informed to induce the diffusion of success cases and investment to the East.

10) For example, this is about 4 to 5 times in favor of the South, even if we

turning point is reached. Korea, as a unified country, can no longer postpone full integration of (free mobility in) labor markets from that point on.

The pressure of north-south migration would be alleviated substantially if the people in the North begin to expect that it could catch up to the South within some foreseeable future. This catch-up expectation would be generated if the growth rate of income in the North noticeably exceeded the South during the transitional stage of labor market integration. In order to build up the expectation, fiscal and financial incentives will have to be provided continuously so that they can induce private investment much further than the market forces alone can generate.¹¹⁾ In addition, massive public investment in infrastructure—construction of dams, irrigation systems, road, airport, harbors, communication network, hotels, housing units etc. — will have to be launched continuously in the North in order to generate more employment opportunities and nurture better business environment for the firms.

Productivity of agricultural sector, among other things, of the North seems to have important implications for the prospect of migration and to the economy as a whole for a

assume that the size of the northern economy doubles at the sacrifice of zero growth of the southern economy during the transition period and that the minimum wage level in the north, set initially at 1/9 of the south wage level, is adjusted to double accordingly.

- 11) Germany, while taking high wage policies, seems to have introduced various incentive policies to promote investment in East Germany in order to prevent massive unemployment and subsequent migration.

unified Korea. The agricultural sector in the North contains about 30% of the labor force but labor productivity is barely above 20% of the South not only because of a smaller land area, but also because of the lack of irrigation systems and other factors including fertilizers, insecticides, machinery, and the like. Therefore, with proper support from the South, productivity in this sector will easily double resulting in substantial reduction of migration pressures. The role of public support will be critical in this regard because private investors in the South will have relatively little interest in the agricultural sector of the North.

III. Differences in Social Security and Welfare System between the North and the South

Employment expansion is without doubt the most important and active element in constructing a social safety net. But social welfare of those who are not employed is no less important because the average level of living in the North is below the poverty line. We will first compare the social security and welfare systems of the North and the South and then discuss how to integrate the two different systems to build up a more complete social safety net after unification.

As Figure 1 shows, the social security system in the South is based on a three-tier system; (i) social insurances for

population with level of living above the poverty line, (ii) public support (in both income and medical services) for the population below the poverty line, and (iii) social welfare services for handicapped and disabled individuals including children, women, and the aged.

Social insurance programs are set up for employment, industrial accidents, retirement, and medical services. However, the coverage of these insurance programs varies from one program to another. Medical insurance programs, introduced initially in 1977, have become mandatory and universal since 1989. The coverage of other programs, however, is somewhat limited so that some segments of the population remain uncovered.

The coverage of national pension scheme was recently extended to most of the target population including the urban self-employed and workers in establishments with 4 or less employees. They were also extended to existing members of rural income earners and urban workers in establishments with 5 or more employees. However, the coverage extended to less than one half of the population due mainly to non-applicability because of unemployment and the like.

The coverage of employment insurance was also extended to the establishments with 4 or less employees in October 1998 covering 42% of the total employed workers. The industrial accident compensation insurance covers almost all workers in hazardous industries, which account for 38% of the total employment. However, those workers employed in establishments with 4 or less employees, seamen, government

<Figure.1>

Social Security and Welfare System in South Korea

1. Social Insurances

(1) Medical Insurance (44,925)

(2) Government-provided pension programs

① National Pension Scheme (7,357 + 4025*): industrial employees and the self-employed

② Special Pension Programs

- Government employees (952 in 1998)

- Professional military personnel (150 in 1999)

- Private school employees (200 in 1999)

(3) Employment Insurance (4,331)

(4) Industrial Accident Compensation Insurance (8,237)

2. Public Support

(1) Livelihood protection (1,414)

① in-house care (297)

② institutional care (77)

③ self-support care (1,040)

(2) Medical aid (1,642)

(3) Disaster relief (7)

(4) Patriots and veterans relief (55)

3. Social Welfare Services

Services for the disabled, the elderly, orphans, widows, and the mentally handicapped

Note: Numbers in () are population covered in thousand as of 1997, unless stated otherwise.

*Additional members obtained by recent (from April, 1999) expansion of the scheme

Source: Ministry of Health and Welfare, *Yearbook of Health and Social Statistics* 1998.

employees, and private school teachers and employees are not covered by the workers' compensation insurance.

In sum, while medical insurance has a mandatory universal coverage and workers' compensation covers all but employees in establishments with 4 or less employees, other programs are still limited in their coverage: 42% in the case of employment insurance and about three quarters of labor force participants in the case of national pension scheme.

Social insurances are mainly financed from private sectors equally split (except for industrial accident compensation insurances in which employers take the full burden) between employees and employers, while the government manages the funds. Public support programs are funded from the national budget while various public and private civil institutions provide social welfare services.

Thus, the social security system in the South is based mainly on social insurance programs, which leave substantial portion of population uncovered from the hazard of unemployment and retirement. Public support and social welfare programs back up the incomplete social insurances but their coverage is too meager to fill the gap.

On the other hand, the social security system in the North is state-oriented and composed of a two-tier system. Social insurances and public support programs are integrated in one unified social security system while social welfare services are provided on an institutional basis for the handicapped and disabled persons including children, women, and the aged.

Jobs are guaranteed to obviate unemployment insurance.

National pension programs are available for industrial accidents as well as for retirement. Instead of medical insurance programs, free medication and treatments are available from doctors under a partitioned district health care system. In addition to housing units, free education and rationing of basic necessities such as food and fuels are provided by the state.

Most of the social security systems in the North are funded through the national budget. Even in the case of industrial accident compensation insurance, which can be considered a type of social insurance, contribution from individuals is known to be very minimal—1% of salaries. Production units bear 5% to 8% matching funds if they are state firms or 10% to 12% otherwise. However, if the disability is prolonged for more than 6 months they become eligible for national pensions.

Pension program in the North consists of payments for retirement, for disability, and for funerals and bereaved family. Payment schemes with preferential treatment for men of merit are linked to current wages at the time of retirement. However, it is known that 16.3 NK won and 400grams of food a month were actually provided for majority of the people. (60 NK won and 600g of food for men of merit) Eligibility for retirement pension starts from age 60 for men and 55 for women but most of the people in the north actually work until age 65.

In sum, the social security system in the North is state oriented with full coverage while the social security system in the South is private sector oriented with partial coverage.

As of 1991, the social security benefit per person is estimated to US\$148.4 in the South and US\$58.2 in the North, with the North having relatively high social security benefits compared to their relative income level. Therefore, transition of the North to the market system will leave a majority of the northern population uncovered by the current system of social insurances in the South unless the public support programs of the South can wholly cover them.

Following is an overview of the current situation of specific programs of the social security system in South Korea and discussion of how to revamp the system during the course of unification.

1. Pension Programs

Pension programs in the South can be classified into two groups according to membership: one is a special pension programs for government employees, professional military personnel, and private school employees; the other is a national pension scheme for general citizens. The compulsory membership of the national pension scheme was extended in April 1999 to the urban self-employed workers, with the aim of achieving universal coverage of the program. It turned out, however, that only 44% of the newly eligible population (10.14 million) joined additionally, leaving 56% of the additional target population uncovered.

From 1998, contribution rates of the National Pension Pro-

<Table 1>

Retirement Pension Programs in South Korea

Type	Special Pension Programs		National Pension Programs	
	Government employees and professional military personnel	Private school employees	Establishments	Regional
Eligibility As of 1999	Government employees and professional military personnel	private school employees	employees in establishments with more than 5 persons	employees in small establishments, the urban and rural self-employed, farmers, etc.
Membership in thousands as of 1998	1,102	200	4,850	2,129#
Fees As of 1999	7.5% (employee) + 7.5% (government)	7.5% (employee) + 4.5% (employer) + 3.0% (government)	4.5% (employee) + 4.5% (employer) +	3% (standard income)
Annual payment After 60	$6 * W_{t-1} * (1 + 0.04 * (L-20))$		$0.4 * (A W_{t-1} + A W_i * 0.75) * (1 + 0.05 * (L-20))$	
Expense/revenue As of 1993	1.032	2.549	0.749	n.a.

Note: # the rural self-employed, farmers and fishermen.

L = total period covered by the program

W_{t-1} = wage received one year previous to retirement,

$A W_{t-1}$ = average wage received by the members one year previous to retirement,

$A W_i$ = average wage received by individual over the total period covered by the program.

Source: Min and Kim, pp.12-13; KIHASA, 1992; Ministry of Health and Welfare.

gram are 9% of the worker's earned income, which is equally divided among employees and employers. Benefits are smaller for the national pension programs, which are linked not only to the level of individual wage but also to the level of average wage of the members. However, the financial situation of the pension programs is quite dismal. Expense/revenue ratio already exceeds or approaches par in the case of special pension programs. The national pension program will face similar situation in the long run because of structural problems. (Yun, 1998)

Pension programs of the South need to be revamped in many ways before they can become applicable as an integrated system after unification. Above all, the four pension programs in the South need to be merged into one. However, the benefit scheme is incompatible among each other creating difficulties for people who move between different programs. Moreover, pension programs of the South need serious restructuring in its payment and contribution schemes in order for it remain financially solvent. In sum, the pension programs of the South require integration of different programs on the one hand and financial solvency of the integrated program on the other.

The national pension scheme of the South is based on a funded system through individual contributions. Therefore, people in the North after unification cannot become a recipient without joining the program. Hence, either a separate pension program should be established or public support program extended to deal with the existing pensioners in the

North. It will be difficult and/or meaningless to reflect the past wage levels of northern pensioners, whether men of merit or not, in determining the level of pension or welfare benefits because their current pension benefits are only nominal, far below the level of minimum cost of living applied either for the workers or for the public support recipient in the South.

Members in the national pension scheme of the South become full recipients only after 20 years of membership. There are reduced benefit schemes for beneficiaries with less than 20 years of contribution, which became more flexible recently (Yun, 1999). So, allowances should be made accordingly to deal with the northern members who have less than 20 years left in their working life.

2. Employment Insurances

The Employment Insurance System (EIS) was launched on July 1, 1995 and consists of three major elements: employment stabilization schemes, job ability development schemes and unemployment benefit schemes. After three years of implementation, the compulsory coverage for all three schemes of EIS was extended in October 1998 to the smallest establishments (with 4 workers or less employees) including temporary and part-time workers. However, as of March, 1999, only 8.34 million workers or 42% of the total employment number (about 20 million workers) are covered by the EIS,

which does not cover the self-employed workers including farmers and fishermen, aged workers over retirement age, daily workers, government and private school employees, seamen, etc.

Contribution rates for the unemployment benefit schemes are 0.6% of total wages of each establishment and are shared equally by workers and employer. For the other two schemes, an additional maximum of 0.5% (in the case of large firms) of total wages is charged and are wholly borne by the employer.¹²⁾

Employment stabilization programs are composed of:

(i) Job placement services which include information, guidance, and recommendation, (ii) subsidy for employment adjustments related to temporary lay-off, training and relocation of workers and (iii) measures to balance inter-regional and inter-industrial employment which include subsidy or loans for relocation of establishments to certain region under recession or for employment of certain class, e.g., old age, of population. Job ability development schemes are designed to encourage vocational training.¹³⁾

12) For employment stabilization program, this is 0.2%, which is wholly borne by the employer. For vocational ability development program, they vary with the size of firms from 0.1% to 0.5% and also are wholly borne by the employer.

13) Firms with more than 150 workers are legally required either to spend 2% of total payroll for training of their own workers or to pay 0.05% of their payroll as a vocational training levy to the government. Most firms, however, prefer to pay the levy and scout skilled workers externally, rather

Unemployment benefit schemes are composed of two types of payment. One is the basic payment which is one half of the previous wage of each employee for the period of 30 to 210 days, depending on age and length of the period insured. The period of payment may be extendable up to two years if beneficiaries are on vocational training guided by the district labor office or up to an additional 60 days if employment is difficult. The other is employment promotion allowances, which are composed of early re-employment, training allowances, distant job search and migration allowances.

All of these three schemes of employment insurance program of the South will be in high need at the time of unification. However, their usefulness to the North of the unified Korea is limited in many aspects. First, even if the coverage of employment insurance is extended to all private establishments, the majority of workers in the public sector of the North will remain uncovered. They will be large in number and likely to be exposed to unemployment due to restructuring at the time of unification.

Second, the amount of the unemployment benefits need to be linked not to the current wage level of the North, but to the minimum wage level set at the time of unification since the former will be neither sufficient nor diversified enough to be differentiable.

Third, establishing job information network and training centers will be no less important than the coverage and benefit

than in-plant training.

of the program since unification will generate enormous demand for job information and training. Currently, the public network for job information is inadequate to meet the general demand.¹⁴⁾ Therefore, public job information centers need to be greatly extended by the time of unification. As for the public training centers, as of October 1994, Korea Industrial Manpower Management Center manages 8 technical colleges and 32 vocational schools, training 22,810 persons for industrial skills and technologies. Public training centers are considered to have far better facilities than the private ones. However, since the public training center alone will not be able to meet the massive demand for training of the northern people after unification, private sectors will have to be fully mobilized to share the burden related to training after unification.

