Policy References 17-13

Economic Transition in Unified Germany and Implications for Korea

Edited by
Hyung-Gon JEONG and Gerhard HEIMPOLD

KIEP Korea Institute for International Economic Policy

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This book summarizes the results of a joint research project conducted by the Korea Institute for International Economic Policy (KIEP) and the Halle Institute for Economic Research (IWH), a member of the Leibniz Association, Germany. The cooperative project commenced in the spring of 2014, with the purpose of revisiting the economic development in East Germany after unification and the economic support policy practiced in this context, from which KIEP derives lessons for the Korean Peninsula.

Executive Summary

The reunification of Germany, which marked the end of the Cold War in the 20th century, is regarded as one of the most exemplary cases of social integration in human history. Nearly three decades after the German reunification, the economic and social shocks that occurred at the beginning of the reunification process have largely been resolved. Moreover, the unified Germany has grown into one of the most advanced economies in the world.

The unification process that Germany underwent may not necessarily be the way that the Republic of Korea would choose. However, the economic and social exchanges between East and West Germany prior to unification, and the cooperation in a myriad of policies based on these exchanges, served as the crucial foundation for unification. The case of Germany will surely help us find a better way for the re-unification of the Korean Peninsula.

In this context, this is the first edition of a joint research which provides diverse insights on social and economic issues during the process of unification. It consists of nine chapters whose main topics include policies on macroeconomic stabilization, the privatization of state-owned enterprises in East Germany, labor policies and the migration of labor, integration of the social safety nets of the North and South, and securing finances for reunification. To start with, the first part covers macroeconomic stabilization measures, which include policies implemented by the federal government of Germany to overcome macroeconomic shocks directly after the reunification. There was a temporary setback in the economy at the initial phase of reunification as the investment per GDP went down and the level of fiscal debt escalated, reverting to its original trend prior to the reunification. While it appears the momentum for growth was compromised by reunification from the perspective of growth rate of real GDP, this state did not last long and benefits have outpaced the costs since 2000.

In the section which examines the privatization of state-owned enterprises in East Germany, an analysis was conducted on the modernization of industrial infrastructure of East German firms. There was a surge in investment in East German area at the beginning stages but this was focused on a specific group of firms. Most of the firms were privatized through unofficial channels, with a third of these conducted in a management buy-out (MBO) process that was highly effective. Further analysis of a firm called Jenoptik, which was successfully bailed out, is incorporated as to draw implications of its accomplishments.

In the section on migration, we examine how the gap between the unemployment rates in the West and East have narrowed as the population flow shifted from the West to East. Consequently, there was no significant deviation in terms of the Gross Regional Domestic Product (GRDP) per capita in each state of East Germany. However, as the labor market stabilized in East Germany and population flows have weakened, the deviation will become larger. Meanwhile, if we make a prediction about the movement of population between the North and the South, which show a remarkable difference in their economic circumstances, a radical reunification process such as Germany's case would force 7% of the population of the North to move towards the South. Upon reunification, the estimated unemployment rate in North Korea would remain at least 30% for the time being. In order to reduce the initial unemployment rate, it is crucial to design a program that trains the unemployed and to build a system that predicts changes in labor demand.

It seems nearly impossible to apply the social safety nets of the South to the North, as there is a systemic difference in ideologies. Taking steps toward integration would be the most suitable option in the case of the Koreas. We propose to build a sound groundwork for stabilizing the interest rates and exchange rates, maintain stable fiscal policies, raise momentum for economic growth and make sure people understand the means required to financially support the North in order to reduce the gap between the two.

This book was jointly organized and edited by Dr. Hyung-gon Jeong of the Korea Institute for International Economic Policy (KIEP) and Dr. Gerhard Heimpold of the Halle Institute for Economic Research (IWH). We believe that this report, which examines numerous social and economic agendas that emerged during the reunification of Germany, will provide truly important reference for both Koreas. It is also our view that it will serve as a stepping-stone to establish policies in regard to South-North exchanges across numerous sectors prior to discussions of reunification. KIEP will continue to work with IWH and contribute its expertise to the establishment of grounds for unification policies.

Contents

Tables

Figures

Introduction

Since its reunification in 1990, Germany has undergone many economic changes. At the beginning of the unification, East Germany was facing considerable economic and social problems in addition to the aftereffects of a 1:1 monetary union and mass unemployment that occurred in the process of privatization of former state-owned companies. Because of the burdens, especially for the labor market, associated with the German unification, Germany was often referred to as the "Sick Man of Europe." However, as of 2016, real Gross Domestic Product in East Germany (Berlin excluded) has nearly doubled since reunification, and incomes there have reached approximately 83 percent of those in West Germany. Many East German companies went bankrupt in the course of transition to a market economy, on account of low productivity levels compared to the wage levels; nonetheless, their productivity has also increased significantly. East Germany reached in 2015 approximately four fifth of the West German productivity level. In the early days of reunification, there were worries about the migration of East Germans to West Germany; however, in 2015, the migration was nearly balanced between the five East German Laenders (Berlin excluded) and West Germany. Although some economic figures seem to suggest that full integration has been reached, socioeconomic imbalances persist between the former East and West Germany. Perhaps it will take some time for this regional imbalance to be addressed.

When it comes to the Korean unification, unified Germany is always regarded as a reference model for Korea. There are many reasons to conduct research on the German reunification: First, East and West Germany did not experience any physical clashes in the process of reunification, and there were no great social fluctuations. Additionally, the transition of East Germany's planned economy into the West German social market economy (*Soziale Marktwirtschaft*) has been considered successful. However, can the success of German reunification serve as a model for Korea, and can the methods and policies by which German reunification was achieved—especially those with different political, economic, and social features—be successfully applied to Korea? The main reason as to why German reunification is of interest to Korea is because both countries have had the fate, over an extended period, of being divided nations. Additionally, besides being divided nations, both Korea and Germany have achieved rapid postwar economic growth. However, in highlighting the political, economic, and social differences between Korea and Germany, it is difficult to find common features.

First, in terms of socio-political aspects, like Germany, Korea saw approximately 10 million families being separated by the partition of the country. Since 1953—when the Korean War ended—Korea has halted not only visits among separated family members, but also all correspondence and communications. This suggests that the Korean division has been much more painful than that seen in Germany, and so the process of Korean reunification could be comparatively more difficult. While the West German government cooperated with the East German government on human and material exchanges beginning in the early 1970s—through Willy Brandt's eastern policy (*Ostpolitik*)—Korea's two parts have not been able to communicate with each other, on account of postdivision ideological confrontations. Moreover, unlike in Germany, Korea experienced civil war and each of its two parts is characterized by slander and distrust of the other.

Since its division, Germany has "harmonized" with its neighboring European countries; this has contributed to the abatement of European tensions and thus ensured security. In this way, Germany nurtured a sense of confidence that helped prevent resistance to German reunification and ultimately maintain the unity of the German people. On the other hand, Korea continues to have difficulties in establishing confidence between its two parts and with neighboring countries, on account of geopolitical and historical problems. Additionally, South Korea maintains a military alliance with the United States and Japan, and North Korea is backed by China and Russia. The geopolitical position of the Korean peninsula—which is in essence a confrontation between the United States and Japan versus China and Russia—is another obstacle that is seen in the Korean context, but which was absent from the case of German reunification.

When we compare the economic aspects of Germany and Korea, there is some similarity: South Korea and the former West Germany are based on market economies, and North Korea and East Germany have (or had) the framework of a socialism-oriented planned economy. However, the West German system was based on the autonomous functions of the market, on the principle of a social market economy (*Soziale Marktwirtschaft*), while the South Korean market has developed with a system in which almost all economic units experience state intervention and interference in order to achieve national socioeconomic goals. In this respect, South Korea's economic system differs from that of Germany, the latter of which guarantees autonomous market functions and the "invisible hand" of perfect competition in the market. East Germany was the most industrialized state in Eastern Europe, while North Korea is currently facing serious economic problems; this implies that North Korea would be in a position far behind that of East Germany, if it were forced to switch to a reunification-driven market economy; the economic impact in Korea would be even more serious.

Another point is that the East German government did neither pursue political reform in the direction of democratization nor economic reforms. Opposition was oppressed, and there were no free elections. worsened. North Korea has maintained a dictatorship for over 60 years, within Kim Il Sung's family. In addition, the economic gap between South and North Korea is far greater than that between East and West Germany. Note also that South Koreans—who would pay the costs of reunification—outnumber North Koreans by only two to one. Compare this to the case in Germany—where West Germans outnumbered East Germans four to one on reunification day—and one can see that the reunification environment differs greatly between Germany and Korea.

Can German reunification policies be applied to Korea reunification, given the different social, political, and economic conditions of the two countries? The answer to this question is likely to be found within institutional economics. The most important point to bear in mind in transferring and applying one country's system to another is the system of internal conditions involved, such as politics, economy, and society. These internal system elements are most influenced by a country's culture—which is, in itself, a formless institution that creates societal customs and influences individual behavior. Herrman-Pillath defines culture as "a set of disciplines that allow people to adjust their behavior so that they can harmonize with others in the system to which they belong." Therefore, the legal, social, and economic institutions of a country represent a heritage that has been modified over a protracted period of time, during the interaction of culture and economic order. For this reason, culture and economic order are inseparable, and future economic policies must be considered within this current cultural and social framework. In this respect, institutional reform is limited by the numerous norms and customs of a country. For this reason, it is impossible to transfer the institutions or policies of one country to another, given the rational limitations and historical subordination of economic units. This is because the development of institutions can be further developed by internal factors; thus, they may either succeed or fail.

For this reason, it is impossible to apply the German reunification policy to a reunifying Korea. Korea has developed economic systems that differ from those in Germany—indeed, within a different culture and society—and the two countries have different social norms that have decisively influenced the behavior of economic units and the economic systems within them. The Korean government should devise a policy of reunification while bearing in mind only its current given political and economic situations; it can obtain from the case of German reunification only economic knowledge and experience, not institutions or models. A wealth of knowledge has been shown to hold true in both theory and practice, and so there are economic rules that are generally applicable to any country; therefore, by analyzing the German reunification process and the policies therein, it *is* possible to find economic principles that would be generally applicable to the reunification of Korea, and to leverage German economic policy experience so as to preclude economic policy errors and formulate useful policies. Based on this thinking, this book describes the ways in which the Korea Institute for International Economic Policy (KIEP) and the Halle Institute for Economic Research (IWH) can apply German economic policy knowledge and experience to the case of Korean reunification. We analyze closely the German reunification process and its support policies, evaluate each policy, examine the applicability of successful policies to the case of Korea, and suggest policy alternatives by which Korea can cope with reunification.