3. Industrial Accident Compensation Insurance

In South Korea, industrial accident compensation insurance is obligatory for establishments with 5 or more workers classified as industries of high calamity risk, excluding agriculture and service sectors. As of March 1999, 7.58 million workers

14) As of 1994, the job stabilization department of the Ministry of Labor leads 45 regional offices and 6 information centers. There are many local job information centers; 16 at provincial level and 278 at district level. However, it is found that during the year of 1994, less than 2% of employment has actually utilized this public channel. (Yoo, p.18)

employed in 215,000 establishments, or 38% of the total employment number, are insured against the possibility of job-related injuries and diseases. Excluded are those workers employed in establishments with fewer than 5 employees, seamen, government employees, and private school teachers and employees.

As of 1992, contribution rates are classified differently according to 67 industries and based on calamity rates experienced over the past three years, ranging from 0.3% to 28.6% (average 1.94%) of wages and salaries. The contributions are all borne by the employer and their contribution rates are re-adjustable within 40% of the industrial rate for establishments with 50 or more workers according to their level of actual benefit payment over contributions experienced in the past three years.

Benefit payments arise in the case of medical treatment, shutdown, disability, funerals, bereaved family, etc. Payment for disability ranges from 37.8% to 90.1% of average wage of persons insured depending on the degree of disability. Payment for bereaved family ranges from 52% to 67% of average wages of persons insured depending on the size of family. Average wage, which is the reference for the payment, is on a sliding scale system and is readjusted whenever the general wage level increases in excess of 5 percent.

Unlike other insurance programs, the industrial accident compensation insurance of the South can be applicable as a whole to the North after unification.

4. Medical Insurances

The medical insurance system in South Korea has achieved mandatory universal coverage since 1989. As is shown in Table 2, medical insurance programs in South Korea are provided by numerous insurance societies, which can be divided into two groups; one is employment-based while the other is location-based. The former includes government employees and private school employees who are all under one insurer, and employees in the establishments who are under many different societies that are financially and administratively independent. The latter includes farmers and the self-employed that belong to different societies according to the place of residence. Premium rates are different among programs and so are expense/revenue ratios.

In the case of employment-based programs, premium rates are borne equally by employees and employers. In the case of location-based programs, however, the government is supposed to contribute 50% of the premiums for the rural and urban self-employed, although actual subsidies have accounted for less than 30% of the total costs.

Management of each society is independent in principle but they pool 6% each of their revenues to provide, in common, highly expensive medical services¹⁵⁾ to members. Insur-

15) Medical services costing above 900,000 won in value are financed from the common fund, which is pooled by raising 6% of the revenues of each insurer.

<Table 2>

Medical Insurance Programs in South Korea as of 1998

Type	Wage and salary earners		Regional(self-employed)	
	Government and private school employees	Establishments	Rural	Urban
Membership in 1,000 persons	4,950(11.1%)	15,790(35.5%)	23,800(53.4%)	
Number of Associations	1	145	92	135
Fees	2.3%(employee) + 2.3%(employer)	3-8% of standard wages and salaries shared equally by employee and employer	fixed amount set by the level of income, wealth, and family size. 50% supported by government.	
Average amount of monthly premium (1 000 won)	36.7	35.3	34.4	
Expense/revenue	1.376	1.126	1.040	

Note: Medical insurance program for government employees and private school teachers and the program for the self-employed were integrated administratively in October 1988. Medical insurance program for industrial workers will also be integrated in January 2000.

Sources: Ministry of Health and Welfare, *Yearbook of Health and Social Statistics* 1998.

ance benefits are composed of medical treatment and delivery of birth¹⁶⁾ which are provided in kind, in principle, and additionally of remuneration for funerals, birth delivery, and the like. Pharmaceuticals and services provided by pharmacists and oriental medical doctors are also included in the medical insurance service network.

Many difficulties are expected in introducing the current medical insurance system of the South to the North. Although it is relatively easy to apply the current system of the South for employed workers, whether in public or private establishments, it would be very difficult for regional programs since we expect massive unemployment and large number of farmers in the North at the time of unification.

If we are to establish the same type of integrated insurance programs in the North, the critical question is how to raise the funds to implement the program, especially for those unemployed and the self-employed whose income level will be negligible. A case similar to this may be the regional medical insurance program for which the South Korean government subsidized substantial costs to alleviate the burden imposed on the self-employed workers in rural and urban areas. As of 1991, South Korean government provided a subsidy in the amount of 575 billion won (or 42.1% of the budget of the Ministry of Social Affairs) to regional medical in-

16) 80% of in-patient cost and 30 to 55%, depending on the scale of hospitals from small clinic to major hospitals, of out-patient cost are covered by the insurance program.

insurance programs in order to alleviate half of the burden. But, the government burden became so unbearable that in 1998, the government subsidy made up 27%, instead of 50% of the total funds of regional insurance program, which has declined further to 23% in 1999. The subsidies usually account for no less than 40% of the total budget of the Ministry of Health and Welfare. Means test, which may not be necessary for the people in the North at the time of unification, is not easy and collection of the fees will be no less difficult as is shown by the collection record of the regional medical insurance program in 1990; 94.9% for rural and 89.6% for urban area.

Upgrading the quality of medical services of the North to that of the South will require construction of hospitals, installment of new facilities, training of medical personnel including doctors and nurses, etc., causing enormous additional budgetary burden. Since all these cannot be achieved in a short period of time, the existing medical service supply network in the North should be utilized, while the quality of services may be improved by partial support from the South in terms of medical equipment and medicines until the whole service network is fully integrated.

5. Public support Program

Public support program in the South consists of government subsidies for livelihood, disaster relief and veterans

relief. Among these, livelihood support program is the main one which is designed for families or individuals below poverty line.

Implementation of the program is divided into three different groups; in-house, institutionalized, and self-support according to the level of wealth and income of the target population, which are as follows;

- (i) in-house: Those who are without a supporter and unable to work because of age (below 18 and above 65) or disability. Wealth should be below 26 million won and monthly income per capita below 210,000 won as of 1997.
- (ii) institutionalized: Those who are protected collectively in institutions because of the difficulty related to their care.
- (iii) self-support: Those who are able to work but are too poor. Wealth should be below 28 million won and monthly income per capita below 220,000 won as of 1997.

The number of recipients of all categories amounts to about 1.408 million or 3.1% of the total population in 1997. The number of recipients of each category is; 291,000 for in-house care, 77,000 for institutional care and 1,040,000 for self-support care.

Payments for livelihood protection consist of;

- (i) subsidy for medical care which is differentiated by income categories of the beneficiaries (Class I Medical Aid and Class II Medical Aid) and subsidy for education (tuition and entrance fees up to vocational high school)

of dependents to all beneficiaries.

- (ii) subsidy for livelihood (rice and barley in kind, subsidiary food, fuels, and clothing in cash) and for funerals to in-house and institutionalized beneficiaries.
- (iii) financial loans (up to 10 million won at 6% interest rate in 1997), provision of work (10,000 won per day) and subsidy for vocational training (20,000 won per month) to self-support care recipients.

The current public support program of the South is far from complete and needs to be revamped in many aspects before it can accommodate the population of the North at the time of unification. Means test is not accurate and the selection criteria are too rigid to make proper allowance for the size and type of families. The reference income for self-support program is set at the level¹⁷⁾ far below the minimum cost of living. In addition, the narrow gap in reference income level makes it too difficult to assort eligibility for three different support programs. Even under the low level of reference income, there are too many candidates competing for the limited budget. Selection becomes arbitrary and many complaints ensue.

17) 36.4% of the minimum cost of living as of 1991.

IV. How to Establish an Integrated Social Security System in Unified Korea

After unification, the state oriented social security system of the North should be dissolved and merged into the social insurance system of the South. However, integration of social security system between the two regions should be done in piece meal and step by step.

For those who are lucky enough to be employed even after unification, minimum wages will have to be guaranteed to support their basic level of living. Social support under the previous regime in terms of housing unit, food, and fuels should be either privatized or valued in terms of currency into the minimum wages. The current baby care system and maternity leave system in the North may be maintained for the existing firms but some flexibility should be given to newly established firms so that the burden may be absorbed partially into wages and may not be transferred as a whole to the newly established firms. In transforming the existing social security system into wages, care should be taken so that they do not appear as fixed components and thereby cause wage rigidities. Introduction of the current social insurance system of the South for industrial accident, unemployment, retirement and medical care will not be difficult for them.

For farmers and self-employed service workers, however, difficulty arise for social insurances because there will be no

private counterparts to share the financial burden of the program. Although there may be a relatively small number of self-employed workers, the proportion of farmers is known to exceed 30% of the total labor in the North. Although national pension program and industrial accident insurances may not be applicable to them, medical insurance and employment insurances should be made available to them. The current system of medical insurances of the South include farmers so that they will be automatically eligible for medical insurances, although the budgetary need to subsidize half of the costs will be quite burdensome to a unified Korean government. Employment insurances should be made available to those who are in collective farms, at least until the collective farms are dissolved.

The most difficult issue is how to deal with those who are unemployed before the employment insurances system is established in the North. Massive unemployment will arise not only among state owned enterprises, discharged soldiers, teachers or public officials but also among the young and school graduates. The current system of employment insurance of the South excludes those who did not pay the rates. Considering the state guaranteed employment system of the North and that the level of living is below the poverty line, the unified Korean government should play the function of the northern government for a while no matter how burdensome the cost. The government may choose to provide public support instead of unemployment benefits, but it will be preferable to apply unemployment benefit in order to encourage

economic activities. The amount and period of the unemployment benefit may be linked either to minimum wage levels or minimum cost of living, depending on the budgetary capacity of the government. If the status of unemployment is prolonged to more than a maximum period specified, whether through personal cause or not, they may be taken care by the public support program, either medical support or self support depending on the result of the means test.

Similar difficulty arises for the retired people of the North since they cannot become the beneficiary of the existing pension program of the South. Whether to treat the public officials, teachers and professional soldiers of the North differently from those of the South is a delicate question. But considering the bad financial situation of the special pension programs of the South, the current special pension programs of the South cannot be extended to the North. They cannot share the national pension programs, which are collected through private contributions. The only alternative will be to establish a temporary special pension program funded by a unified Korean government, with or without private contributions. Otherwise, they will have to be beneficiary of the public support programs at an equivalent scale of the current in-house livelihood support.

V. Conclusion

If Korea is unified by the collapse of the North without

any improvement in the level of income relative to the South, heavy migration from North to South will occur far beyond the absorptive capacity of the South Korean labor market. Considering the social costs to be incurred by the excessive migrants in the South, the prospect in the longer term for development northward, and the time period required for people in the North to adapt to the new system, some transitional period seems to be necessary before the two labor markets are integrated in terms of free mobility.

During the transitional period, north-south migration should be allowed only on a permission basis. Residential requirement may be linked to the ownership privatization process and to the social welfare system, which will be reformulated. In the meantime, the basic level of living in the North should be guaranteed by minimum wages, which will be supported by wage (or employment) subsidies. While majority of the farmers will be kept in the sector, redundant workers in industrial SOEs will be absorbed partly by migration to the South and partly by the newly established firms in the North under various fiscal and financial incentives. Soldiers and public officials will be absorbed to service sectors, which will be generated autonomously during the transition to the market system. Education and occupational training system in both regions need to be reformulated or expanded to facilitate the transition to the new system for the people in the North.

After the transitional period, the permission system for north-south migration should be lifted. If the North had seen relatively faster economic growth compared to the South dur-

ing the transitional period, some expectation should have been built among the people in the North that it can catch up the South in some foreseeable future. To nurture this expectation of catching up further, fiscal and financial incentives will have to be continuously provided to induce private investment and create jobs and raise productivity much further than market system alone can generate. Massive public investment projects will have to be launched to back up the market functioning in this direction.

During the transitional period, the social security system in the North needs restructuring from a national to private market system, while that in the South needs to be broadened in coverage. Considering the extensive budgetary requirement for the South, integration of the two systems should be done piecemeal and step by step.

Social subsidies for education, housing and basic necessities in the North will have to be absorbed into wages or public transfer system. Baby care system and maternity leave system in the North may be maintained for existing firms but flexibilities should be given to newly established firms so that it might not become additional burden to new investors. In transforming the existing social benefit into wages, care should be taken so that they may not appear as fixed component to cause wage rigidities.

Retirement pension program of the North should be maintained under a new linkage to the minimum wages to be decided at the time of unification. For medical insurance system in the North, the existing medical service network

may have to be utilized for substantial periods of time, with the quality of services backed up by partial support from the South in terms of medical equipment and medicines until the system in the North is fully integrated.

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Improving Business Environment

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in Halle, Germany)

I. Outline

In market economies private enterprises represent the foundation on which the wealth of nations is raised. Goods are produced and incomes earned in private enterprises allowing consumers to satisfy their needs. In closed economies enterprises are by definition residents. However, in open economies the domestic production location remains a prerequisite for a sound economy. Otherwise, the area would lack the decisive source of income, which would then have to be generated outside this economic region and transferred back to local consumers. Economies depending on such transfers represent a burden for growth; therefore any emerging danger of this type of development should be counteracted immediately. Hence, a domestic corporate sector is essential.

The corporate sector does not exist on its own. It functions within a certain environment defining the frame for its activities. This framework is usually set by the state. The governmental institutions supply, for example, the private sector with complementary goods required for its activities that are not produced by the market. The state is furthermore responsible for providing the rules that have to be obeyed by economic agents and that are designed to support market structures and preserve the foundation of the society.

According to all analyses there is a considerable economic gap between South and North Korea.¹⁾ Any reunification will

1) Cf. Jeong, Hyung-Gon: Privatisierungspolitik im Transformationsprozess. Eine

be linked with the introduction of an adequate legal framework²⁾ for market economy in North Korea. From German reunification, however, can be learnt that given a long-term lack of market structures in the past, development based solely on an adequate legal framework is hardly able to unleash strong economic forces domestically. Without state intervention competition between two regions largely differing in the level of economic development would result in a concentration of economic activity in the economically strong part and reinforce the underdevelopment in the economically weak part. The creation of a productive and competitive enterprise sector in North Korea therefore will require state assistance to offset the disadvantages in this region and equalise the opportunities between enterprises in the North and their competitors in the South and abroad. However, care must be taken that the modalities and the magnitude of state intervention do not undermine the evolution of market-oriented behaviour.

One way to establish the corporate sector in North Korea will be the privatization of the existing state-owned large enterprises.³⁾ The other way will be to initiate the evolution of a corporate environment conducive to the emergence of new businesses. Based on this premise, the following chapter

Analyse der Übertragbarkeit ostdeutscher Privatisierungsmodelle auf ein wiedervereinigtes Korea, Aachen, 1998.

2) Cf. Chapter 1 in part II or chapter 1 in part III of this handbook.

3) Cf. Chapter 3 in part III of this handbook.

discusses a number of tasks the state has to complete in designing the business environment, i.e., a framework that promotes small businesses, provides the infrastructure for the corporate sector, and guarantees environmental protection.

II. Incentives for Doing Businesses

1. The Background

The market economy is based on private entrepreneurship; private entrepreneurs act independently, take their own initiative, they are autonomous as well as free in their decision-making. The essential condition is economic independence. It is founded on private wealth or ownership of means of production.

The modern western industrial societies are based on a corporate sector in which big as well as small businesses co-exist. Small and medium-sized enterprises (SMEs) are established in areas where markets are too small to realize economies of scale. In competition with big companies, however, small and medium-sized firms suffer disadvantages which the state has to compensate. These disadvantages arise from size and are most prevalent in market entry situations: markets for produced goods, input markets for productive resources, and capital market access.

Small and medium-sized businesses have difficulties in enter-

ing markets. As they are often situated in just one location, their market is limited and its specific conditions determine a company's sales volume. Such firms have fewer opportunities to adapt to the market, as they cannot diversify their product lines as much as big companies. They are not able to spread their risk internally over several divisions. For the same reason, SMEs are also more vulnerable to fluctuations in the business cycle.

Input markets also present a problem for SMEs. Their access to the labor market is not as continuous as that of big companies. Due to the size of SMEs, the employees' scope for advancement is limited compared with big companies. Employment security seems lower, too. These problems are the reason for the SMEs' traditionally placing great emphasis on vocational training. The share of qualified employees is much higher in small and medium-sized companies than in big ones. Further, SMEs can utilize the advantages of bulk purchases for production inputs to a lesser degree than big companies.

A further problem is financing SMEs. Usually their own resources are of only moderate capacity; and access to capital from outside sources is very limited because of the lack of collateral.

2. Selected Measures of State Support for SMEs in German Unification

On the eve of the German-German unification there were

still traces of independent small and medium-sized businesses on the territory of the German Democratic Republic (GDR) after 40 years of state controlled economy; however, those traces were rather weak. In 1990, the most recent wave of expropriation of small and medium-sized companies dated back already 18 years. Until the end of the GDR a small sector of private companies remained. It consisted mainly of craft businesses and was approved by the state to meet the demands of private households that could not be met by mass production in large firms which lacked necessary flexibility. Moreover, some parts of the population had relatively large savings at their disposal, accumulated involuntarily because of the chronic scarcity of consumer goods. For a small part of the population this provided a source for equity.

In 1990, the Federal Republic of Germany could look back on decades of experiences in small and medium-sized firm policy. These instruments could be utilized for the reconstruction of Eastern Germany. Particularly helpful were those instruments that dealt with the critical point of the production conditions, i.e., the deficient competitiveness of inherited capital stock. Although the measures of support in general were taken independent of the size of the enterprises, the level of financial support for SMEs was set higher than in the big enterprises.

Investment Support

In an economy based on competition, enterprises must be

endowed with a modern stock of plants and equipment so as to be able to assert themselves against their competitors. Such a capital stock did not exist in Eastern Germany. The privatization of state-owned enterprises contributed to mobilization of private financial resources and management know-how for reconstruction of firms into competitive enterprises. Privatization alone, however, was not sufficient to make Eastern Germany a preferred location for private enterprises to produce and invest in. In so far as property rights that existed prior to the division of the country were planned to be restored, uncertain property rights increased the risk of investment. The risk entailed in an investment decision was also reinforced by deficits in the infrastructure and the administrative bottlenecks. Investment support was given as financial compensation for such disadvantages.⁴⁾ The instruments of investment support used by the state were focused on the factor of production that was deemed to be relatively mobile.

Two different ways of giving investment support were followed, as well as combinations thereof: offering nonrefundable investment grants and providing tax-based allowances, such as special depreciation allowances, investment allowances and allowing for tax-free company reserves. These methods of investment promotion can either be offered to investors in general or be limited to individual projects, industries or regions. However, in the case of tax-based allowances it is gene-

4) Relatively low wages could also reduce the disadvantages of this region. This point is not treated here.

rally not possible to exclude individual investors if they fulfil the prerequisites for assistance. In the case of investment allowances, the investor decides on a particular project. Once the investment project is completed the investor receives a lump-sum payment. The investment allowance is tax-free. Investment allowances are independent of the profit situation of the enterprise. The subsidy rate is equal to the assistance rate, i.e., the financial gain can be calculated directly.

Investment grants, on the other hand, were given on the basis of a specific application and subject to a procedure of approval. The administrative burden is placed on the applicant and can be quite substantial depending on the complexity of the regulations. Eligibility and the magnitude of support are determined by the institution granting the support. However, the investment support can be adjusted to meet the needs and the specific situation of the recipient. Investment grants are taxable just like other forms of income. It follows that the subsidy rate is therefore lower than the assistance rate unless the recipient does not pay taxes because it is a loss-making enterprise.

Although the value of the subsidy varies even if the assistance rate is the same, all of these instruments lower the capital costs of an investment project and enhance their profitability. They can thus compensate for location-related disadvantages that adversely affect profitability. At the same time these investment support measures have a positive liquidity effect.

Equity Capital Assistance and Support of Business Start-ups

The introduction of a market economy provided the residents of Eastern Germany with the opportunity of founding private enterprises and increasing their wealth if the venture is successful. For most individuals founding a new enterprise, the starting conditions were anything but favourable: there was a pronounced lack of funds and management know-how was rare. To provide equal opportunity to newly-founded enterprises in Eastern Germany vis-à-vis established competitors in the West and abroad, it was advisable to implement a comprehensive support package that aimed to strengthen the capital base of small and medium-sized firms and to assist the founding of enterprises. This included programmes that supported the participation of a competent entrepreneur, whereby both the capital and the management know-how of the respective firm was increased (partnership capital assistance). It also included governmental guarantees for bank credits.

To strengthen the capital base it was advisable to grant low-interest rate credits. The value of the subsidy depended on the difference between the market rate and the loan rate on the credit granted as part of an equity capital assistance programme. The value of this subsidy was also affected by the duration of the loan, periods without repayment or interest payments, a possible discount on the loan and the tax rate. It was also advisable to ease the rules on collateral. Otherwise external financing of young and small firms was likely to be

thwarted by a lack of sufficient and adequate collateral.

The function of loan programmes was far greater than simply to lower the cost of capital. State-supported loans were often a prerequisite for the long-term total financing of a given endeavor. Depending on their specific construction, loan programmes can have the additional advantage of alleviating liquidity problems if they offer a period without repayment at the beginning.

This type of support was necessarily granted individually due to the construction of the loan and the evaluation of creditworthiness by a commercial bank. The prospective borrower—preferably in conjunction with his house bank—had to file loan application with the institution which granted support. The decision of whether assistance is given was based on an evaluation of the documents submitted regarding the financial viability of the project and its chances of succeeding. Because the recipient had to calculate very carefully to ensure his ability to service the debt, loan programmes lower the ‘failure rate’ of government assistance programmes. At the same time, the subsidy-providing institution gained insight into the economic circumstances of the borrower and could adjust the size of the loan and its conditions to the specific needs and capacities of each particular borrower. Loan programmes are particularly suited if the state aims to overcome barriers to the capital market due to the size of an enterprise.

3. Conclusions for the Reunification of Korea

The situation for the Korean sector of small and medium-sized companies proves slightly more complicated than in the German case. The GDR and North Korea (DPRK) belonged to the same economic block and developed on the same socio-economic basis. Hence the starting conditions in the communist parts of the divided nations seem to be similar, and the experiences of German reunification should be useful for Korea. This conclusion, however, would be premature. It does not allow for a decisive difference—the degree and long-term effects of the people’s indoctrination. A witness very familiar with the conditions in North Korea reported, that although the economy of the DPRK is based on the same foundations as the GDR, it forms a prototype of a state-socialist economy combining all negative characteristics of that system in their extreme forms.⁵⁾ An expert of Asian affairs characterized the political system of the DPRK similarly “as close to totalitarianism as a humanly operated society could come.”⁶⁾ This is valid for ownership structures in production, but especially for people’s behavior, which is heavily influenced by Kim-ism.

Kim-ism is the North Korean variant of the revolution theory. Its nucleus is the leader principle, according to which

5) Cf. Hans Maretzki: *Kim-ismus in Nordkorea*, Anita Tykve Verlag, Böblingen 1991, p.146f.

6) Cf. Robert A. Scalapino: *The Politics of Development: Perspectives on Twentieth Centurie Asia*, Cambridge: Harvard University Press, 1988, p.47.

a party and its leader own the all-embracing truth, and the people are guided by them. The result is the unlimited control by an individual and his party. In this concept, the individual – except the person of the leader – is of no importance. People are degraded to recipients of orders.⁷⁾ As experienced observers of the scene in North Korea describe, the result is the general proletarianization of labor, the inner alienation of people, production, and its results.⁸⁾ Life in a system of subordination generates behavior unaware of opportunities for independent action, for taking initiative, autonomy, or freedom in decision-making. The intellectually and materially dependent subject is created.

The kind of socialism installed in North Korea corresponds to the Soviet model of the 1930s. All industrial plants are state controlled. The entire small businesses and trade were nationalized, too. There were no private craftsmen, traders, restaurant owners, or other business people. In agriculture the soviet example of complete collectivization was imitated. Since 1972 there has been no private ownership in means of production. There were state-owned enterprises and cooperative associations. According to the DPRK's altered constitution of 1992, only consumer goods and apartments can remain private property.⁹⁾ Under these conditions entrepreneurship could not

7) Cf. Peter Schaller: Nordkorea. Ein Land im Banne der Kimp. Anita Tykve Verlag, Böblingen 1994, p.31.

8) Cf. Hans Maretzki: Kim-ismus in Nordkorea, Anita Tykve Verlag, Böblingen 1991, p.26.

9) Cf. Hyung-Gon Jeong: Privatisierungspolitik im Transformationsprozess,

develop in North Korea. This is sufficient reason for a careful on-site examination of the German experiences with regard to their applicability for North Korea.

However, these are not the only reasons for the differences in the starting positions for unification in Germany and Korea. The DPRK will most likely lack any equity resources for building up independent small and medium-sized businesses. Due to low incomes the opportunity to save is limited; saving money was also stigmatized by the dominant ideology as an element alien to the system. Saving is characterized by the officials as evidence for the individual's lacking trust in the future and hence the omniscience of the party leadership.¹⁰⁾ Savings and the propensity to save are therefore probably not very developed. Lacking equity, no tradition of private entrepreneurship, and long-term repression of individuality and personal freedom are most unfavorable terms for creating independent small and medium-sized companies in North Korea.