This book comprises 9 chapters, including an introductory chapter. This first chapter is an introductory chapter, written by Dr. Jeong Hyung-Gon who is co-editor of this book. The second chapter is about "Economic Key Decisions in the Course of German Unification." This chapter was co-authored by Dr. Gerhard Heimpold and Dr. Maike Irrek of the IWH. They describe the major economic policy decisions made during the German reunification process, and analyze the supporting policies by which East

German firms and public infrastructure were modernized. They speak of these in terms of the major stages of German reunification. They also analyze the process by which state-owned enterprises in East Germany were privatized, focusing especially on Management-Buy-outs (MBO) as an important form of privatization. Approximately one third out of the firms that underwent privatization or reprivatization or municipalization were managed through Management-Buy-outs; this process was considered quite efficient. According to research findings, additional investments were made in East Germany in the course of the modernization strategy; however, windfall profits were not completely avoidable.

The third chapter, again written by Dr. Gerhard Heimpold, is entitled “Restructuring of Industrial Enterprises in the Course of Privatization in East Germany.” Dr. Heimpold analyzes the following two restructuring cases based on *Treuhand* (*Treuhandanstalt*) restructuring principles and measures. The first case is that of the VEB Schwermaschinenbau-Kombinat “Ernst Thälmann” (SKET). SKET’s main area of focus has been heavy machine building; it is headquartered in Magdeburg, Germany. Prior to reunification, SKET was a kind of combinat (“Kombinat,” or industrial complex) in East Germany; following reunification, it was assigned to the Privatization Agency’s (Treuhandanstalt’s) portfolio. Its first attempt at privatization was pushed forward, but it failed. The second attempt at privatization succeeded, and worked to establish economically viable SME. Dr. Heimpold describes the trustees’ first and second privatization processes as follows. First, in the process of the first privatization (in 1994), it was sold to a West German company (SMAG, Salzgitter), but the privatized firm went bankrupt two years later, in 1996. SKET has produced a considerably large variety of products (e.g., equipment for steel mills) since before reunification. It exported large quantities of goods to the Soviet Union in period of central planning in the GDR, and demand was very stable. However, since reunification (and the dissolution of the Soviet Union), it has not been able to resolve the problems that came with a sharp drop in sales; there were mass layoffs during the privatization process. Eventually, it went bankrupt. Next, in the second privatization process (conducted in 1997–98), five rescue companies were established, and five types of business fields—including machinery and factory construction, equipment for steel mills, closing machines, machinery for production of vegetable oils, and IT services—were classified and concentrated as a specialized field. From 1997 to 1998, the five business segments were successfully taken over by five investors, and each privatized company achieved successful management normalization. Particularly, SKET GmbH was acquired by the ENERCON group (which focuses mainly on wind power), eventually establishing 14 subsidiaries and creating 5,000 jobs. The second case is Kombinat VEB Carl Zeiss Jena (now JENOPTIK AG, Carl Zeiss Jena GmbH). Kombinat VEB Carl Zeiss Jena's main field was optics and electronics industry, and on account of restructuring and privatization, it was divided into JENOPTIK AG and Carl Zeiss Jena GmbH. Dr. Heimpold analyzes the case of JENOPTIK AG, which came temporarily to be 100 percent owned by the federal state of Thuringia. This was a very unique case during the process of privatizing East German corporations. In addition, the government of Thuringia hired Lothar Späth, who was the former Prime Minister of Baden-Württemberg to take over the management responsibility for JENOPTIK. He and his team were very successful in restructuring the JENOPTIK AG. Dr. Heimpold derives a number of implications from the two cases. First, there was a strong need at that time for experts versed in firm restructuring. Developing the "right" corporate concept and making modifications as necessary were obviously the most important preconditions for successful restructuring and privatization. Second, in the process of privatization, active and efficient restructuring should be implemented. Additionally, it is necessary to maintain research and development (R&D) functions, so as to enhance competitiveness and normalize business; this is also important to job-creation policy, as there were many unemployed people (i.e., skilled laborers) following mass layoffs. In conclusion, through his corporate case studies, Dr. Heimpold emphasizes that companies need to undertake appropriate M&As, create employment policies to redress unemployment, and embark upon the R&D needed to maintain the capabilities needed to successfully privatize companies.

Corporate restructuring policy is a core element not only in the aforementioned privatization process, but also with respect to industrial policy. The fourth chapter, "Restructuring Policies in the Process of Privatization: The Case of Jenoptik," is written by Dr. Jeong Hyung-Gon of the KIEP. As mentioned, Jenoptik was separated from its parent company, VEB Carl Zeiss Jena, which had been transferred to the *Treuhandanstalt* in 1990; the federal state of Thuringia then took temporarily 100 percent ownership and it implemented restructuring and management normalization. Jenoptik achieved its break-even point in 1994 and is now considered one of the most successful of East Germany's privatized state-owned enterprises: it achieved a revenue growth rate of 1000 percent in 1998. Dr. Jeong Hyung-Gon emphasizes that during restructuring and management normalization in the East German privatization process, the case of a reunified Korea should be pushed forward so that, under the principle that "rapid privatization is the most efficient management normalization," the restructuring of North Korean state-owned enterprises would be transferred to private investors. In this process, it would be beneficial for North Korean companies to obtain technology, capital, and markets by enacting M&As with South Korean companies. However, if the domestic market structure is likely to become oligopolistic, they should open to foreign investors the door to privatization, to promote competition. In mitigating unemployment and resolving corporate liquidity problems in the early stages of reunification, says Dr. Jeong Hyung-Gon, problems may arise with subsidizing North Korean companies before privatization; however, in terms of competing policies, subsidies are more likely to distort the market, and so it is necessary to establish clear subsidy policy guidelines within the scope of bringing no harm to competing policies. In addition, Dr. Jeong Hyung-Gon emphasizes that in order to promote investment at the outset of Korean reunification and preclude bankruptcy among North Korean companies, the principle of restitution should be excluded and the compensation rule applied, if a company can demonstrate ownership. Furthermore, he highlights that it is important to formulate a labor market integration system, to determine wages appropriate to the productivity levels of North Korean workers.

In the fifth chapter, Matthias Wieschemeyer writes about "Internal Migration in East Germany after Reunification: Demographic and economic effects." By using bilateral migration flow data at the county level, Matthias Wieschemeyer goes beyond the common East-West German perspective, and thus provides a comprehensive analysis of past and recent migration patterns including its future economic implications for East Germany. His report basically reveals two major trends: First, outmigration to West Germany has been continuously decreasing such that in 2015 it reached the level of West to East migration for the first time after reunification. Though massive net outmigration in the 1990s left a lasting mark on the East German demographic structure, current outmigration to West Germany is no longer shaping the demographic structure. Second, Matthias Wieschemeyer shows that at the same time as outmigration to West Germany lost its former importance, internal migration from peripheral counties to major cities within East Germany significantly increased and became a driving force of demographic change. By providing a selection of demographic and economic indicators, he makes clear how East Germany today is facing the challenges of increasing polarization between growing major cities and a decaying periphery accelerated by migration trends.

In the sixth chapter, Dr. Axel Lindner of IWH addresses "Convergence between East German Regions and East–West Migration." Dr. Axel Lindner analyzes post-reunification correlations between the growth of East German regional disparities and East–West German population migration. According to his research, in 2015, the variance of per-capita gross regional domestic product (GRDP) among each German federal state was significantly lower than that among West German states, and it has declined steadily since unification. In addition, following reunification, the real absolute (as opposed to per capita) GDP of East German states followed very different paths. Dr. Lindner demonstrates that this was mainly caused by different levels of decreases in population, due to differently rapid population outflows, most conspicuously, to West Germany. In other words, following reunification, the movement of population from East Germany to West Germany reduced the unemployment rate gap among the East German states, resulting in lower per-capita GDP differentials at the German state level. However, in line with a recent decline in domestic population migration among German federal states and the stabilization of the German labor market, differences in per-capita GDP are expected to increase in the future.

The seventh chapter is a study of the labor market in North and South Korea following reunification. Dr. Kim Bo-Min of KIEP conducted a study and presents a report under the theme of "Korean Labor Market after Reunification: Internal Migration and Unemployment Rates." Dr. Kim discusses population movements and the unemployment rate following reunification. He estimates that seven percent of the North Korean population will migrate to South Korea if complete reunification (similar to that seen in Germany) takes place, while the economic gap between the two Koreas is still present. In addition, based on existing research and data following German reunification, he estimates that North Korea's unemployment rate will temporarily increase to 30 percent. Dr. Kim Bo-Min emphasizes that it is important for the reunified Korean government to avidly pursue active labor policies, such as unemployment training (like that seen in Germany); he argues that it will be important to design programs that anticipate changes in labor demand.

The theme of the eighth chapter is the integration of social security in East and West Germany. Professor Kim Jin-Soo of Yonsei University takes up an "Analysis of Germany's Social Security Integrations for a United Korea's Integration of the Social Security System." Professor Kim Jin-Soo analyzes the process by which Germany's social security system has become integrated, and examines policy implications vis-à-vis the integration of social security in the two Koreas. Professor Kim argues that it is desirable to introduce a social security system gradually—unlike what occurred in Germany—as part of a unified Korea's social security integration plan. In particular, social security integration between North and South Korea would require that, as an action that guarantees the survival of the in-crisis people of North Korea during reunification, there be periods of emergency transition, institutional integration, and institutional settlement. The emergency transition period should play a role in minimizing system confusion by making basic guarantees in the chaotic period immediately following reunification. It is also suggested that a certain level of stability be maintained by using within North Korea the system that currently exists there, and by having policy responses to social stability maintain in-kind wages. Second, the institutional integration period is based on the belief that South Korea's system will be applied to North Korea, and that it will be promoted in the same context as a transition to a market economy. In this case, South Korea's system is clearly integrated. In terms of salaries, it is suggested that the flexible application of differential integration be implemented, depending on the circumstances. The institutional settlement period will be one of unified system settlement; it is suggested that a system that can secure stability in the differential application of the integrated system should be integrated into one system that is substantially integrated and unified.