A second reason for critically analyzing the German experiences arises from the current position of small and medium-sized companies in South Korea. The historical roots of Korean entrepreneurship date back very far; however, it prospered only after the World War II. It started with the expropriation of Japanese colonial firms and their purchase by domestic entrepreneurs. Small and medium-sized businesses were also foun-

Aachen 1998, p.22f.

10) Cf. Peter Schaller: Nordkorea. Ein Land im Banne der Kimp. Anita Tykve Verlag, Böblingen 1994, p.112.

ded from scratch. This development was restricted to the South.

The rise of South Korea's economy to a modern industry location was accomplished through support of industrial heavy-weights. *Chaebols* facilitated the strategies of import substitution and export growth. Small and medium-sized companies were considered to be less important and received only little state assistance.¹¹⁾ They also expanded but lagged behind in their development. This is also the case compared with Japan and Taiwan, which had taken a similar path as South Korea.¹²⁾ Only the economic crisis of 1998 stopped the preferential treatment of big companies. When big companies in South Korea were deglomerated, SMEs moved back into the center of government attention. Hence the transfer of South Korean experiences with small and medium-sized firm policy on the North requires a critical analysis in case of the reunification, as well.

A unification of North and South Korea offers the chance to combine the transformation of the economy in the North with a transition to a new step of economic development in the South. Apart from financial assistance, programs for spreading entrepreneurial know-how will have to play a prominent role in the process.

11) Cf. Cho Soon: *The Dynamics of Korean Economic Development*, Institute for International Economics, Washington, D.C., 1994, p.64f.

12) Cf. Cho Soon: *The Dynamics of Korean Economic Development*, Institute for International Economics, Washington, D.C., 1994, p.70f.

III. Improving the Infrastructure

1. Introduction

German unification revealed the strong backwardness of the communist-ruled part of the country in terms of productivity and standard of living. Besides institutional reasons, this was due to the disastrous conditions of its infrastructure. This situation was not accidental but the necessary result of the endogenous structures of decision making in the communist regime. According to the socialist doctrine, the production of physical goods, i.e., the primary and secondary sector, play the decisive role in an economy. They are advantaged in the allocation of resources. The tertiary sector, which covers large sections of the infrastructure, has to step back. Transportation and communication were usually neglected. That was also the case for science, education, and the health system. Furthermore the permanent shortage of resources aggravated by the low economic efficiency of production activities caused the communist government to neglect infrastructure when maximizing the output. This neglect was possible because of the specific nature of infrastructure. Eyewitnesses and experts on North Korea confirm this assumption. They report an ailing state of the infrastructure. Many important roads, railways, and transportation by ship are in desolate conditions. The telecommunication infrastructure is absolutely insufficient and

modern forms of communication are totally missing.¹³⁾

At first glance infrastructure may be understood as the basic framework that creates the prerequisites of production but does not take part directly in the production activities by itself. It covers physical as well as human capital stocks: transport and communication, energy and water supply, housing, education, health, research and general government. Physical facilities in these areas must exist but as stocks of capital they are not consumed within one year but over a number of years. That opens the possibility of stretching the time of use over a longer period than is defined by economic efficiency.

As infrastructure does not affect production activities immediately, the feedback comes with timelags and gradually. So any neglect of infrastructure may accumulate over a series of years and boil down to an economic burden of enormous dimensions. This is what happened in East Germany as well as in other communist-ruled countries. In line with unofficial statistics the situation in North Korea seems to be much more disastrous.¹⁴⁾

Hence the following questions have to be answered:

What measures have to be taken to modernize the existing infrastructure as well as to add lacking parts?

What are the fields of infrastructure which are of highest

13) Cf. Chong, B.U.: North Korea: The Land That Never Changes, Seoul 1995, p.48f, Hans Maretzki: Kim-ismus in Nordkorea, Anita Tykve Verlag, Böblingen 1991, p.151.

14) See Asian Survey Staff: North Korea: defector describes DPRK military roads, Publish date 12/30/97.

priority to improve the business environment?

Which sector is responsible for reconstructing the infrastructure; the private sector or the government?

This chapter outlines some principles of economic theory with regard to infrastructure, the main activities taken by the German government after unification as well as a draft to prepare for Korean unification.

2. National Evidence of Human and Physical Infrastructure

Infrastructure means the entirety of physical and human institutions and circumstances available in the national economy which contribute to equalizing the earnings of factor inputs with equal factor outputs in the case of efficient allocation of resources. This term describes the basic functions of the national economy with respect to economic growth and welfare. Among them the physical infrastructure covers the entirety of utilities, equipment and working capital, which serve to supply the economy with energy and water, transport and telecommunication. It also includes buildings and institutions of the public administration, education, research and health systems as well as housing. Thus physical infrastructure is one part of the real capital stock of the economy, the other one consists of directly productive stocks.¹⁵⁾ The human infrastructure covers

15) See Hirschman, A.O.: *The Strategy of Economic Development*, New Haven 1958.

the number of people and their ability to contribute to enhancing the quality of labor.

Infrastructure can contribute to output directly as a measurable final product. Medical staff and hospitals combine to provide health services that are valued for consumption and that improve a nation's social indicators. Buses and drivers combine with highways to provide passenger transport services.

The most important contribution of infrastructure, however, may be indirect. As an intermediate input, it increases the productivity of all inputs in producing output. The quality of labor is enhanced by human capital improvements such as schooling. Physical capital and land are made more productive by investments that facilitate the transport of goods or the provision of electrical power.

Moreover, as has been argued in the "new growth" theory these indirect effects can give rise to externalities, which, if taken into account in investment decisions, can cause long-term growth to accelerate. The more celebrated theoretical contributions have focused on human capital, although similar types of externalities are posited for physical capital.¹⁶⁾

Physical infrastructure affects the profitability of private enterprises. Improving it can lower the cost of producing a given level of output produced by all other inputs for a given cost. Infrastructure also enables markets to work better. Transactions

16) See Jimenez, E.: Human and physical infrastructure: public investment and pricing policy in developing countries, in: Handbook of Development Economics, Volume III, Elsevier Science B.V., 1995, p.2776.

are made less costly and this increases the benefits of trade, both internationally and domestically. For example, major advances in transport and communications technologies have considerably lowered storage costs by permitting producers to respond rapidly to changing consumer demands in international trade.

3. Some Principles in Favor of Public Investment

It is necessary to differentiate between publicly and privately provided capital. In most countries governments provide and finance most human and physical infrastructure. According to reports of the World Bank, over 90 percent of primary school children and three-quarters of secondary school children attend public schools, all of which are heavily subsidized and most of which are free. Almost half of all health spending is attributable to the public sector.

Comparable figures for physical infrastructure are more difficult to summarize since the institutional arrangements under which providers operate may not be as clearly delineated as spending items of the central government. Many services are provided by state-owned enterprises, such as public utilities. However, these enterprises are heavily subsidized, and the evidence that exists shows that the bulk of infrastructure in most countries is financed by governments. Aside from direct budgetary contributions to the infrastructure in the form of covering the losses of public enterprises, there are also indirect contributions in the form of lower taxes and debt service

guarantee by the government.

Economic theory justifies an important role for government intervention in efficient and equitable infrastructure use and provision. The arguments rest on several notions of market failure, such as: externalities in consumption and production; economies of scale; failures in related markets, like credit markets (with respect to education and physical infrastructure), insurance (health) and labor markets (all sectors); non-excludability; information problems concerning benefits and costs; and the need to achieve objectives such as equity or poverty alleviation. But infrastructure services are diverse and each exhibits these characteristics to varying degrees.

4. The German Experience

A series of programs were drafted to modernize the infrastructure in East Germany since unification. They were classified by the government as measures to improve the environment for private investors. Programs exist for all fields of infrastructure. The following are the most comprehensive:

Transport

German unification was linked with a shift in the modes of transport in East Germany. As a result of changing priorities in the delivery of commodities as well as of the motorization of individual households the use of roads increased steeply whereas railways lost their importance for the transport of

goods and people. Nevertheless programs were introduced to improve both roads and railway connections since the latter were in comparatively bad shape. The programs aimed at increasing the capacity and quality of the transport facilities. Specific attention was given to the reconstruction of the connections between the East and the West cut during the division of Germany.

Telecommunications

The telecommunication industry was one of the most important bottlenecks at the start of German unification. Telecommunications require the availability of networks, services and appliances. The basis is provided by the networks. Therefore the modernization and the extension of transmission networks became the top priority. A program with heavy investments until the year 2000 was implemented.

Energy

The stable supply of energy is one of the most important factors for the settlement of enterprises. The demand differs between the individual energy carriers. Highest priority is given to the supply of electricity. Power stations had to be adapted to high security and environmental standards. As in transport the task was also to reestablish the transmission links between the two parts of the formerly divided Germany.

Water

Enterprises need water for production as well as for cool-

ing processes. The demand depends on the type of industry. It is high in the production of chemicals, in power generation, iron and steel production as well as the cellulose and paper industry. It is primarily in the case of high quality water that public investments are needed.

Areas for production sites

There was a lack of space designated for the settlement of enterprises. The availability was extended by breaking fresh ground as well as by changing former use of land. Special attention was directed to the conversion of contaminated areas for civil purposes, especially those used by the military.

Housing

The housing conditions are an important factor for the supply of labor. Investments in the reconstruction and modernization of housing were supported by specific financial measures. For the purpose of creating private property in houses and apartments, subsidies were given to the households.

5. Identifying Necessary Improvements in the North Korean Infrastructure

A lack of infrastructure may be viewed as unsatisfied demand. To remedy this situation, firstly, it is necessary to identify the factors which determine the demand in the different areas of infrastructure. Secondly, the analysis has to be com-

pleted by determining the level of infrastructure investment is aimed at. Specific indicators have to be defined and the stock of existing infrastructure has to be quantified. The latter involves the problem of measurement and availability of data. This has to be dealt with separately from the evaluation of the stock as deficient or incomplete.

Official sources on North Korea's infrastructure are not available. Some data are, however, collected and reported by the National Unification Board of South Korea. Given these indicators of infrastructure, the necessary infrastructural improvements in the North may be derived by comparing its present state with that of the South. Table 1 provides such comparative data. Taking into account the different sizes of population and geographical area in the North and South, a considerable shortage of infrastructure can be identified in the North. The backwardness is striking in all fields but especially pronounced in telecommunications. The availability of railways is much lower than in the South, even though railways are the type of transport most used in the North. This gap is bigger still if one takes into account that the North is geographically larger than the South.

Because of the enormous amount of financial resources needed, the gap between the South and the North can be closed only gradually. To shorten the time period of improving the infrastructure in the North different forms of financing, i.e., public or private, should be used.

<Table 1>

Infrastructure in North and South Korea 1995

	Unit of measurement	North Korea	South Korea	North Korea in percent of South Korea
Railways	km	5,112	6,554	78
Roads	km	23,339	74,237	31
Highways	km	644	1,825	35
Shipment capacity of ports	million of tons	35.0	285.5	12
Telephone lines (1993)		700,000	15,000,000	5
Electricity generation (1993)	billion KWh	22.1	144.4	15
<i>Memory items:</i>				
Population	million of persons	23.3	44.9	52
Area	thousands sq. km	122.1	99.3	124

Sources: National Unification Board, North Korea's Economic Statistics, National Statistical Office (South Korea), "Comparison of the South and North Korean Economy," Seoul, 1996; Calculations by the author.

IV. Environmental Policy

1. Problem Definition

A healthy environment is not only the natural basis of human life; it is also a decisive component of the location quality of an economic area. The state of the environment is a considerable factor in determining its attractiveness to investors

and specialists.

In North Korea, economic inefficiency and lack of environmental protection for an extended period created substantial damage to the environment. A contemporary witness wrote in 1991: The most farreaching effect is the destruction of the environment. 65 percent of the territory that is hill and mountainous country should be covered with woods. Instead, however, more than half of that area is inhabited by wild growing bushes as every year people cut all new growth to heat their homes and feed their few domestic animals. Because of scarce food supply hill slopes are cultivated which completely erodes the soil after a few summer monsoons. The supply of fish—the main source of protein—has been dramatically reduced for the last few years, not only because of over-fishing but also because industrial waste is disposed in the ocean. The number and degree of environmental damages have taken on extreme dimensions.¹⁷⁾

Therefore, a prominent goal of environmental policy in the united Korea has to be the improvement of environmental quality in North Korea. This, however, is not the only goal in the transformation process of the once centrally-planned economy. In particular economic policy has to support the development of a corporate sector that is to be marked by high competitiveness and low production costs. The protection of the environment and improvement of its quality can contradict this objective when they negatively influence the location quality

17) Cf. H. Maretzki (1991): *Kim-ismus in Nordkorea*, p.120.

as cost factors. In this respect, the political challenge is to define a strategy that, despite the conflicting goals of economy and ecology, allows the transformation of the economy without impeding the process through ecologically exaggerated goals.