The ninth chapter is a study of the costs of reunification. This chapter was co-written by Dr. Kim Young-Chan and Dr. Yoon Deok Ryong, and it is entitled "Cost and Financing of National Reunification: Implications of the

German Experiences, Institutions, and Conditions." The authors look at German reunification costs and funding experiences, and draw implications for Korea. In other words, this chapter is an analysis of the system that affected the cost of German reunification, the method of financing, and the financing conditions thereof. They share the same perception: that the costs of reunification can be reduced, contingent on the use of countermeasures. They emphasize the importance of proactive preparation in reducing reunification costs. The basic issue is that preparation reduces economic and income disparities between the two Koreas and maintains the macroeconomic stability of North Korea during the reunification and integration process. In addition, the transplantation of a social security system and the local financial system into the North Korean region will greatly influence the cost of reunification. Therefore, the authors emphasize that it is necessary to form a consensus with full consideration of the timing and method of application to the North Korean region. Additionally, they argue that as everyone enjoys the benefits of reunification, the cost of reunification should be recognized not only by the central government, but also by local governments.

Key Economic Decisions in the Course of German Unification*

Gerhard Heimpold, Maike Irrek†

1. Overview

When in summer and autumn of 1989 a significant number of GDR citizens were able to leave the GDR and migrate to the Federal Republic of Germany (FRG), it could be anticipated that the GDR would not be able to continue existing in its then given form. On November 9, 1989, the Berlin Wall fell, and GDR citizens were able to move freely between both parts of Germany. On March 18, 1990, GDR citizens participated in the first free elections to the People's Chamber. On July 1, 1990, the monetary, economic and social union was established and on September 12, the Two-Plus-Four Treaty concluded. The German unification followed on October 3. During and after this phase, several important decisions were made. Against this background, this paper will give a compact overview of these key decisions and dwell on some of them.

An important determinant of the key decisions and the macroeconomic

* We would like to thank Axel Lindner (IWH) as well as the participants of the fourth meeting of the Korean-German Consultation Committee on Reunification and the discussants at the seminar on "German Unification and Beyond: Its Consequences and Implications for the Korean Peninsula" held in Seoul on December 4, 2014 for their helpful comments. Any errors are our own.

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consequences was the initial situation of the economies in East and West Germany. The larger the gap between the East and West German economies, the more intensively politics would have had to think about the actions to be taken, and the greater the effects on the economic performance could have been.

Table 2.1. Economic situation of East and West Germany in 1991

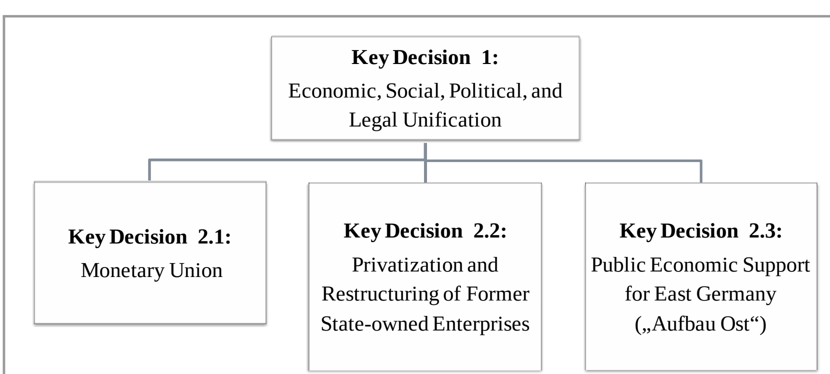
	East Germany*	West Germany**
Population (m)	15	62
GDP per capita (Euro, in current prices)	7,278	22,004
GDP (m Euro, in current prices)	106,493	1,362,368
Net stock of fixed assets per capita (Euro, at replacement cost)	22,897	66,514
Net stock of fixed assets (m Euro, at replacement cost)	335,022	4,118,130

Notes: * East Germany without Berlin; ** West Germany without Berlin.
Sources: Regional Accounts VGRdL 2014a, online source, n.p.; Regional Accounts VGRdL 2014b, online source, n.p.

Table 2.1 contains basic information about the relative economic situation in 1991. The population of East Germany was 15 million and that of West Germany 62 million, which represents a ratio of 1:4. At the same time, the ratio of Gross Domestic Product (GDP) was roughly 1:13, implying a ratio of GDP per capita between East and West Germany of 1:3. The lower potential of the East German economy can, among other things, be ascribed to the lower endowment with capital. While the net stock of fixed assets per capita was EUR 66,514 in West Germany, the East German economy was only equipped with a third of this capital per capita.

Furthermore, the initial situation in East Germany can be characterized by economically beneficial and adverse preconditions for unification. Factors that were advantageous for economic unification were the approximately similar qualities of education in East and West Germany, the availability of knowledge about the western system in East Germany acquired through western television and personal contacts, and the low barriers to labor mobility thanks to the common language. Thus, the endowment with human capital, meaning the personalized knowledge and abilities that can be used in the production process, was not vastly lower in East Germany. Merely, the human capital acquired by and needed for specific production processes could be anticipated to become partially obsolete as the economic system shifted. However, the economic system in East Germany implicated several adverse preconditions for the quick and successful unification of both economies. The foreign trade of the East German economy was focused in a one-sided manner on the markets of the Council for Mutual Economic Assistance (COMECON), while research and development (R&D) was mainly imitation-oriented. The enterprise sector consisted primarily of large industrial units ("Kombinate"), the production of which followed the autarky principle. Private firms had been marginalized for ideological reasons.

Figure 2.1. Overview of key macroeconomic decisions during the German unification



Source: Presentation by IWH.

The key macroeconomic decisions made in the course of the German unification are stated in Figure 2.1. The first and fundamental Key Decision 1 concerned the process of political and legal unification. The alternative would have been to take gradual steps towards German unification, as proposed, for example, by the West German chancellor in the German Parliament in November 1989 (Deutscher Bundestag 1989). A gradual proceeding could have included economic reforms in the GDR, contractual relationships with West Germany, a confederation, and finally the unification. With respect to the mode of unification, an agreement was reached between the East and West German governments that the West German political and legal systems should be instantaneously adopted by the GDR by accession to the area of application of the Basic Law.

Key Decision 2.1 comprised the monetary policy with regard to the German unification. The decision was to form a Monetary Union of East and West Germany with exchange rates of 1:1 for money flows such as wages and rents, and 1:1, 2:1 or 3:1 for money stocks. Alternatively, monetary reforms could have been carried out by the East German Central Bank, including such possible actions as the limitation of convertibility, "free floating" and a currency board (Paqué 2009, pp. 30-33).

The aforementioned adverse economic preconditions required a strategy for the transition of the East German enterprise sector. The decision is summarized in Key Decision 2.2: State-owned firms were to be privatized quickly, because privatization was regarded as the most effective way of restructuring the firms. Opponents of rapid privatization suggested continuing to operate the state-owned firms temporarily, and restructuring the enterprises before they were privatized. In fact, the economic policy was decided in favor of rapid privatization because the temporary continuance of state-owned firms would have implied a higher responsibility for the state regarding individual business decisions than recommended by economic theory.

It can be deduced from the above decision that the enterprise sector of East Germany would be transformed completely within a short period of time. Discussions took place on what type of public economic support would be necessary to support the new enterprises and jobs in East Germany (Key Decision 2.3). A decision was made in favor of subsidizing investment in physical capital, and against subsidizing wages and subsidizing value added.[1)]

Table 2.2. Overview of general types of subsidies

	Capital-Oriented Subsidies	Wage-Oriented Susidies	Support Related to Value Added
Effect on Relative Prices	Distorts relative prices Higher capital intensity compared to a situation without subsidy	Distorts relative prices Higher labor intensity compared to a situation without subsidy	Does not distort the relative prices of capital and labor
Pros	Respond directly to the problem of an obsolete capital stock	More employment in the short and medium terms	Incentive to relocate value creation to East Germany
Cons	Incentives for increasing capital stock do not fit the lack of employment	Danger of permanent subsidization More expensive	Discriminates risky in-vestment Could induce a merely apparent relocation of value creation

Source: Presentation of IWH, based on Heimpold and Junkernheinrich 1995, pp. 371-392.

Table 2.2 shows the general pros and cons of these three forms of subsidies. While capital-oriented subsidies and wage-oriented subsidies distort relative prices in favor of the subsidized production factor, thus leading to a higher endowment with this production factor compared to a scenario without the subsidy, support related to value added does not have an effect

1) The support related to value added ("Wertschöpfungspräferenz") was a proposal by the BDI – The Voice of German Industry. It entailed a subsidy on the value added of firms in East Germany, the assessment base being the sales revenue minus intermediate consumption and minus depreciation (see BDI 1993, p. 5).

on the relative prices of labor and capital. The problem of the obsolete capital stock is directly addressed by capital-oriented subsidies, whereas employment will not necessarily increase. To this end, a wage-oriented subsidy might be regarded as a suitable instrument. It would induce more employment in the short and medium -terms. However, wage-oriented subsidies involve the danger of permanent subsidization and are more expensive. The support related to value added is meant to create an incentive for the relocation of value creation to East Germany, but discriminates risky investment as revenues are the assessment base for the subsidy and could lead merely to apparent relocation to East Germany.

Taking into account the pros and cons, economic policy was formulated to provide support for the modernization of physical capital. The following Section 2 will deal in detail with the justification, instruments and effectiveness of this strand of support. It is followed by a subsection on the efforts to establish private small and medium-sized firms through privatization.

2. Focus on support for the modernization of physical capital

2.1 Economic and administrative justification

Economic justification

When the centrally planned economy of the GDR collapsed, the obsolete physical capital stock was one of the most obvious shortcomings. It led to low productivity. Moreover, the worn-out equipment induced the considerable pollution of air, water and soil. A growing proportion of the workforce was employed in repair and maintenance to keep the machinery and equipment running (Deutscher Bundestag 1998, p. 67 f.).

Against this background, economic policy after the German unification placed priority on the modernization of the physical capital stock. Aside from the evident shortcomings regarding the obsolete physical capital stock, there were several other reasons for this decision.

Immediately after the introduction of the Deutschmark on July 1, 1990, state-owned enterprises lost their competitive edge. They came under pressure in terms of both costs and sales. The 1:1 exchange rate for wages translated into a de facto revaluation. In addition, wages increased rapidly, exceeding the productivity growth. At the same time, sales dropped sharply due to the collapse of the COMECON market overnight. Thus, the overwhelming majority of state-owned enterprises were unprofitable, incurring losses instead. This led to the question of how to overcome such difficulties. A number of economists, for instance A. Akerlof *et al.* (1991, pp. 1-105), regarded the provision of wage subsidies as an appropriate solution. Opponents emphasized that these kind of subsidies would result in implementing a bottomless pit. Instead, capital-oriented subsidies were regarded as an instrument suitable for minimizing the risk of permanently subsidizing production. This is because investment-related subsidies were expected, contrary to wage subsidies, to give a one-time impetus.

The specific instrumental design of public subsidies for the modernization of physical capital was another reason for giving priority to this measure. The subsidies for the modernization of physical capital were mainly implemented in the form of non-repayable grants. If enterprises received the respective grants, the banking sector regarded these grants as a de facto improvement of endowment with collateral (Bericht des Bundesministeriums der Finanzen, no date of publication, p. 3). Thus, receiving the grants created a precondition for further investment funding by loans.

Administrative justification

Another reason for choosing capital-oriented subsidies was of an administrative nature. Capital-oriented subsidies belonged to the toolbox of regional policy in West Germany in the 1970s and 1980s. They were used, for instance, as support schemes for the economically weak West German regions located on the western side of the inner German border. The corresponding laws and administrative regulations were ready to be swiftly implemented in East Germany. There was an urgent need for support that could start immediately, due to the great pressure of time and the rapid rise in unemployment. In fact, there was no room for the development of tailor-made concepts. Thus, the adoption of the West German toolbox in East Germany helped initiate economic support immediately after unification.

Taking over the West German toolbox of capital-oriented subsidies had another advantage: West German investors that formed an important target group of economic support policy in favor of East Germany were familiar with these instruments. They were experienced in applying these schemes. The same was the case with West German civil servants who played an important role, especially in the early years after German unification, when it came to the establishment of a modern public administration at the federal state level and local level in East Germany. They were familiar with the corresponding administrative procedures.

2.2 Instrumental setting

The policy schemes were focused on enterprises as well as on infrastructure, for both capital stock in the enterprise sector and public infrastructure were obsolete in the eastern part of Germany in the late 1980s.

Investment support for enterprises

The policy schemes for the modernization of physical capital in the enterprise sector largely consisted of the following:

- Investment grants;
- Special depreciation allowances; and
- Loan schemes.

Investment grants

With respect to grants, two types existed.

Type 1 was represented by grants that were available on the basis of a legal claim (German notion: "Investitionszulage") (see, for instance, Investitionszulagengesetz 1996). If the potential beneficiary met the preconditions prescribed in the corresponding law, he received the grant. This type of support was provided from 1990 until 2013. The automatically provided grants represented tax-free revenue. The provision of this type of grant occurred at the expense of income and/or corporate tax (Ragnitz 2003, p. 14, footnote 10).

Type 2 consists of grants that were and are still provided at discretion (German notion: "Investitionszuschüsse"). This kind of grant is part of the so-called Joint Task "Improvement of the Regional Economic Structure" (Koordinierungsrahmen 2014). It is a regional policy scheme that was introduced in West Germany in the late 1960s, and was transferred to East Germany after unification. It is an ongoing support scheme. This mode of support requires a specific application procedure at the federal state level. After receiving an application, the economy ministries in the individual federal states each make decisions on whether they will provide a grant to an investment project. The decision has to be in line with joint regulations set by the federal authorities and federal state authorities. The federal states can modify these regulations, but the commonly fixed rules can only be interpreted as more restrictive and not broader by the federal states (for an example of a federal state regulation, see: Ministerium für Wissenschaft und Wirtschaft 2014, pp. 481-487). The joint regulations also prescribe the maximum possible rates of subsidization, which differ between East and West Germany, and the subsidy rate depends on the size of the firm. The actual subsidy rate provided can be smaller compared with the regulations, but not larger. The maximum rates of subsidization must be compatible with the state aid regulations set by the European Union (Europäische Kommission 2013). The provision of this type of grant is at the expense of the federal budget and of the budgets of the East German federal states, whereby the burden is shared 50 to 50. In addition, the European Fund for Regional Development (ERDF) can contribute to this funding. Unlike the grants of Type 1, the grants of Type 2 represent revenues that are liable to tax.

Special depreciation allowances

Aside from investment grants, special depreciation allowances were available in the 1990s (Fördergebietsgesetz 1991). They de facto represented an interest free tax-deferral (Richter *et al.* 1994, p. 13). The nature of a special depreciation allowance requires the potential beneficiary to be in the profit zone. The use of the special depreciation allowances was at the expense of income and/or corporate tax.

Loan schemes

In addition, public support for the modernization of capital stock consisted and still consists of loan schemes. One of the most important loan schemes was implemented under the umbrella of the European Recovery Program (ERP), and was managed by the "Kreditanstalt für Wiederaufbau" (KfW) and the "Deutsche Ausgleichsbank" (DtA). Later, DtA was integrated into the KfW. This scheme existed in West Germany and was implemented in East Germany in February 1990, even before the Monetary Union came into force (KfW 2014). The ERP loan scheme was characterized by subsidized interest rates and favorable time spans for repayment. In the early 1990s, the conditions for ERP loans were more favorable in East Germany than in West Germany. The ERP loan schemes continue to exist.

In the meantime, the conditions are, more or less, equal in East and West Germany. ERP loans were and are still designated to support small and medium-sized firms (SME) and startups. For the latter, a specific strand of ERP loans (German notion: "Eigenkapitalhilfe-Programm") existed, and represented so-called subordinated debts. It provided support to startups and young firms that did not possess appropriate collaterals. The ERP represents a Federal Special Fund ("ERP-Sondervermögen").

Investment support for infrastructure

There was and is still a broad range of support schemes to modernize the infrastructure in East Germany. Two examples should be mentioned: first, investment grants for the establishment and modernization of *enterprise-related infrastructure,* and second, *unification-related transportation infrastructure projects*.

Grants for enterprise-related infrastructure

Grants for enterprise-related infrastructure are also provided within the framework of the Joint Task "Improvement of the Regional Economic Structure." The beneficiaries are municipalities. Enterprise-related infrastructure consists of investments in the establishment or modernization of the following:

- Industrial sites;
- Business incubators;
- Enterprise-related transport, supply and disposal infrastructure;
- Communication infrastructure;
- Vocational facilities;
- Tourism-related infrastructure; and
- "Intangible" infrastructures, for example, the management of cluster initiatives (Koordinierungsrahmen 2014, pp. 24-37).

The rates of subsidy are higher than the rates for enterprises (Koordinierungsrahmen 2014, p. 25, compared with p. 16 F.), but in each case, the municipality has to bring in its own financial resources. Similar to the grants of Type 2 for enterprises (see above), the infrastructural grants are at the expense of the federal budget and of the budgets of the East German federal states, whereby the burden is shared 50:50. In addition, the ERDF has contributed to this funding.

Unification-related transportation infrastructure projects

Unification-related transportation infrastructure projects ("Verkehrsprojekte Deutsche Einheit VDE") were of great importance for the modernization of infrastructure in East Germany. Based on preparatory planning activities, the federal government gave priority to several large investments in transport infrastructure in April 1991 (the information provided in this paragraph is from BMVBS 2013, p. 2). The planning scheme consisted of nine railway projects, seven motorways and one waterway. Altogether, because of the planning documents, the investment volume amounted to EUR 39.4 billion. The need for vast investments in transport infrastructure had its origins in the long-lasting neglect of investments in the centrally-planned economy of the GDR. Moreover, the German unification and the fall of the iron curtain led to a re-orientation of transport flows: The West to East direction rapidly gained importance while the connections were not appropriately developed in quantitative and qualitative terms. Twenty-two years later, in 2012, the realized investment volume amounted to EUR 33.9 billion; of which EUR 16.2 billion for railways, EUR 15.1 billion for roads, and EUR 1.6 billion for waterways. The funding mainly came from the federal budget. For certain projects, funding was provided by the ERDF.

Support for other kinds of infrastructure

The enumeration of support for the infrastructure listed above is not exhaustive. There was a broad range of other infrastructural facilities, which were supported by public funding. Almost each kind of infrastructure was modernized. To illustrate, numerous facilities in the education and health care sector, culture and sports were modernized or even newly established. The city and town centers were renovated, and historic buildings were reconstructed. Rural regions received specific infrastructural support. Much was invested in the modernization of supply and disposal infrastructure to meet European environmental standards. In addition, the housing sector received massive support for modernization and energy conservation measures. Moreover, a specific support scheme was designated to tear down industrially built housing blocks that consisted of concrete slabs, which showed vacancies because of the demographic change. The modes of funding were different. Partly, the federal government and the federal state governments jointly funded certain investments in infrastructure, for example, for the modernization of universities, for rural development, and for the recultivation of brown coal mines that had been shut down. Partly, the municipalities used loans to modernize local infrastructure. In numerous cases, the European Union co-funded investments in infrastructure in East German regions. In other cases, vertical fiscal transfers from the federal budget to the budgets of the East German federal states were designated exclusively for investments in infrastructure (FAG, 2001, § 11(3)). These transfers were part of the so-called "Solidarity Pact II" ("Solidarpakt II"). Not in every case was the support for investments in infrastructure exclusive to East German states - partly, the support was and is still based on federal legislation to regions in East and West Germany.