2. Areas of Environmental Policy

Specific information on the state of the environment in North Korea is even rarer than that on the economy in general. In the future, a first step in studying this set of problems in greater detail will therefore be the collection and analyses of relevant data; in this regard the present paper cannot contribute. In general, however, the following starting position in the environmental areas of water, air, waste, and soil including inherited burdens can be assumed:

Water pollution and Provision of Drinking Water

Because untreated or insufficiently treated waste water from industry and private households has been discharged into rivers and the sea, stretches of standing and running water as well as the coastal regions of the adjoining oceans are heavily contaminated and their utilization restrained. Municipal and industrial sewage plants do not employ the standard technology that developed industrial countries do. The sewage system is obsolete and requires redevelopment.

There is no information available on the production of drink-

ing water. The bad state of the pipe networks is probably causing considerable loss of drinking water.

Air Pollution

High levels of emissions of harmful substances pollute the air. Although more than half of the electrical energy is produced in water power stations, thermal power stations based on coal do not have facilities for cleaning their emissions, causing tremendous pollution of the air with soot particles. This soot emission is further increased by the usage of inferior coal for numerous individual fireplaces in private households.¹⁸⁾ Industrial plants, too, lack sufficient equipment for cleaning emissions or keeping in dust. That is especially true of all companies in the iron and steel industry, in the production of basic chemicals (fertilizer, synthetic fibers and rubber) and in cement production.¹⁹⁾

Solid Waste Production and Disposal

Even though North Korea produces less household waste than industrial countries because of lower consumption levels and less packaging, the disposal of solid waste has for the most part been unchecked. It can be assumed that industry is also storing their waste unsorted. As there are no precautions

18) Cf. P. Schaller: Nordkorea. Ein Land im Banne der Kims, p.123.

19) This statement is based on a review of North Korea's industrial structure introduced in 1993 in Munich at a German-Korean conference. Cf. Young Nam kong: An Assessment of North Korean Economic Capability, in: ifo studien zu ostforschung, vol.17, Munich 1994, pp.39-43.

with regard to waste disposal, suspicion of inherited burdens is well founded at many depositories.

Extensive Soil Pollution and Inherited Burdens

In the 1990's, North Korea was hit by several famines. One factor was possibly the decline in crop yields for rice and vegetables. Whether this decrease was caused either by soil erosion due to improper use or soil destruction through extensive application of artificial fertilizer and pesticides typical for intensive agriculture or by the lack of fertilizers cannot be determined by outsiders.²⁰⁾ Because of the only minor role livestock farming plays, the disposal of liquid manure on the fields does not seem to be a significant cause of soil pollution.

Numerous, partly critical cases of soil contamination (inherited burdens) can be expected because of the violation of the regulations, improper use of substances harmful to the environment, and through leaks at old facilities. The application of untreated or only pre-treated wastewater has caused extensive soil pollution.

Close locations of the metallurgical industry, the cement industry and further sectors cause dust to be discharged and substances critical to the environment deposited in the area. Coal

20) Although Eberstadt dedicates an entire chapter of his recently published book on North Korea to food scarcity there is, unfortunately, no information on the quality of agriculturally used land. Cf. Nicholas Eberstadt: *The End of North Korea*, The AEI Press, Publisher for the American Enterprise Institute, Washington, D.C., 1999, pp.61-67.

mining, also open-pit mining, has probably heavily damaged the soil, the water resources, nature and the landscape.

As a rule, a special issue is inherited burdens from military operations. Because of the extensive military sector they are of prominent importance in North Korea.

All these inherited burdens are not only a danger for human health and that of the environment; from an economic viewpoint the suspicion of an inherited burden may stop potential investors if the financial risk involved in the purchase of the estate cannot be estimated.

3. Experiences from the German Unification Process

At the beginning of the unification a legal framework for environmental policy was introduced. Both German states jointly created a framework law for the environment that was to ensure efficient environmental protection and at the same time support the necessary transformation of the former centrally planned economy of East Germany through transitional provisions. The gist of the German environmental law covered the areas of air pollution, security of nuclear technology and radiation protection, water supply, waste disposal, chemicals law, nature conservancy and landscape care as well as checking procedures for environmental safety.²¹⁾ With regard to existing

21) Cf. Heike Belitz, Dietmar Edler and Walter Komar: Maßnahmen und Wirkungen der Umweltpolitik des Bundes in den neuen Ländern, in: Deutsches Institut für

damages and the state of old equipment, however, in many areas exceptional regulations and transitory periods were established. The rationale was to encourage investors despite the environmental damage produced in East Germany. The most prominent measures were:

Regulation regarding existing damages: production facilities were allowed to operate even though environmental standards were not met if in the medium term a substantial reduction in pollution could be expected,

Regulation regarding the exemption of the liability for inherited damages: according to this regulation purchasers of old facilities may not be held responsible for damages produced before the law was established.

For the design of environmental policy on the territory of East Germany the federal government pursued a 3-step action strategy:

Short-term instant measures to curb immediate danger for people and the environment,

Medium-term redevelopment of the environment and the build-up of an environmental protection infrastructure,

Long-term measures for precautionary environmental protection in selected policy areas to improve environmental quality.

Some of the most important activities of the first two steps were:

Wirtschaftsforschung, Vierteljahreshefte zur Wirtschaftsforschung, 64. Jahrgang, Berlin, 1995, Issue 3, p.511.

Programs for Instant Environmental Protection

The goal of these programs was to grant short-term financial support for the promotion of urgent measures in the areas of providing drinking water, as well as sewage and waste disposal. Here, the main emphasis was placed on the prevention of dangers for human health. The primary criterion for assistance was that projects had to be realized fast. Municipalities and regional supply and waste disposal companies were especially supported. The share of public subsidies could generally reach up to 50 percent; in special cases, it was higher.

Research and Development Projects on the State of the Environmental Situation

The federal government awarded projects for regional redevelopment and development concepts that were to assess the state of the environmental situation. Based on these concepts, instant measures for the prevention of immediate damages were to be identified, medium-term redevelopment concepts created, and regional development concepts prepared.

Financial Assistance for Environmental Protection Measures

The most frequent forms of financial assistance for environmental policy were interest rate subsidies for loans or subsidies that did not have to be repaid for financing

environmental projects.

Financial support for environmental protection covered the following²²⁾:

The launch of special programs,

The granting of favorable assistance conditions in East Germany within the framework of nationwide programs,

Relatively generous sources for support programs,

Launch of special loan guarantee programs.

In general, financial assistance was used for promoting investment.

In addition, environmental protection became one of the main target areas for employment creating measures.²³⁾

4. Outline of Environmental Policy in North Korea

The most simple and at the same time most effective way to reduce environmental pollution is the shutdown or shut-off of the polluting facilities. In most cases, however, the improvement of environmental quality can be achieved via upgrades

22) Cf. Heike Belitz, Jürgen Blazejczak, Vera Dietrich, Dietmar Edler, Walter Komar, Barbel Laschke: Schwerpunktmäßige Dokumentation der ökologischen Aufbaupolitik in den neuen Ländern seit Beginn des Einigungsprozesses, Umweltbundesamt, Berlin, 1995, p.47ff.

23) Cf. E. Spitznagel: Allgemeine Maßnahmen zur Arbeitsbeschaffung (ABM) in den neuen Bundesländern, in: Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, Issue 3, Nürnberg, 1992, p.277ff.

and new construction of environmental protection equipment. In addition, investment in integrated environmental protection will become necessary, i.e., innovative measures that change sources of emission with the aim of reducing or preventing harmful substances in the air.

To estimate the exact dimensions of the demand for investment in the capital stock of environmental protection, the specific assessment of the starting situation in North Korea and the goals of environmental policy is necessary. The speed and the structures of economic development in North Korea after the unification also determine the level of necessary investment in environmental protection. If the entire growth path is relatively flat, demand for investment in environmental protection related to production will be lower than for a steeper growth path. The future structure of the economy in North Korea is also important for the level of necessary investment in environmental protection. The future weight of environment and energy intensive branches, for example, determine the degree of necessary investment by companies but also the demands on environmental infrastructure.

In general, the evaluation of the environmental situation in North Korea is rather diverse. It is assumed that the situation there is much worse than in South Korea. This has to be analyzed case by case. The South Korean environmental standards have to be critically studied in comparison with those of the developed industrial countries also. There is still another chance for improving overall conditions through the unification process

rather than simply applying Southern standards to the North. Weaknesses of South Korean environmental policies should not be repeated when reconstructing North Korea's economy.

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The Cost and Financing of Korean Unification

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I. Introduction

Many people believe that unification of the Korean Peninsula is fast approaching. However, no consensus exists as to exactly when and how it will take place. Nevertheless, North Korea is certain to change, and in response, South Korea needs to guide it towards a desirable direction.

Koreans often have a passive attitude about unification. However, the author believes that unification is something to be made and not simply accepted. Numerous scenarios exist regarding unification of the Korean Peninsula, but even for unification through disintegration of the North, the form of unification and its economic consequences will be contingent on the response from the South. If the two Koreas can work towards unification by consensus through negotiation, unification will be more of an object of endeavor. In other words, the form of unification and its economic consequences can be objects of choice.

Economics states that every choice is accompanied by costs. If unification is the choice, its costs are well worth discussing. If unification is simply imposed then there is no ground for discussing the costs at all. If unification can be at least be partially molded, discussion of cost minimization becomes necessary.

The economic consequences of Korean unification have been a frequent topic of discussion. Lee (1994), Noland et al. (1996), and Park (1997) estimated unification costs using different theo-

retical approaches. In addition, some more estimates have been presented by the media, which were probably calculated based on relatively simple theoretical background. Unfortunately, the diversity and complexity surrounding estimations of unification cost has generated confusion in understanding and interpreting the estimates. Furthermore, the simplistic presentations of the seemingly large cost figures, without any appropriate supporting explanation, have produced passive attitudes toward unification on the part of the South Korean people.

In this chapter, the author attempts to estimate the unification cost of Korea through use of theoretically and empirically acceptable concepts, especially in relation to the different forms of unification. Also, an attempt will be made to shed light on the amount of financial burden on the people of South Korea. Discussion will also be made on how to finance such a venture.

The chapter consists of six sections. Following the introduction, the second section clarifies the concept of unification cost. Various assumptions and characteristics of unification cost are discussed. In the third section, the cost of German unification is explained. An estimate of German unification cost is calculated using the computable general equilibrium model (CGE), and is compared to the actual cost paid by the West German people after German unification. Section four presents estimates of the costs of Korean unification calculated by the CGE model for different scenarios, namely, rapid unification and gradual unification. Section five inquires into the feasibility and methods of financing the unification cost. Lastly, section six summarizes the chapter's findings.

II. Speed of Unification and Concepts of Unification Cost

The concept of unification cost is a subject to how the words unification and cost are understood. The form of unification, whether unification is quick or gradual, also affects unification cost. We presume that a quick unification or a gradual unification can be a matter of choice. If these two alternatives are not within our choice, it is meaningless to compare them.

Some contend that a quick unification will incur lower costs than gradual unification. Gradual unification assumes that North Korea can accomplish economic transformation in the long term and gain economic efficiency, minimizing the resources that the South has to transfer to the North. Those who question such a gradual unification doubt whether the North can effectively carry out such a systematic transformation. Also, there is a view that gradual transformation will invite interference from the privileged class and hence make it difficult to minimize transformation cost.

Those who favor quick unification over gradual unification hold that the former may incur great initial cost but will result in an efficient economy sooner, thereby resulting in a lower cost in the long run. But those who prefer gradual unification assert that calculating the long-term cost of gradual unification in terms of its present value using an appropriate discount rate may lead to a different conclusion. However, it

is another question whether quick unification is politically possible. The possibility of quick unification on the Korean Peninsula in light of the Germany case remains uncertain: Seeing East Germany collapse, North Korea became more alert to avoid collapse.

Another important question is whether the South Korean people are willing to accept the large albeit short-term financial burden that usually accompanies quick unification. In the German case, the economic burden of quick unification produced substantial socio-political protest despite the remarkable strength of the West German economy. In contrast, South Korea recently faced an economic crisis due to foreign currency shortage and financial difficulties. Whether South Korea, with a foreign debt of US\$156,900 million, can deal with the unification cost if unification suddenly occurs is a new question.¹⁾ In such circumstances, gradual unification may be a better choice, politically and economically.

The economic term for unification cost is the income or consumption opportunity that we will have to sacrifice upon unification. We must first clarify what is precisely meant by 'we'. If 'we' includes South Korean residents only, everything that is sent to the North from the South for unification is a cost. If 'we' is viewed as the residents of a unified Korea, however, goods sent to the North from the South are no

1) This is a gross figure for the end of 1997. Since Korea's claims on the rest of the world is estimated at about US\$60,600 million, the net foreign debt of Korea as of the end of 1997 was US\$96,300 million.

longer costs but merely a transfer of resources. From a broad nation-minded perspective, 'we' may be considered as the Korean people or a unified Korea. However, whether South Korean residents will take the above stance in calculating unification cost needs to be determined objectively. If South Korean residents have to choose between pursuing unification for peace and prosperity or keeping the statue quo, 'we', or the subject of choice is South Korean residents. In this case, a transfer of resources to the North from the South will be considered a cost of unification. Of course, when such a transfer of resources also benefits South Korea, calculation of such cost should be made by deducting the benefits.