2.3 Effectiveness

Investment support for enterprises

The majority of the evaluation studies concerned the effectiveness of regional policy *grants (Type 2)*. The study elaborated by Bade and Alm found that investment grants have a positive impact on employment, compared with non-beneficiaries (Bade and Alm 2010, p. XII F.). This study is based on a statistical matching procedure to compare pairs of enterprises that differ only with respect to whether they are recipients. The other characteristics were largely similar. However, a report conducted by a consortium of economic research institutes in Germany found that, regardless of the positive impacts on investment and employment, windfall profits existed (DIW *et al.* 2003, p. 180). According to this study, one-third of investments per employee were subject to windfall profits. Windfall profits are considered to have occurred if the enterprise would have invested even without subsidies. If the grant had a positive impact, it enabled the enterprise to invest at all, or to invest more or earlier compared to a situation without subsidy.

Differences were highlighted in the occurrence of windfall profits depending on the type of grants. They are higher in the case of *grants of Type 1* compared to Type 2 (DIW Berlin *et al.* 2003, p. 180). Moreover, a firm survey, conducted in the federal state of Thuringia, reveals that small firms more often regard investment incentives as more important than larger firms (GEFRA/MR/TraSt 2004, p. 67). This study also found that it is not the investment subsidy alone that is decisive for the investment of enterprises. According to this study, it is usually a broad bundle of factors that shape the quality of a certain location. According to the firm survey cited above, apart from investment incentives, the availability of a skilled workforce, labor costs, and the accessibility of a location by road transport were the most important factors (GEFRA/MR/TraSt 2004, p. 66).

Another study focused on the economic impact of *ERP loan schemes*. The findings covered not only East Germany, but Germany as a whole. According to this study, firms that received support performed better than firms that did not receive ERP loans (Rambøll Management Consulting 2011, p. 4).

With regard to *grants for enterprise-related infrastructure*, a study conducted by IWH on behalf of the Ministry of Economics, Labor and Transport in Saxony shows a positive impact of investments at the municipal level on gross value added, whereby it was supposed that investment grants under consideration have a positive impact on total investments at the municipal level. However, the effect is visible only after a time lag of three years in Saxony (IWH 2012, p. 30 F).

Although several studies found positive effects of grants for investments in enterprise-related infrastructure, certain drawbacks were recorded. First, there was, at least partly, an incorrect assessment of demand for certain types of infrastructure. There were individual cases in which the supply of industrial or business sites exceeded the demand (see, for instance, GEFRA/MR 2011, p. 148 F.). The overassessment of demand especially concerned sites outside urban regions and occurred particularly in the early 1990s. At that time, spatial planning, which is designated to coordinate land use, was in its early stages in East Germany. Second, in individual cases, local politicians yielded to the temptation of investing without appropriately taking the follow-up costs into consideration. This was, in particular, the case with a number of tourism-related baths (see the example in Engelbrecht 2014).

2.4 Lessons to be learned

Takeover of well-known instruments allowed rapid implementation

Implementing several instruments for investment support in East Germany that were previously in use in the western part of the country enabled the commencement of support immediately following the German unification. Both West German investors as an important target group and West German civil servants were familiar with these instruments. The latter supported the establishment of a new administration at the federal state and at the local level in the early 1990s. The takeover of well-known instruments made it possible for support schemes to run within a few months. There was an urgent need to begin providing support as soon as possible, for several hundreds of industrial workplaces were lost every day in the year 1990/1991 due to the lack of competitiveness.

Predictability of benefits helped compensate for wide-spread investment barriers in the early years

The legal claim for grants of Type 1 (see subchapter 2.2) was a very important feature of support in the early years of restructuring the East German economy because it represented a predictable benefit for investors. At that time, investors faced a range of disadvantages across East Germany, for example, unclear property rights, environmental pollution, inappropriate infrastructure, and administrative shortcomings. The predictability of getting an investment grant made it easier for them to undertake an investment in East Germany regardless of the disadvantages mentioned. Later, the disadvantages mentioned above widely disappeared and the quality of East German locations has improved considerably, but continues to show a distinction. Taking this spatial differentiation of location quality into consideration, grants of Type 2 that were and are still provided discretionarily might have some advantages, for example, by lowering windfall profits.

Evaluation requires the examination of causal effects and an anticipative data collection

Although numerous support schemes had undergone evaluation procedures from the very beginning, the methods and quality of evaluation showed a great distinction. The majority of evaluation studies at the time were not capable of providing findings on causal effects. The regulations of the support schemes initially did not anticipate the requirements of evidence-based evaluation methods, especially with respect to comparison with a control group of non-beneficiaries. Admittedly, this was hardly possible at the time because almost every firm in East Germany received support if it met the requirements set out in the corresponding regulations for support. Recently, there have been some examples of "good practice" in terms of showing causal effects with regard to active labor market policy, partly with respect to regional policy. However, identifying causal effects requires an anticipative data collection. Data collection should be considered when the support program is formulated.

Financial support to firms for the modernization of physical capital was necessary but not sufficient

The instruments for supporting the modernization of physical capital altogether represent fiscal incentives. However, it has become obvious in the course of economic development in East Germany since 1990 that financial support to firms was necessary, but not sufficient for regaining competitiveness. In particular, East German firms that did not have their origins in a mature market economy had a strong need for information and advice because rapid firm growth in the early stage of development required appropriate management. Although support for physical capital was necessary, the economic convergence did not only depend on physical capital. It also depended and still depends on human and social capital.

Assessing actual needs and follow-up costs is an important precondition for investments in municipal infrastructure

The fact that a number of individual infrastructural projects exceeded the demand, were oversized, or did not consider follow-up costs appropriately, points to the need to properly assess the demand. A well-developed spatial planning system (land use planning) and the systematic consideration of demographic change may help avoid oversupply. Moreover, in the case of infrastructural facilities at the local level, inter-municipal cooperation can improve the effectiveness and efficiency of publicly funded infrastructure.

Focusing on the tradable sector

Economic support programs in favor of East Germany strictly avoided the selection of individual industries, for instance, mechanical engineering or the food industry, as subjects of support. Instead, initially, grants of Type 1 were available for all industries. Later, grants of Type 1 were focused on investments in the manufacturing sectors and enterprise-related services (Bundesministeriums der Finanzen, no date of publication, p. 3). Grants of Type 2 for enterprises have been concentrated on beneficiaries that have extra regional sales. As reindustrialization formed the most challenging task of economic recovery in East Germany, the growing focus on the manufacturing sector met an urgent need.

3. Privatization - The case of the SME campaign

3.1 Motivation for starting an SME campaign

Private SMEs were marginalized for ideological reasons under the central planning regime of the GDR. The remaining private enterprises, especially in the manufacturing sector, were nationalized in the early 1970s. Thus, small- and medium-sized private manufacturing enterprises disappeared at the time. There were only 100,000 small private enterprises at the end of the 1980s, of which approximately 80,000 were crafts enterprises (Bundesministerium für Wirtschaft 1993, p. 283). Thus, the eastern part of Germany suffered from a lack of entrepreneurial spirit, managerial experience, and financial capital, when the transition to a market economy began.

With this in mind, the German Privatization Agency (treuhandanstalt) introduced an SME campaign ("Mittelstandsinitiative"). It was designated to sell firms to persons who belonged to the management of former state-owned enterprises (management buyout [MBO]). In this context, guidelines for MBO privatization were elaborated and implemented by the Privatization Agency in March 1991 (Treuhandanstalt 1991/1994, pp. 224-231).

Table 2.3. Industrial trusts ("Kombinate") in the GDR economy, 1988

	Centrally Planned			Planned by District Authorities		
	Number	Employees, 1000	Average Number of Employees per Trust	Number	Employees, 1000	Average Number of Employees per Trust
Manufacturing	126	2686.7	21,323	95	197.3	2,077
Construction	21	250.8	11,943	31	154.6	4,987
Transport	3	36.9	12,300	17	149.5	8,794
Agriculture, Forestry and Food Industry	15	101.9	6,793			
Other	8	60.8	7,600			
Total	173	3137.1	18,134	143	501.4	3,506

Sources: Staatliche Zentralverwaltung für Statistik (Hrsg.): Statistisches Jahrbuch 1989 der Deutschen Demokratischen Republik. Herausgegeben von der Staatlichen Zentralverwaltung für Statistik, 34. Jahrgang, Berlin: Staatsverlag der Deutschen Demokratischen Republik, 1989, p. 103; calculations by IWH.

Under the planning regime of the GDR, a centrally planned industrial trust had, on average, approximately 21,000 employees (Table 2.3). They were too big to be privatized as entire units. Moreover, the large industrial trusts represented the wrong type of division of labor. They followed the autarky principle by answering the question "Make or Buy," usually in favor of "Make." This resulted from the scarcity of resources under the centrally planned economy. Privatizing former state-owned enterprises by management buyout required, first, the division of large industrial trusts ("Kombinate") (Deutscher Bundestag 1994, p. 78).

The process of splitting up the large industrial trusts enlarged the portfolio of the Privatization Agency. Initially, 8,500 enterprises belonged to the portfolio. After the divisions, 12,672 entities existed (Treuhandanstalt 1994, p. 221).

3.2 Instruments for the support of privatization through MBOs

The SME campaign was comprised of a broad range of measures designated to enhance privatization through MBOs. There were several types of measures, as follows:

- *Advice;*
- *Easing the MBO* by reflecting the specific needs of East German buyers;
- *Financial support.*

(The following overview on MBO-related support measures and on the implementation practice stems from the Federal Ministry of Finance, cited in Deutscher Bundestag 1994, p. 430).

Advice

In the case of MBOs, grants were available for using advisory services. This grant covered the costs of advisory services to up to 80 percent, in absolute terms 10,000 D-mark (DM) at maximum. Subject to this advisory service was the elaboration of corporate and financing concepts.

Easing the MBO

With the limited financial resources of East German employees in mind, the Privatization Agency offered a range of measures to make the MBO easier. In this context, there was the option of privatization without real estate. Instead, temporary leasing was possibly associated with a purchase option. Moreover, firms were split into smaller parts, and spin-offs occurred in parts of the firm that were unnecessary for running the business. If necessary, current assets were reduced by splitting up parts that were not instrumental to business operation. In addition, a belated right to bid was offered under certain circumstances if a rival bid was more attractive.

Financial support

Financial support was provided through temporary delays of parts of payment, that is, through interest-bearing installments. Moreover, there was an option for the temporary continuation of loan guarantees.

Implementation practice

Because of the information provided by the Federal Ministry of Finance, 32 percent of MBOs made use of a delay of at least three months for parts of the purchase price. Moreover, in 44 percent of MBOs the purchase price was paid in installments. A total of nine percent of the MBOs signed a lease contract. The purchase of additional real estate facilitated the collateralization.

3.3 Results of privatization through MBOs

Quantitative results

In *quantitative terms*, 2,983 enterprises were privatized through MBOs and management buy-ins (MBIs) (Table 2.4). They represented approximately 35 percent of all privatized firms (as of December 31, 1994).

Table 2.4. Ownership structure after privatization in East Germany

Type of Result	Enterprises		Type of Ownership	Enterprises	
	Number	%		Number	%
Liquidation	3,718	30.57	-	-	-
Transfer to municipal property	310	2.55	Municipality	310	3.67
Re-privatization	1,588	13.06	Former owner	1,588	18.81
Privatization	6,546	53.82	MBO/MBI	2,983	35.33
			West German investor	2,703	32.01
			Foreign investor	860	10.18
Total net	12,162	100.00	Total	8,444	100.00
	192		Privatization agency	192	
Gross	12,354				

Source: Institut für Wirtschaftsforschung Halle 1999, p. 1841 based on Bundesanstalt für vereingungsbedingte Sonderaufgaben: Abschlussstatistik; calculations by IWH.

Qualitative results

With regard to *economic performance*, there were concerns with respect to the economic survivability of MBOs. These concerns originated from the fact that East German citizens suffered from a lack of financial resources and managerial experience. In 1995/1996, IWH conducted an analysis of the economic performance of MBOs in East Germany. The analysis was based on a questionnaire-based firm survey. The IWH study found that the majority of MBOs were relatively successful. Of 601 respondents, 47 percent of them were classified as having good initial conditions and a tendency to stabilize (Type 1). A total of 36 percent were growth-oriented but faced considerable challenges of liquidity and sales problems (Type 2). A total of 17 percent had large needs for restructuring and consolidation (Type 3) (Heimpold *et al.* 1996, pp. 3-8, especially p. 7).

3.4 Lessons to be learned

From the identification of three types of MBOs, different needs for support were derived at the time (for the following policy implications, see Barjak *et al.* 1996, p. 185 F.).

- The MBOs that were classified as having good initial conditions and a tendency to stabilize (Type 1) were regarded as strong enough to survive. In addition, the enterprise-related support schemes as described above in sub-chapter 3.2 were regarded as appropriate to further enhance the economic development of these firms.
- MBOs that showed liquidity and sales problems (Type 2) obviously faced difficulties in the management of rapid firm growth. Therefore, the policy implications were twofold: first, strengthening equity and, thus creating a financial leeway; and second, management support to cope with the challenge of rapid firm growth.
- If MBOs according to this study showed a large need for restructuring and consolidation, there was no simple policy solution. In some cases, there was an urgent need for financial support to keep the enterprises solvent. For this purpose, a specific funding facility was created and was available under certain circumstances for enterprises in East Germany that had a strong need for financial consolidation (see Bundesministerium für Wirtschaft 1995, p. 38-42). However, "fresh money" alone was not sufficient to manage the successful development of the respective firms. In addition, there was a strong need for management support, because the problem of liquidity often resulted from wrong management decisions.

To sum up, MBOs were a successful way for privatization, practiced complementarily to other modes of privatization, especially for West German and foreign investors. However, MBOs made it clear that there is a specific need for advice. Initially, the new management must make considerable efforts to identify existing weak points. After that, public support infrastructure may prove to be helpful.

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Restructuring of Industrial Enterprises in the Course of Privatization in East Germany

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1. Introduction

The subject of this paper is the restructuring of industrial firms in the course of privatization in East Germany. The paper is motivated by the controversial debate on the sequence of privatization and restructuring that arose in the East German context in the early 1990s, when the pace of privatization slowed down and strong de-industrialization occurred. Moreover, how firms can regain competitiveness is also of interest beyond the East German case. Recent industrial development, especially the worldwide shift of standardized mass production to places of low production and energy costs raises questions about the future of the manufacturing sector in highly developed economies. Moreover, there is back-coupling on whether the decisions made in East Germany in the 1990s paved the way for long-term competitiveness.

With this in mind, the contribution starts with an overview on the notion of restructuring and the debate on the sequence of restructuring and privati-

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zation in East Germany (Section 2). Section 3 provides two examples of the restructuring of large industrial firms in East Germany. It will examine which restructuring measures occurred before and after privatization, which measures were successful, which failed and why. Though general conclusions cannot be derived from individual cases, Section 4 will present some final remarks on what the cases under consideration imply (Section 4).

2. Restructuring in the context of privatization in East Germany

An analysis conducted by the Ministries of Finance and of Economic Affairs of the GDR in June 1990 found that 30 percent of East German firms were in acute financial distress (Breuel, 2005, p. 15). Even if this was not the case, almost every state-owned firm faced the challenge of restructuring, because the eastern sales area had collapsed. Restructuring in general terms, as legal experts emphasize, comprises a wide range of measures suitable for managing a firm crisis by removing illiquidity and regaining profitability (Jung, Brinkmann, 2016, p. 90 with reference to Böckenförde 1996, p. 7).

The East German Privatization Law (Treuhandgesetz), adopted on June 17, 1990, considered a strong relationship between restructuring and privatization. According to this law, the Privatization Agency's mission was restructuring the East German economy in line with the needs of the market. This meant impacting firms regarded as economically survivable to enhance their competitiveness, in order to privatize them. This might comprise measures to demerger firms to create economic entities fit for a market economy (Gesetz zur Privatisierung und Reorganisation des volkseigenen Vermögens 1990, § 2 (6)). The Privatization Agency gave priority to restructuring by new private investors, but it also provided support for restructuring before privatization based on a sound corporate concept (Leitlinien der Geschäftspolitik der Treuhandanstalt, 1992, p. 181; Richtlinien als Grundgesetz, 1993, p. 179). Putting emphasis on privatization as the best way of restructuring did not, however, completely exclude restructuring activities before privatization. The "Guidelines of Treuhandanstalt's Business Policy" considered the possibility of providing support for restructuring before privatization. A sound business concept elaborated by the firm's management and approved by the supervisory board was the precondition for support by the Privatization Agency (Leitlinien der Geschäftspolitik der Treuhandanstalt, 1992, p. 181). This means that the Privatization Agency practiced a decentralized approach toward restructuring, for which the firms were in charge, completed by public financial support (Deutscher Bundestag. 12. Wahlperiode, 1994, p. 231). Though restructuring before privatization was in principle considered an opportunity in the guidelines cited, the actual privatization policy conducted by the Privatization Agency was criticized, especially by trade unions and the workers' representatives. The criticism mainly concerned the supposedly existing restraint with regard to product and process innovation in the restructuring period before privatization (see e. g. Nolte, 1995, pp. 66-87, especially, p. 77). Critics regarded the restructuring approach pursued by the Privatization Agency as too passive for focusing on layoffs and other measures of cost-cutting, but they recognized a certain change in the privatization policy since the autumn of 1992, in favor of restructuring before privatization (Nolte, 1995, pp. 77-80).

In practice, the decision by the Treuhandanstalt on privatization and restructuring was prepared by the so called Executive Committee (Leitungsausschuss), consisting mainly of consultants and accountants experienced in restructuring firms (this and the following information is from Deutscher Bundestag, 12. Wahlperiode, 1994, p. 69 f.; Schwalbach unter Mitwirkung von Gless, 1993, pp. 177-210, especially p. 187). The Executive Committee did not belong to the

Privatization Agency. It was independent and provided advice to the Privatization Agency‘s board and the directorates. The committee assessed corporate concepts and the progress in its implementation. If necessary, on-site visits of firms took place.

A standardized classification scheme was used; it assigned the firms under consideration to one of the following six types (the following information is a shortened extract from Schwalbach unter Mitwirkung von Gless, 1993, pp. 177-210, especially p. 187, based on THA-Handbuch “Aufgabenspektrum und Lösungswege”):

- 1st: firm is profitable, rapid privatization;
- 2nd: predicted to reach profit zone, minor need for restructuring, rapid privatization;
- 3rd: business concept seems to promise success; a private investor is available or—if the concept seems successful without an investor—nevertheless is trying to privatize the firm rapidly (includes sub-categories);
- 4th: feasibility of restructuring seems to be given, business concept inappropriate, thus alternative concepts required (includes sub-categories);
- 5th: feasibility of restructuring is questionable, in-depth investigation required;
- 6th: no feasibility of restructuring, insolvency or liquidation (includes subcategories).

3. Restructuring cases in East Germany

This section serves as an illustration of how restructuring occurred prior to and after privatization. For the purpose of illustration, two cases were chosen:

The first case is the former VEB Schwermaschinenbau-Kombinat “Ernst Thälmann” (SKET) Magdeburg, a heavy engineering firm. The headquarters of this former state-owned firm was the starting point for five private small and medium-sized firms.

The second case is the former Kombinat VEB Carl Zeiss Jena. This was a prestigious large company in the optics and electronics industry, which successfully underwent restructuring and privatization. Its headquarters was located in Jena, Thuringia. After German unification, the former state-owned trust was split into two firms, which today operates as JENOPTIK AG and Carl Zeiss Jena GmbH.

The two cases were chosen because of their different development paths. The first attempt to privatize SKET failed, and the firm became bankrupt. The second attempt was successful, but it was associated with a very strong decline in employment. The second case, the privatization of the former Kombinat VEB Carl Zeiss Jena, was successful and represents a rare case of maintaining and modernizing a company headquarters in East Germany.