Then, what costs are in store for South Korean residents in case of unification? Given the present situation where a great economic disparity exists between the two Koreas, unification will inevitably be accompanied by a transfer of resources from the South to the North. If the border between the two Koreas is abolished, massive migration of North Koreans into South Korea is expected, given the relative poverty of the North Korean economy. This will lead to greater confusion in South Korea and will negatively affect the South's living standards. Keeping North Korean residents in the North by providing aid or guaranteeing North Korean residents certain living standards while allowing migration may be the cure for social instability. In either case, South Korean residents will be required to pay to improve living standards in North Korea.

Therefore, unification cost is often defined as the amount of

resources South Koreans must spend to bring North Korean living standards up to South Korean levels. In other words, since South Korean residents can spend their resources for other purposes if they do not have to improve living standards in North Korea, it can be said that certain amount of sacrifice will be required of South Koreans for unification and the size of that sacrifice is the unification cost. Of course, the amount of the sacrifice South Koreans will be burdened with depends to a largely on the degree to which the gap in living standards of the two Koreas will be bridged. Completely equalizing the per capita GNP in the two Koreas would not only require a long period of time but would also increase the burden on South Koreans. Therefore, the reasonable aim might be to bring North Korean per capita GNP up to approximately 60% of South Korea's. Such an income gap is possible within one nation and is not believed to result in massive migration.²⁾

III. The German Case

How much did Germany pay for its unification? It is not easy to calculate the entire cost of German unification because we need to hypothesize how the German economy would have performed had unification not occurred. Nevertheless, the German case may provide valuable lessons for South Korea.

2) See Noland (1996), p.3.

Information on how West Germany dealt with the economic burden of unification will help South Korea prepare for the financial burden of Korean unification.

After unification, Germany transferred approximately DM 1,000 billion from the West to the East between 1991 and 1996. As shown in Table 1, the size of economic aid from West Germany to East Germany amounted to 63% and 95% of East German GDP in 1991 and 1992 respectively. The aid began to decrease, amounting to 34% in 1996. Such economic aid was used to fund projects like social security, deficit payment, privatization cost, and investment inducement.

About 75% of the financial input into East Germany was spent for consumption purposes such as guaranteeing living standards while less than 25% was spent for investment purposes such as creating jobs and improving competitiveness of the East German economy.³⁾ Out of the total amount of the transfer, approximately 50% was paid out to households as social welfare expense and 25% took the form of interest payments, public spending, and transfer to the corporate sector.⁴⁾

There was relatively high expenditure for consumption purposes because the West German social security system, which was characterized by high benefits and very broad coverage, was applied equally to East Germany. In particular, overvaluation of the exchange rate of the East German currency resulted

3) See Boss (1998), Table 2.

4) See Boss (1998), Table 2.

<Table 1>

**GDP and Domestic Demand in East Germany
versus Transfers from the West 1991-1996**

(billion DM)

	1991	1992	1993	1994	1995	1996
Gross Domestic Product	206.6	265.6	323.2	366.1	398.0	414.2
Net exports	-154.4	-188.0	-192.4	-203.2	-	-
Gross Domestic Product minus net exports (consumption plus investment)	361.0	453.6	515.6	569.3	-	-
Transfers from West Germany	130.0	252.9	198.7	163.6	139.3	140.7
Transfers in percent of consumption plus Investment	36.7	55.8	38.5	28.7	-	-
Transfers in percent of GDP (East)	63.1	95.2	61.5	44.7	35.0	34.0
To compare: Gross Domestic Product of West	2,647.6	2,813.0	2,840.5	2,962.1	3,061.6	3,127.3
Transfers in p.c. of GDP(West)	4.91	8.99	7.0	5.52	4.55	4.50

Source: Boss (1998), Sachverstaendigenrat (1997/98), own calculations.

in wage increases and diminished exports, leading to a great rise in unemployment and ultimately, large expenditures on social security. Also, since pensions in East Germany were given out according to the same rules as West Germany, the size of pensions in East Germany more than doubled

between 1991 and 1996. The standard pension in East Germany, which previously had amounted to 40.3% of the West German pension, increased to 80% of the West German pension. The federal government was forced to make up for the deficiency in the East German pension fund with the West German pension fund.⁵⁾ A great rise in East German unemployment after unification called for a huge financial transfusion from West Germany in order to meet East Germany's employment insurance payment.

Table 2 illustrates that from 1991 to 1995, investments in East Germany reached DM756 billion. Of that amount, DM624.5 billion, approximately 83% of the total amount, came from the private sector while DM131.9, about 17% of the total amount, came from the public sector. A large part of the investment, about 33%, went to the service industry. 70% of this amount was invested in housing, revealing that a large portion of the resources was invested in housing in East Germany. Of the remainder, 30% was invested in the manufacturing industry and 17% in transport and communications.

The German experience tells us that two kinds of expenditures were made during the unification process. That is, investments aimed at increasing productivity in East Germany and expenditures to maintain the quality of life for residents of East Germany. All consumption expenditures were made from public sources. However, investment expenditures came from

5) See Boss (1998), Table 2.

<Table 2>

Investment in East Germany after Unification 1991-1995

(billion DM)

Industry	1991	1992	1993	1994	1995	Total
Agriculture and forestry	0.95	1.10	1.30	1.50	1.80	6.65
Manufacturing	32.45	41.10	45.20	49.20	56.20	221.45
-energy/water service, mining	10.35	14.15	17.00	19.10	22.30	82.90
-processing ¹⁾	18.50	22.50	23.70	24.60	27.50	116.80
-construction	3.60	4.45	4.50	5.50	6.40	24.45
Trade	4.35	5.30	5.70	6.00	5.80	27.15
Transport, Communication	16.15	22.50	24.90	26.70	28.80	119.05
Service	23.70	34.60	46.90	63.40	78.90	247.50
-house lease	15.90	23.90	31.40	44.90	56.60	172.70
-other services ²⁾	7.80	10.70	15.50	18.50	22.30	74.80
Private Total Investment	77.60	104.60	124.00	146.80	171.50	624.50
Public Total Investment	14.90	23.30	26.50	32.20	35.00	131.90
Total Investment	92.50	127.90	150.50	179.00	206.50	756.40

Note: 1) including construction of gas station

2) including banking and insurance

Source: Shin Dong-Chun (1988), p.27.

both the public and private sectors. Investments from private sources can not be regarded as public expenditure, since there is expectation of future profits for the investor of these

investments. Therefore, it is fair to say that unification costs consist of consumption costs for crisis management and investment made by public institutions.

Table 3 shows changes in the main economic indicators in East Germany after unification. The GDP in East Germany increased from 31.3% of West Germany's in 1991 to that of 54.4% in 1996. The relatively rapid economic growth in East Germany is a result of a higher rate of investment per capita in East Germany compared to West Germany. Compared to West Germany, per capita investment in equipment rose from 63.3% of the West's in 1991 to that of 111.7% in 1994 and investment in construction rose from 67.2% of the West in 1991 to that of 184.5% in 1996. These numbers suggest that resources were transferred from West Germany to East Germany at a very rapid rate. However, productivity in East Germany did not increase as quickly, reaching only 56.8% of the West German productivity level in 1996.

However, the relative wage cost of East Germany to West Germany, expressed by the ratio of income per capita of employed to GDP per labor, decreased from 150.7% in 1991 to 130% in 1996. The decrease was due to the increase of labor productivity in East Germany. But since the level of East German labor productivity is still much lower than that of West Germany, the relative wage cost is a lot higher in East Germany.

Here, we want to ask whether faster growth of the East German economy could have been possible if investment allocation in East Germany after unification had been more

<Table 3>

Main economic indicators in East Germany
after Unification 1991-1996

(West Germany=100)

	1991	1992	1993	1994	1995	1996
GDP per capita	31.3	38.5	46.2	50.6	52.8	54.4
Investment per capita in equipment	63.6	75.3	99.5	111.7	-	-
Investment per capita in Construction	67.2	100.8	129.1	164.9	180.6	184.5
Housing	44.5	61.3	81.8	115.8	136.8	146.2
Enterprises	89.4	141.5	195.5	233.3	245.3	239.3
Productivity ¹⁾	31.0	43.1	51.6	54.3	55.2	56.8
Relative wage ²⁾	150.7	140.9	131.6	129.8	131.2	130.0

Note: 1) GDP per labor (in market price)

2) Non-self employed income per capita/GDP per labor

Source: DIW, Wochenbericht, 17/97 (April 1997), p.306.

efficient. To answer this question, we will calculate the required amount of investment under the assumption that the optimal allocation of investment could have been made in East Germany. Such a calculation can be made using the computable general equilibrium model (CGE model). This model is based on neo-classical economic theory, which assumes that all

markets are perfectly competitive and all production factors including labor and capital are fully employed. The model operates under the assumption that all economic actors regard the market price system as a given and try to pursue their goals within their limited constraints. Also, in the initial economic structure all resources are optimally distributed. Of course, one may question whether the economic activities of a socialist state like East Germany can be analyzed through a neo-classical model. However, as Lange and Taylor (1998) pointed out, if economic planners were to maximize a society's welfare by allocating resources according to the goals of that particular society it is at least theoretically possible to achieve a 'Pareto optimum' in a socialist state. Of course, lack of information and a rigid bureaucracy makes it difficult for the Pareto optimum to be achieved in the real world. However, the results of applying such a model provide us with an ideal picture of an economy.⁶⁾

We can also argue that using such a static model to calculate the cost of unification in a dynamic situation is not reasonable. However, due to the complexity of a dynamic model and the lack of information pertaining to it, the static model has often been used to calculate unification cost.⁷⁾

The minimum investment cost for East Germany to achieve

6) For more information on the estimation of unification costs by the CGE model refer to research by Dong-Chun Shin of the Institute for Korean Unification Studies: "Economic Cooperation and Unification Costs: A Comparative Analysis between Germany and Korea," February, 1998.

7) See Noland et al. (1996)

60% of West Germany's GDP per capita was calculated by using East Germany's 1987 economic data with the CGE model. This was done under the premise that a large amount of East German capital would become valueless after unification, since the character of East German capital differs greatly from West German capital in terms of productivity or other aspects of quality. Therefore, we estimated the amount of total investment and optimal allocation of investment throughout different industries under the assumption that only 30% of East Germany's capital will be useful after unification.⁸⁾

According to the results shown in Table 4, a total of DM676.1 billion in 1987 prices must be invested in East Germany for its GDP per capita to reach 60% of West Germany's level. Also, it is recommended that 37.3% of the total investment be made in the service sector, 12% in agriculture and fishery, 9.5% in the chemical industry and 7.9% in light industry in order to achieve optimal allocation. Considering the industrial structure of East Germany in 1987, this implies that for faster economic growth in East Germany, light industry has to be reduced and the chemical and service industries expanded.

It is interesting to compare these results with Germany's actual situation after unification. First, the total investment made in East Germany after unification until 1995 was DM884.5

8) The assumption that only 30% of the existing capital will be useful after unification is based on estimations of capital amount in Sinn and Sinn, 1992. Gerlinde Sinn and Hans-Werner Sinn, 1992, *Jumpstart: the Economic Unification of Germany*, translated by Juli Irving-Lessmann, MIT Press, p.102.

<Table 4>

Minimum German unification cost and
optimal investment in each industrial sector

(investment in billion DM, structure in %)

Industry	Optimal investment		Industrial Structure (Value Added)	Industrial Structure (Products)
	Amount	Structure		
Agriculture, Forestry and Fishing	80.8	11.96	7.47	8.01
Mining and quarrying	34.6	5.12	6.92	4.91
Light industry	53.3	7.90	10.36	17.08
Chemicals	63.8	9.45	14.06	15.89
Ceramics, Stones, Clays	25.0	3.70	2.29	2.78
Primary metal products	17.3	2.50	2.80	5.40
Metal products	27.5	4.08	4.35	4.72
Mechanical engineering	28.8	4.27	3.58	4.35
Electronics	33.2	4.91	4.98	4.92
Fine machines	2.5	0.37	0.34	0.31
Transport machines	15.3	2.27	2.20	2.45
Other manufacturing	5.3	0.70	0.80	0.70
Electricity, Gas, Water	21.1	3.13	1.02	2.61
Construction	14.7	2.17	1.06	1.32
Service	252.9	37.31	37.62	24.41
Sum	676.1	100%	100%	100%

billion, which was 30.8% more than DM676.1 billion, the amount of the minimum investment estimated above.