3.1 VEB Schwermaschinenbau-Kombinat "Ernst Thälmann" (SKET), Magdeburg and its successor firms

Restructuring before privatization

This case concerns VEB Schwermaschinenbau-Kombinat "Ernst Thälmann" (SKET), Magdeburg. It consisted of 19 firms (Zentralgeleitete Kombinate der Industrie und des Bauwesens nach Ministerien, 1993, pp. 379-381, especially p. 379). Prior to the Monetary, Economic and Social Union, eight firms of VEB Schwermaschinenbau-Kombinat "Ernst Thälmann" (SKET) Magdeburg underwent a formal legal transition from "VEB" into limited liability companies (GmbH); they were assigned to SKET Schwermaschinenbau AG, a joint stock company representing a holding (Ladwig, 1993, pp. 271-282, especially p. 272). The holding and its subsidiaries were assigned to the Privatization Agency when the Monetary, Economic and Social Union was introduced in mid-1990.

McKinsey, a consulting firm, analyzed the strengths and weaknesses of SKET Schwermaschinenbau AG. Due to this analysis, the heterogeneity of the product range, the large number of locations, the strong dependency on eastern markets and low productivity were regarded as the most significant weak points, while the expertise on markets in the former Soviet Union, a highly motivated staff and the existing know-how with regard to SKET's core business and how to manage large projects were mentioned as strong points (Ladwig, p. 274). To improve productivity and regain competitiveness, mass layoffs took place in the early 1990s: The number of employees fell from 12,600 employees at SKET Schwermaschinenbau Magdeburg GmbH (SKET-SMM) in June 1990 to 3,552 in mid-1993 (Neumann, Pokrzywnicki, 1993, p. 12). Only a small minority (243) of those who were dismissed found new jobs on the regular labor market at that time (ibid.). As the number of jobs that were lost was much greater than the number of newly created workplaces, an active labor market policy filled the employment gap to a certain extent. To illustrate, publicly funded job creating schemes (Arbeitsbeschaffungsmaßnahmen) were implemented for remediation and disposal purposes on obsolete production sites (Neumann, Pokrzywnicki, 1993, p. 12; Ladwig, 1993, p. 277). In addition, numerous workers underwent retraining (Neumann, Pokrzywnicki, 1993, p. 12). A crucial question concerned developing and choosing the "right" corporate concepts. Due to a press article, two development directions were under debate when potential investors launched their business concept. One concept, proposed by Hartmut Emans, favored developing SKET as an engineering firm with only a few owned manufacturing activities, and an employment of 1,300 persons (Maschinenbau. In aller Stille, 1994, n. p.). The other concept, proposed by Carsten Oestmann and Helmut Borchert, two West German entrepreneurs, intended to upgrade design and production and promised the maintenance of 1,725 jobs (ibid.).

First privatization and bankruptcy

The employees showed a preference for the second concept, and the Privatization Agency signed a privatization contract with Oestmann & Borchert Industriebeteiligungen in 1994 (STAATLICHE BEIHILFEN C 16/95 Deutschland (96/C 298/02), p. 2). They were the owners of SMAG, Salzgitter (West Germany) (SKET, 2016, n. p.). However, it was a provisional privatization, due to the European Commission's outstanding decision on state aid for SKET (Landtag von Sachsen-Anhalt. Zweite Wahlperiode, 1998, p. 22). The European Commission did not approve the state aid of ECU 300 million for SKET (Staatliche Beihilfen, 1997, p. 1). From the perspectives of the Commission and the Privatization Agency, there were doubts about achieving a turnaround on the basis of SKET's development after privatization (ibid, p.1F; Landtag von Sachsen-Anhalt. Zweite Wahlperiode, 1998, p. 42). This privatization attempt failed. The successor of Kombinat SKET, SKET Schwermaschinenbau Magdeburg GmbH (SKET SMM), became bankrupt in October 1996 (SKET, 2016, n. p.). Observers regarded the owners' trial to explore new sales areas at the expense of profitability as the main reason for the bankruptcy (Landtag von Sachsen-Anhalt. Zweite Wahlperiode, 1998, p. 42). It was said that losses were twice as high as turnover (ibid.). Five rescue companies (Auffanggesellschaften) were established after the bankruptcy; each of them represented a specific product or technology:

(1) machine building and plant construction (Maschinen- und Anlagenbau);
(2) equipment for rolling mills;
(3) closing machines;
(4) machinery for production and refinery of vegetable oil; and
(5) IT services.
(SKET, 2016, n. p.).

Second privatization

Each of the five rescue companies represented a certain product or technology. This made the privatization – obviously – easier. The five rescue companies were bought by five different private investors in 1997/1998, but with limited job availability. According to a press article, 437 persons altogether were employed in the five rescue companies after they had been privatized (author's calculation, based on: Wirtschaft. Das letzte Kapital der Sket-Privatisierung ist abgeschlossen, 1998, n. p.).

SKET Maschinen- und Anlagenbau GmbH was one of the rescue companies, representing competences in machine building and plant construction. It was taken over in 1998 by ENERCON, a company specialized in producing wind turbines (this and the following information on the ENERCON subsidiaries in Magdeburg is from: Ziem, 2014, pp. 261-262). ENERCON did not only take over the SKET subsidiary, it established 14 more firms in Magdeburg. Altogether approximately 5,000 persons are employed in the ENERCON subsidiaries in Magdeburg. The main impetus for increasing employment came from the newly established firms. Recently SKET Maschinen und Anlagenbau GmbH has been operating as SKET GmbH. It produces components for wind turbines, and is, in addition, specialized in manufacturing large-scale customized machine parts (Pollak, 2014, pp. 319-320).

SKET Walzwerkstechnik GmbH, specialized in equipment for rolling mills, was taken over by Münchmeyer Petersen GmbH & Co KG (MPC) in April 1998 (European Commission, 2000, n. p.). Recently MWE Magdeburger Walzwerk Engineering GmbH, established in 2001, has been specializing in rolling mills technology, and belongs to the Küttner Group, Essen (Krampitz, 2014, pp. 306-308, especially p. 306). SKET Verseilmaschinenbau GmbH focuses on the engineering and production of closing machines; it was bought by Johannes Erich Wilms, an entrepreneur from Menden in West Germany in October 1997 (Godau, 2014, pp. 321-323). SKET Ölsaatentechnik GmbH, which specialized in machinery for manufacturing vegetable oil, was bought by the CIMBRIA group (Denmark) in 1997, and has operated since 2011 as CPM SKET GmbH belonging to the CPM group (USA) (Noack, Rasehorn, 2014, pp. 254-256). SKET Maschinenbau EDV GmbH represented the IT entity of the former Kombinat, and was bought by "data experts GmbH," an IT firm located in Neubrandenburg, Berlin and since 1997 in Magdeburg, and operates as SKET EDV GmbH (Meißner, Leditschke, 2014, pp. 317-318). The split into five firms, each representing a specific product or service, made it obviously easier to find investors and introduce new products and explore new markets.

With regard to research and development (R&D) activities, ENERCON's R&D department is located in Aurich, Lower Saxony (ENERCON GmbH no date of publication, n. p.), but the subsidiaries in Magdeburg pursue process innovation (Pollak, 2014, pp. 319 f.; Ziem, 2014, p. 262). The other four privatized firms pursue their own development tasks to develop customized machinery or services (Godau, 2014, p. 322; Krampitz, 2014, p. 307 f.; Meißner, Leditschke 2014, p. 317; Noack, Rasehorn 2014, p. 256).

3.2 VEB Kombinat Carl Zeiss Jena (recently JENOPTIK AG and Carl Zeiss Jena GmbH)

Restructuring

The second case concerns the former Kombinat VEB Carl Zeiss Jena, which belonged to the optics and electronics industry. It had its headquarters in Jena/Thuringia with a further 24 subsidiaries in the GDR, and employed approximately 54,000 persons (mid-1990) (Zentralgeleitete Kombinate der Industrie und des Bauwesens nach Ministerien, 1993, p. 378). Approximately 27,000 persons were employed at the headquarters firm in 1989 (Schleef, 1997, pp. 335-350, especially 340). In the 1980s it expanded its product range by developing and producing equipment for the semiconductor industry in the GDR; this was based on decisions by the Politburo of the Socialist Unity

Party of Germany (Hermann, 1998, pp. 93-96). Following central decisions, the Kombinat VEB Carl Zeiss Jena also produced military equipment (Hermann, 1998, pp. 92 f.). After the German unification, in 1991, negotiations took place involving the Privatization Agency, the Free State of Thuringia, the Federal State of Baden-Württemberg and the firms under consideration, i. e. Jenoptik Carl Zeiss Jena GmbH, Jenaer Glaswerk GmbH, Carl Zeiss Oberkochen, and Schott Glaswerke (Bohn, 1993, pp. 173-182, especially 175). As a result, Jenoptik Carl Zeiss Jena GmbH was split. One part, Carl Zeiss Jena GmbH, was bought in the course of privatization by Carl Zeiss AG, Oberkochen (Bohn, 1993, p. 177). Carl Zeiss AG, Oberkochen, was the West German sister company established after World War II. Carl Zeiss Jena GmbH focuses on optics, high-quality mechanical devices and optoelectronics (ZEISS Deutschland no year of publication, n. p.). The second part that emerged after the division was Jenoptik GmbH, acting as the successor to the former Kombinat, and its mission was to phase out the remaining parts of the Kombinat, managing the real estates and focusing on products that were not assigned to Carl Zeiss Jena GmbH (Bohn, 1993, p. 177 f.). Due to the agreement with the Privatization Agency, the Free State of Thuringia was (temporarily) the 100 percent shareholder of Jenoptik GmbH (ibid., p. 178). Jenaer Glaswerk GmbH was taken over by Schott (Mainz) (ibid, p. 177). Lothar Späth, the former Prime Minister of the Federal State of Baden-Württemberg, became Jenoptik's chairman of the board (ibid.). The engagement of Lothar Späth was highly appreciated at the time (see, e. g. Kolbe, 2009, n. p., citing Günther Reißmann, shop chairman). He obviously used the frame conditions, provided by the agreement with the Privatization Agency for the successful management of Jenoptik's restructuring. The agreement included state aid of altogether DM 3.6 billion; of which DM 3 billion was designated for Jenoptik GmbH. The state aid for Jenoptik GmbH was designated for debt service, loss carried forward, restructuring, social compensation plans, and reserves for environmental rehabilitation

(Büttner, 1994, pp. 201-218, especially p. 206).