The reason why East Germany's GDP per capita remains at 52.8% of West Germany's despite this large amount of investment is either because investment in East Germany was not optimally allocated or because the real amount of investment was calculated in current prices. Therefore, if the annual amount of actual investment is converted to 1987 constant prices under an assumed average inflation rate of 2%, the amount of real investment through 1995 adds up to DM786.9 billion. The discounted investment volume in 1987 prices exceeds the minimum investment calculated by CGE model. This result strongly suggests that the investment had not been optimally allocated.

In short, even though the actual investment made from 1991 to 1995, DM786.9 billion in 1987 prices, exceeded the amount of the optimal required investment to increase East German GDP per capita to 60% of West Germany's by a factor of 1.16, the per capita GDP of East Germany in 1995 was still only 52.8% of West Germany's.

Then how much more actual investment is needed for East Germany's per capita GDP to reach 60% of West Germany's? If we linearly extrapolate using the figures estimated above, we can find that 1 trillion and DM35.4 billion should be invested, which is 1.53 times the amount that was estimated by the CGE model. In the actual process of investment, inefficient allocation and management could cause the amount of investment to increase greatly.

It is necessary to point out again that the amount of investment is not entirely public cost. If we apply a 17% rate of public investment to the total investment amount between 1991 and 1995 to the total required investment of DM1.035 trillion, the public investment cost would be only DM176 billion. If we assume that East Germany's GDP per capita becomes 60% of West Germany's in 1999, and West Germany transfers income to East Germany for crisis management until that time, the total crisis management cost will be DM1.3207 trillion. In addition, the total unification cost will be DM1.497 trillion, including crisis management cost and investment cost.

Since Germany was unified through a rapid rather than gradual process, the main fiscal burden of unification was crisis management cost, mainly social security cost. The social security contribution of the German people increased after unification from 16.9% of GDP in 1990 to 20.0% in 1997, while the ratio of tax burden to GDP did not change appreciably; 23.6% in 1990 to 22.6% in 1997 (See Table 5). These facts indicate that the main fiscal burden of German unification was shouldered by the social security contributions of the West German people.

Another remarkable change in the financial situation of Germany after unification has been the increase of public sector debt. Germany's total outstanding public sector debt increased DM1.298 trillion in 1991 to DM2.14 trillion in 1996, which made the debt-to-GDP ratio increase substantially, from 44.0% in 1991 to 60.4% in 1996. This indicates that unified Germany increased public debt by as much as 3% of

<Table 5>

Government Expenditures, Taxes, Contributions
to Social Security, Balance and Public Sector Debt of
Germany and South Korea (in relation to GDP)

Year	Government Expenditures (a)	Taxes	Contributions to social security	Other Revenues	Balance	Public sector debt(b)
West Germany						
1980	49.0	25.9	16.9	3.3	-2.9	31.8
1985	48.0	25.2	17.6	4.0	-1.2	41.7
1990	46.1	23.6	16.9	3.5	-2.1	43.4
Germany						
1991	50.1	24.1	18.0	3.3	-4.5	44.0
1992	51.9	24.5	18.3	3.7	-5.4	48.7
1993	52.7	24.4	18.8	3.7	-5.8	54.6
1994	51.4	24.4	19.3	3.7	-3.9	57.6
1995	50.7	24.2	19.5	3.6	-3.4	58.0
1996	50.0	23.2	19.9	3.4	-3.5	60.4
1997	49.0	22.6	20.0	3.3	-3.1	61.7
South Korea						
1991	10.3	17.8	1.6	3.2	-1.9	13.4
1992	10.9	18.6	1.7	3.7	-0.7	13.5
1993	10.8	18.8	1.7	2.8	0.3	12.4
1994	10.6	19.8	1.9	2.9	0.5	11.4
1995	10.3	20.5	1.8	2.4	0.4	10.2
1996	10.7	21.1	2.0	2.4	-0.3	-

Note: (a) NIPA, including Treuhandanstalt.

(b) At the end of the year

Source: Statistisches Bundesamt (1997a, b) Sachverstaendigenrat (1996), Boss (1998) and Public Finance Statistics of Korea (1997)

GDP every year in the five years following unification. Therefore, we can conclude that the two main financial sources for fiscal burden of the German unification were social security contributions and public debt, sharing more or less equal importance.

The issuing of government bonds and social security tax were important means of raising funds for unification. In addition, the German government applied various other measures to finance unification such as government budget cuts, increased taxes for West German residents, borrowing from capital markets and disposal of national assets.

In order to accomplish even distribution of the burden of the cost of unification, the German government attempted to engage the federal government, state governments, and local governments equally. That is, the costs were distributed equally by enacting a law of financial balance among states and the fund was raised through issuing government bonds. In addition, in order to distribute the costs of unification fairly among the different social classes, the government imposed a surcharge of 7.5% to corporate and income taxes.

IV. Estimates of the Cost of Korean Unification

The case of Germany gives us a lot of insight into the cost of Korean unification and how to finance it. Of course,

the German model can not be applied directly to the Korean case since the costs of unification as well as financing methods will depend on the procedure of unification as well as on the economic situation.

There are two main scenarios for unification on the Korean peninsula: rapid unification as in the case of Germany, and gradual unification. Depending on the form of unification there are two kinds of unification costs. First, there are investment costs to increase North Korea's productivity to match that of South Korea's. There are also crisis management costs in the form of living expenses to prevent massive migration of North Korean residents to South Korea since North Korea's GDP per capita is far lower than South Korea's.

Investment costs will be lower for rapid unification compared to gradual unification because in the case of rapid unification, North Korea's economy will quickly be transformed into a market economy and the price mechanism will enable efficient investment allocation. However, as in the case of Germany the cost for rapid unification mainly consists of crisis management costs. If the borders between the two countries dissolve and the income gap is not solved quickly, North Korean residents are expected to swarm into South Korea. Therefore it is necessary to find a way to secure their lives within North Korea. Even though investment will gradually increase North Korean productivity, it will be inevitable that South Korean residents will transfer their income to support North Korea as long as North Korea's GDP per capita remains below 60% of South Korea's. This is believed to be

the minimum level of income necessary for North Korean people to stay in the North.

In the case of gradual unification as well, investment costs and crisis management costs are inevitable. Gradual unification refers to the unification of North and South Korea's politico-economic system based on the approval of both countries. It in particular means that North Korea will open and reform its economy gradually with South Korean support until complete economic unification is achieved. Unless integration of the two politico-economic systems is accomplished, borders between the two countries will keep residents from moving freely from one side to the other.

Crisis management costs will be lower in the case of gradual unification. If borders remain and keep residents from migrating, crisis management funds might not be necessary. However, if these borders are eliminated before North Korea's GDP per capita reaches 60% of South Korea's, crisis management costs will be inevitable.

Investment costs will be more burdensome in the case of gradual unification. If the process of unification is gradual it means that North Korea's planned economy system will be maintained some time. Although the effectiveness of investments will increase with the opening and reform of the economy, it is expected that investment activities by the North Korean authorities will tend to be inefficient as long as the economic system is not a market system. That is, in the case of gradual unification, crisis management costs will be low, but investment costs high.

Let us now estimate the investment costs and crisis management costs in both cases. First, let us assume that the collapse of borders allows South Korean companies to invest in North Korea and North Korean residents to move to South Korea. In this case, how much must be invested in North Korea for North Korea's GDP per capita to reach 60% of South Korea's? To find an answer to this question we will try to apply the CGE model that was used in the case of Germany.

As already mentioned in the previous section discussing the process of estimating unification costs for Germany, estimation of unification costs according to the CGE model involves calculating the minimum resources necessary to increase North Korea's GDP per capita to a certain level, for example, 60% of South Korea's per capita GDP. In this case we follow the neo-classical assumption that the current industrial structure enables the best possible allocation and new investments are fairly allocated by the market. Of course, the reality is different. As seen in the case of Germany, actual costs of investment were much higher than estimated through this method. However, despite this fact, we apply this method since it gives us insight about the minimum cost of unification.

In order to apply this model to North Korea we need data on North Korea's industrial structure. Using all the data available to understand North Korea's economic structure we were able to create a social accounting matrix for North Korea. To do so we needed access to an input-output table for North Korea and created one based on East German data.

The general practice in making input-output tables for North Korea is to use Chinese data, but since North Korea's economic structure is far more dependent on heavy and chemical industry than South Korea or China, its industrial structure can be assumed to have more in common with East Germany's industrial structure before unification.

It is also important to know how much of North Korea's capital stock is usable for actual production. As seen in the German case, most of North Korea's capital stock will become useless upon unification. Since most facilities are in bad shape, labor costs are expected to rise after unification, and there is lack of technological know-how, it is difficult for most of the capital to be utilized after unification. Therefore, we assume, as in the case of Germany, that only 30% of the existing capital stock will be usable. In terms of technology and capital, North Korea is far behind East Germany, so most of North Korea's capital stock is likely to be discarded after unification. However, if North Korea's wages do not increase at the rate of East Germany's, North Korea's low quality capital might not be discarded so quickly.

If unification is achieved under these assumptions and South Korea continues to invest in North Korea until North Korea's GDP per capita reaches 60% of South Korea's and this investment is allocated properly, how much investment has to be transferred to North Korea?

To acquire actual numbers with the CGE model we need to set a base year. Although it is best to use the most recent data, considering the availability of data and the economic

situation, 1990 was chosen as the base year. In 1990, the North Korean economy was relatively sound but began to decline with the collapse of the Soviet Bloc. One can, of course, suggest that the costs should be estimated in light of North Korea's current economic situation. However, since it is more important to analyze whether South Korea is capable of financing unification based on the normal economic structure of the two countries, we decided to take 1990 as the base year since in that year when both economies were in relatively normal condition.

The Bank of Korea estimated North Korea's GNP in 1990 to be approximately US\$23.1 billion. This means that North Korea's GDP per capita was US\$1,066. In the same year, South Korea's GDP per capita was US\$5,693, about five times as much.

In order for North Korea's GDP per capita to reach 3,416 US\$, 60% of South Korea's, the minimum amount of investment according to the CGE model is US\$88.9 billion. Assuming that the investment is well allocated among industries, this amount can be viewed as the lower limit. Table 6 shows the allocation of investment across industries and North Korea's industrial structure in terms of production. Naturally, not all investments are public expenditures since a large portion of the investment will come from private sources. Whereas in the case of Germany only 17% of the total investment came from the public sector, public investment will probably take up a much larger portion in Korea since the South Korean economy contains more government-led growth

<Table 6>

The unification cost, optimal allocation of investment and North Korean industrial structure after unification (North Korea's GDP per capita = 0.6 × South Korea's GDP per capita).

Industry	Optimal investment		Industrial structure(%) (Value added)	Industrial structure(%) (product)
	Amount (billion \$)	%		
Agriculture	14.626	16.50	17.91	16.08
Mining	9.676	10.80	5.40	4.72
Light industry	5.622	6.34	6.97	14.43
Chemicals	9.956	11.23	3.96	6.55
Primary metals	4.682	5.28	2.04	5.02
Metals, Machinery	16.322	18.41	13.02	14.95
Other manufacturing	0.666	0.75	0.77	0.72
Electronics, Gas, Water	3.772	4.25	1.70	2.76
Service	23.427	26.43	48.23	34.78
Total	88.749	100%	100%	100%

strategy than the West German economy. If the public sector contributes about 30% of the investment cost, approximately US\$26.7 billion will be from public sources.

The CGE model does not, however, take the time factor into consideration. In other words, the CGE model neglects the time it will take for North Korea's GDP per capita to reach 60% of South Korea's and assumes that North Korea will achieve the desired economic growth without any adjustment costs. However, this is not true in reality. Such a large amount of investment can not be made in a short period of time, and even if it were made, productivity is unlikely to increase immediately. As seen in the German example, it will take about 10 years for East Germany's GDP to reach 60% of West Germany's GDP.

If it takes this long for North Korea to catch up to South Korea, there will be great incentives for North Koreans to move to South Korea until the GDP per capita in the North increases to 60% of South Korea's. To prevent migration under this scenario, South Korea has to provide some kind of crisis management cost or adjustment cost. Therefore we assume that South Korea will provide support to North Korea to bridge the economic gap until North Korea's GDP per capita reaches its goal. The amount of the crisis management cost depends on how fast North Korea increases its GDP per capita. The longer this period is, the higher the cost will be. What also needs to be considered is the fact that South Korea's GDP per capita also will increase with time; here we will assume that there will be a 6% per annum increase in South Korea's GDP per capita.

The speed of North Korea's economic growth depends on how fast the country opens and reforms its economy during

the process of economic integration and resultantly establishes an effective market economy. However, since this can not be determined in advance, we will conduct simulations for two scenarios.

In the first scenario we assume that North Korea increases its GDP per capita to 60% of South Korea's level within 5 years. Since North Korea's GDP per capita in the base year is 20% of South Korea's, we assume that the gap will decline by 10% every year. The amount of annual investment in crisis management costs, North Korea's economic growth rate, and unification costs are laid out in Table 7.

The total amount of investment when it is optimally allocated is \$145.9 billion. The reason that this figure is much larger than the results shown in Table 6 is because the South Korean economy is expected to grow as well and more investment will be needed to bridge the gap between the North and South. In addition, if public investment takes up 30% of the total amount, \$43.7 billion will be financed from public sources. However, this amount is estimated assuming that the investments will be properly allocated across industries. Even if a market economy is introduced in North Korea after rapid unification, time will be needed for the system to work as it is unlikely that the investments will be allocated efficiently. Therefore the figure presented above only refers to minimum costs, with actual expenditures probably much higher.

A total of \$139 billion in annual crisis management costs will be needed to increase North Korea's per capita income

<Table 7>

Unification cost of Korea according to scenario 1

(billion \$)

	Investment cost	Public investment cost (A)	Crisis management cost(B)	Unification cost(A+B)	Growth rate of North Korea
1st year	2.0	0.6	52.4	53.0	13.2
2nd year	18.0	5.4	41.6	47.0	59.0
3rd year	28.0	8.4	29.4	37.8	41.3
4th year	40.8	12.2	15.6	27.8	32.5
5th year	57.1	17.1	0	17.1	27.2
Total	145.9	43.7	139	182.7	

Assumption: (1) Base year = 1990

(2) South Korean economy grows 6% per year

(3) North Korean GDP per capita grows to overtake yearly 10% of the income gap to South Korean GDP

to 60% of South Korea's per capita income. As in the case of Germany, social security costs will by far exceed investment costs. The sum of public investment and crisis management costs is estimated at US\$182.7 billion, which is about 60% of South Korea's GNP in 1990. In other words, 12% of South Korea's GNP must be transferred to North Korea every year for five years immediately following unification. If this figure is too large to be covered by income generated each year, the government could issue bonds or borrow from abroad.

If bonds are issued and foreign loans are available, South Korea would only have to redistribute a burden of 5-6% of its annual GNP over the ten years after unification.

The second scenario is based on the assumption that it will take about 10 years for North Korea's GDP per capita to reach 60% of South Korea's GDP per capita, as occurred in Germany. Under this scenario, the crisis management costs will be considerable because social security costs will increase as the income gap between the two regions would need to be bridged by the social security mechanism for a longer period of time. Investment costs will not necessarily increase because the longer the transition takes, the facilities that were created with the initial investments will contribute to North Korea's economic growth for a longer period. On the other hand, if there is little time to bridge the income gap a substantial amount of capital will be required right away. As seen in Table 8 the total amount of investment during the 11 years is US\$121.8 billion. In addition, if we assume that 30% of the total investment comes from the public sector, public investment will amount to approximately US\$36.6 billion. The crisis management cost to secure the lives of North Korean residents will be about US\$524.8 billion. Adding public investment expenditure to this figure, South Korea will spend about US\$561.4 billion in public spending to achieve unification within 11 years. The per capita income in the last year of this time span will be US\$19,354 for South Korea and US\$11,520 for North Korea. These figures tell us that in this scenario, crisis management costs will be

<Table 8>

Unification cost of Korea according to scenario 2

	Investment cost	Public Investment cost(A)	Crisis management cost(B)	Unification cost(A+B)
1st year	0.4	0.1	52.7	52.8
2nd year	2.6	0.8	55.8	56.6
3rd year	4.0	1.2	58.5	59.7
4th year	6.3	1.9	60.4	62.3
5th year	7.8	2.3	61.1	63.4
6th year	6.5	2.0	60.3	62.3
7th year	10.9	3.3	57.2	60.5
8th year	18.1	5.4	51.0	56.4
9th year	18.5	5.6	40.8	46.4
10th year	21.0	6.3	25.0	31.3
11th year	25.7	7.7	2.0	9.7
Total	121.8	36.6	524.8	561.4

Assumption: (1) Base year = 1990

- (2) Yearly growth rate of GDP per capita of South Korea is 6% and that of North Korea is 12%
- (3) South Korea pays investment cost and crisis management cost until North Korea's GDP per capita reaches 60% of South Korea's

much larger than in the scenario that aims at bridging the income gap in 5 years. This is because the longer the process takes, the larger the costs to bridge the income gap since South Korea's income level will also increase with time.

The amount of these costs is similar to the results of the

study by Lee (1994), and Noland, Robinson and Scatasta (1996).⁹⁾ However, it is important to understand that unification costs will be much larger in the second scenario due to social welfare costs. The crisis management funds needed to secure the livelihood of North Koreans include aid for the unemployed, financial support for the elderly, medical insurance, education funds, and financial aid for local governments in North Korea. According to Park (1997), financial aid for the unemployed will be about 70% of the total crisis management costs.¹⁰⁾

At this point we need to understand how such crisis management costs can be minimized. The best way to cut crisis management costs is to bridge the income gap as soon as possible. In order to do so a significant amount of investment must be transferred to North Korea. Depending on the will of the government, the volume of public investment may

9) In a study by Young-Sun Lee (1994), government spending and the reduction of consumption expenditure to balance the per capita income between North and South were considered as unification costs and in the 40 years after 1990 unification costs were estimated at about US\$330-841 billion. To bridge the income gap South Korea will have to transfer about 6% of its GNP every year for 10 years. Noland, et al., (1996) based their study on the assumption that in order for North Korea's per capita income to reach 60% of South Korea's per capita income, North Korea will have to adopt a market economy and will need 415 to US\$2,242 billion for unification costs depending on the time of unification.

10) Park Tae-kyu (1997), "Estimating Unification Costs and Ways to Raise Funds," *Economic Integration Strategies and Unification on the Korean Peninsula* (Hong-Taek Chun, Young-sun Lee), KDI, p.488.

increase within a short period. However, the amount of private investment expected to play a significant role in the unification scenario will vary depending on the economic situation. Since private investment will be stimulated by a market system, the creation of a proper legal order will be very important. The establishment of social infrastructure will also help invite investment to the region. Thus, we can say that increase in public investment will reduce crisis management costs.

So far we have discussed unification costs in the case of rapid unification. How will the unification costs in a gradual unification process be different?

Gradual unification refers to a state where the borders between North and South remain, preventing a massive migration of North Koreans to the South, and North Korea introduces a market system based on an agreement between the North and South. In this case as well, South Korea will continue its financial support only until North Korea's per capita income reaches 60% of South Korea's. However, since there will be no massive migration of North Koreans, no additional social welfare expenditures will be needed. Nonetheless, unless North Korea introduces a market system right away, inefficient investment will continue for a long time. Thus investment expenditures will be much larger than in the case of rapid unification. A study of the Eastern European experience shows that the productivity of investment in socialist states is only 2/3 that of capitalist states.¹¹⁾ North Korea's investment efficiency is expected to be even lower than that of Eastern Europe

since it has a much stronger socialist system. If we assume that North Korea's investment efficiency for the period of gradual unification of ten years is one half that of South Korea's, the total public transfer needed from South Korea will be about US\$73.2 billion, an amount that is significantly larger than the public investment costs of rapid unification.

However, even if investment costs are twice as high compared to the scenario of rapid unification, since there are no crisis management costs in the gradual unification scenario the total amount of the unification costs will be much smaller. This is because in rapid unification, crisis management costs by far exceed investment costs. In gradual unification, the question is whether North and South Korea can reach an agreement to pursue gradual unification. If there is no firm belief that North Korea will in the long run embrace democracy and a market economy, and at the same time also open and reform its economy, it is doubtful whether South Korea will continue its financial support. It is also possible that during the process of pursuing gradual unification sudden changes will lead to rapid unification. In this case, the unification costs can be estimated by combining the two cases explained above. Also, it is possible to envision the case where a significant portion of transfers from the South to the North

11) This is the result of empirical analysis performed by Gregory and Stuart, who compared the productivity growth between GDR and FRG from 1960 to 1981. See Gregory and Stuart (1985), *Comparative Economic Systems*, 2nd Ed. Houghton Mifflin Company, Boston, p.528.

is used for consumption purposes to increase the living standard of North Korea, even under a gradual procedure of unification. In this case, the cost of gradual unification will be much higher than the figure estimated with the assumption of no crisis management cost.

V. Financing Unification Cost

How can the fiscal burden of Korean unification be financed? Increasing tax rates, curtailing government expenditure, issuing government bonds in both domestic and foreign markets, inviting foreign capital and selling state-run enterprises in North Korea are some measures to finance the cost of unification.

The tax burden to GDP rate in South Korea rose to 21.1% in 1996 as shown in Table 5 and is likely to climb further with increases in financial demand, especially for social welfare. Even though the current tax burden ratio is still low compared to that of most OECD countries, it will be difficult to raise the tax burden rate by more than 2.0% in order to meet unification cost, since the tax burden ratio is already close to that of Japan, a country with an economic structure and cultural background similar to Korea's. Once lasting peace takes root through unification on the Korean Peninsula, the size of the defense expenditure may be reduced by 1.5% of GNP.¹²⁾ Expenditures other than defense could also be spared

for unification financing, perhaps 0.5% of GDP. Issuing government bonds was regarded as another measure for securing fiscal burden until the 1997 financial crisis broke out in South Korea. Until the crisis, the financial position of the South Korean government was relatively sound, with a budget surplus of about 0.4% of GNP from 1993 to 1995. The deficit, by contrast, was of 0.3% in 1996, which was quite low compared to other OECD countries. Also, the outstanding stock of government debt has not been a serious problem in South Korea: the government debt to GNP ratios decreasing from 14.9% in 1990 to 10.2% in 1995, which can be considered as quite low compared to the German case of 45.5% in 1991 and 60.4% in 1996 as shown in Table 5. Therefore, it was once thought that the South Korean government could increase the public debt by at least 3% of GNP every year for five years, which would make the outstanding public debt ratio to GNP about 25%.

However, the 1997 financial crisis made the possibility of debt financing very uncertain. At this moment, it is difficult to predict how much foreign debt should be repaid by the government in the future. If we assume that about US\$50 billion in addition to the existing foreign debt before the crisis will be paid by the government, the public debt to GNP will soar up to about 30%. Since this ratio is still

12) Cho (1997) estimated the normal level of defense expenditure when Korea is in peace from a regression analysis using cross country data, and found that South Korean defense expenditure can be reduced by 1.5% of its GNP.

lower than Germany's in 1991, one might think that there would be room for the government to issue bonds to cover the fiscal burden for unification, raising about 2% of GNP per year, which would make the debt-to-GNP ratio over 40% within five years. Again, this ratio is still lower than in the German case, but the rapid increase in the public debt will increase interest rates, which may reduce private investment so that economic growth would slow down, which would in turn make it difficult to mobilize resources for the fiscal burden of unification.

It is also important that revenues from government bonds need to be used in constructing production-related facilities in North Korea to minimize the effects of financial deficit such as inflation and increased interest rate. It is desirable to avoid fiscal deficit financed by printing money.

Attracting foreign capital will also contribute to securing unification costs. Foreign capital may be invited to invest in profitable social infrastructure such as communications and electricity. In fact, there is some possibility for foreign capital to be invested in North Korea but most of it will be on a commercial basis, so that the fiscal burden for public purposes will not be reduced. The government needs to take over most of the public investment in social infrastructure. As observed in the German case, we can not expect to earn net revenue from selling state-run enterprises because most of them are old fashioned and obsolete.

In short, increasing the tax rate and curtailing financial expenditures will allow about 4% of yearly GNP to be used

for meeting unification costs, which is sufficient for the investment requirement in the case of gradual unification. Therefore, a gradual unification will have no significant financial difficulties. However, a rapid unification will require dependence on government bonds and foreign deficits to meet the high initial cost of crisis management, amounting to over 4% of GNP. In this case, financial difficulties will be an important problem.

VI. Concluding Remarks

We have looked at how unification cost varies with the form of unification. We found that rapid unification will incur lower investment costs and higher crisis management costs compared to gradual unification. The total unification cost in case of rapid unification is estimated to be about 60% of South Korea's 1990 GNP, a sum that can be transferred to North Korea by sending 5 to 6% of GNP each year to the North for ten years after unification. If gradual unification is possible, the unification cost will be much lower since the crisis management cost will be much lower.

Also, we found that we need not be passive about unification. The estimated cost of unification can be financed through higher taxes, expenditure reduction, and borrowing. However, the question is how to deliver the financial resources that are temporarily required by unification and how to distribute the

burden of unification across generations and income groups. This is a political rather than economic question.

Resource mobilization and distribution of the financial burden will be the most urgent problems in the case of a rapid unification while efficient transformation of the North Korean system will be most important in the case of a gradual unification. If system transformation takes a long period, the political management of various interest groups will emerge as a hot issue.

Also, unification cost may be controlled through appropriate policy choices. Rapid unification requires policies such as minimizing crisis management cost while gradual unification calls for policies to accelerate transformation of the North Korean system, thereby speeding up the achievement of unification benefits.

Finally, the author would like to emphasize that the recent economic crisis in South Korea can have an important impact on the course of Korean unification. The South Korean government's deteriorated financial position would make gradual unification more financially feasible than rapid unification.

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