Thus, the comprehensive restructuring of Jenoptik GmbH commenced in 1991. In the beginning, mass layoffs occurred. Altogether 17,500 persons were dismissed (the employment data in this paragraph comes from Schleef, 1997, pp. 339 f.). The agreement with the Privatization Agency, mentioned above, targeted the maintenance or creation of 10,200 jobs. This was not considered achievable in Jenoptik GmbH, which provided jobs to 1,400 persons. In addition, 2,800 jobs were envisioned to be maintained at Carl Zeiss Jena GmbH. To achieve the employment target of 10,200 persons, the attraction of new investors was urgently required to maintain and create 6,000 more jobs. To achieve this, Jenoptik GmbH pursued its own "structural policy" by tearing down obsolete production buildings, re-developing brownfields and selling the sites to new investors (the information on Jenoptik's efforts in job creation is from: Schleef 1997, pp. 343-347). To manage the building removals and brownfields redevelopment, a publicly funded active labor market policy was temporarily implemented. This happened because many who lost their jobs were unable to find new work in the regular labor market at the time. In addition, a one-stop- agency for potential investors was created by Jenoptik. Moreover, Jenoptik GmbH supported spin-offs, and thus enhanced the establishment of new small firms in the city of Jena (Späth, 2005, pp. 97-113, especially p. 107). Alexander von Witzleben, who succeeded Lothar Späth as the chairman of the board of Jenoptik, noted that the state aid of DM 3 billion was not designated for developing new products and investments in fixed assets (Witzleben, 2007, pp. 75-93, especially p. 76). With this in mind, Jenoptik also pursued unconventional business activities: It established a firm for housing construction (Schleef, 1997, p. 346) which was sold later (Wirtschaft. Jenoptik gibt Bauentwicklung auf, 1998, n. p.). Another element of restructuring Jenoptik was the acquisition of firms (this and the following information on acquisition is from Witzleben, 2006, p. 9). Examples of acquisitions are: Meißner+Wurst GmbH & Co., which was bought in 1994, and ESW-Extel Systems Wedel, acquired in 1997. The former was a firm involved in plant construction, the latter civil and military systems. The acquisitions contributed to exploring new sales channels and further developing the relevant technologies (ibid.).

Listing on the stock market

As a result of restructuring, Jenoptik AG was listed on the stock market in 1998 (Chronik der Jenoptik AG, 2000, n. p.). It represents an international photonics group with headquarters in Jena, a further 12 subsidiaries across Germany, and is represented in more than 80 countries worldwide (Jenoptik AG (Hrsg.): SHAPING THE MARKETS. GESCHÄFTSBERICHT, 2015, pp. 60 f.). Insofar, Jenoptik is a rare case in which a company headquarters in East Germany was successfully maintained and reconstructed. Jenoptik AG employs altogether 3,421 people worldwide (average in 2015) (Jenoptik AG (Hrsg.): SHAPING THE MARKETS. GESCHÄFTSBERICHT, 2015, p. 204). It lies in the nature of a technology-driven firm like Jenoptik AG to pursue its own R&D. The expenditures for R&D exceed the investments in fixed assets (see Heimpold, 2016, pp. 97-100, especially p. 99 f., based on Jenoptik AG (Hrsg): Shaping the Markets. Geschäftsbericht 2015, p. 204). R&D takes place both in the company and in cooperation with private and public partners. Among the 11 public research institutions listed as cooperation entities in the Jenoptik Business Report 2015, five are located in the region where the headquarters has its seat (ibid., p. 71).

The policy of attracting new investors and enhancing spin-offs and start-ups has proved productive. A report published by the economic support agency of the city of Jena finds altogether more than 11,600 persons employed in the fields of technology and digital economy; at the Jenoptik locations in Jena and Triptis (Thuringia), more than 1,700 persons are employed (Wirtschaftsförderungsgesellschaft Jena mbH, 2016, p. 4 f.).

4. What do the cases under consideration show?

By nature, case studies cannot draw general conclusions. Nevertheless, from the author's viewpoint the two cases under consideration provide some interesting information.

First, both firms under consideration experienced considerable economic difficulties when they began to operate in a market economy. They lost their traditional eastern markets, recorded low productivity, and thus, were unprofitable. There was a great need for expertise in managing company restructuring and achieving a turnaround. This need was not only evident in the two firms under consideration; it was relevant for the majority of former state-owned firms in East Germany. Therefore, it was a great challenge to hire an appropriate number of experts possessing such skills. To conclude, considering the necessity of restructuring and privatization, establishing a pool of experts in corporate restructuring was an important precondition for successfully improving competitiveness.

Second, restructuring was not the task of the Privatization Agency, in the sense of a top-down approach. It was primarily a challenge for the former state-owned firms themselves. The firms and their management had to elaborate corporate concepts, and after assessing the concepts as feasible the Privatization Agency state provided support. The management of the former state-owned firms usually had great expertise in the technical field, whereas knowledge in business administration and finance under the frame conditions of a market economy was rare at the beginning. With this in mind, the technical skills of the staff from the former state-owned firms had to be complemented by external expertise from managers who had made their careers in a mature market economy. To conclude, matching the competences existent in the former state-owned firms with those of external experts was a necessary task but not an easy one, due to mental barriers. "Sympathy at first sight" with regard to the new owner or to those in charge of restructuring was not a guarantee of success.

Third, the Privatization Agency in Germany regarded new private investors as the best possible actors of corporate restructuring. However, the two cases under consideration reveal that attracting a private investor was necessary, but not sufficient. As seen in SKET's first privatization attempt, the corporate concept that promised the greatest number of jobs was not the best option. Under ideal circumstances, the new investor brings in new products and/or new sales opportunities. This was the case with the privatization of the five SKET rescue companies. Jenoptik focused R&D on promising technologies and conducted acquisitions of other firms in order to gain access to new markets and develop technologies. To conclude, to achieve sufficient results when restructuring a firm, a sound corporate concept seems to be the most important success factor.

Fourth, mass layoffs were the most striking feature of corporate restructuring in the course of privatization. The two cases displayed significant job losses. The job losses occurred in a very short period, while creating new jobs took much longer. Hence, in the two cases under consideration the schemes of active labor market policy were implemented. To conclude, avoiding social tensions required implementing (temporary) publicly funded income-earning opportunities for those who lost their jobs. However, social transfers cannot replace sound efforts for creating jobs in the regular labor market. In addition, both cases showed that an increase in employment was not achievable by focusing only on the existing former state-owned firms. To conclude, the main improvement in regular employment was achieved by attracting new investors and establishing new firms in the neighborhood of the former state-owned firms.

Fifth, each of the former state-owned firms under consideration pursued their own research and development (R&D) in the central planning era. Although industrial R&D and the researchers' creativity were heavily imitation-oriented in the centrally planned economy, it seemed worth using this human capital for developing new products and technologies after the transition to a market economy. Jenoptik maintained its research potential and focused it on promising new products and technologies. The SKET successors develop new customized products and services or pursued process innovation. To conclude, the maintenance of R&D capacities is an important precondition for the long-term competitiveness of firms that undergo restructuring and privatization.

Restructuring should be largely open to market-driven structural change and new technologies, and it faces the challenge of further developing human capital in the best possible manner.

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Restructuring Policies in the Process of Privatization: The Case of Jenoptik

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1. Privatization and Restructuring of Enterprises

1.1 The Purpose of Privatization

Socialist rules and institutions must be decisively reformed in order to transform a socialistic planned economy into a market economy. First, the privatization of state-owned properties must proceed consistently to establish private ownership, competition must be facilitated by liberalization, and lastly, monetary order should be reestablished through financial reform. It is difficult to successfully transform the social system when any of these three institutions are not in place. However, the most significant of these three prerequisites is the privatization of state-owned properties. That is because it is difficult to form stable monetary order or efficiency-enhancing competition without the acknowledgement of private property. Furthermore, it is essential to recognize the private properties of means of production when it comes to forming an effective market economy. In addition, failing to properly acknowledge private property weakens the motivation for capital for-

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mation, which in turn makes it difficult to achieve economic growth. The exchange of goods and services in a manner that leads to enhanced efficiency is only possible when ownership is well-established and stabilized. For this reason, private property is an essential factor for a transition country aiming to introduce a market economy system.

Privatization generally means that the ownership of the state government is transferred to the private sector, and is implemented by both western capitalist countries and transition countries to increase the effectiveness of public enterprises. However, it is necessary to classify the concept of privatization under two different cases: one is that under the system of a capitalist market economy, and the other is in the process of transition. In western capitalist countries, privatization means to transfer a tiny percentage of state-owned properties in the national economy to private sectors to realize an efficient economy, while privatization under a socialist system such as in Eastern Europe demands the formation of the institutions of a market economy, as well as the ownership transfer of the overall economy. For this reason, many limitations follow when trying to adopt the privatization experience of western capitalist countries to transition countries.

Most scholars have a common opinion on the importance of privatization for both the process of transition and the necessity to privatize state-owned property. The most crucial issue of the transition process is how to attract competent businessmen and investors. Transferring ownership from the state to the private sector as a mere formality is not particularly meaningful. Rather, the true meaning of privatization can only be realized by utilizing scarce resources efficiently through privatization, and by doing so, increasing effectiveness and efficiency to improve the overall welfare of society. Besides, as the restructuring of enterprises should proceed in tandem with the reform of ownership, privatization as a formality by transferring state ownership to the private sector is insufficient.

The process of privatization forms a new economic structure and is directly related to the accumulation of private property by people, making it the most sensitive and difficult policy. Furthermore, the restructuring of enterprises accompanies a large amount of unemployment in the process of privatization, thus causing many problems from a political and social aspect. From the perspective of East Germany, the reunification of West and East Germany meant a radical transition to the market economy and integration into the West German economy. In other words, it was to become integrated, transforming its social system into a market economy.

While most scholars agree on the necessity of privatization and its importance in the transformation process in particular, they have widely different views on the scale, speed, and method of privatization. Before we analyze these various privatization models, however, we need to clarify whether the transformation process would be a "big bang" or a gradual one, for this largely predetermines how privatization will take place.

1.2 Three Stages of Measures for Privatization

Privatization in the process of transforming the social system is achieved through a three-stage process.

1.2.1. The First Stage: Institutional Privatization

The first stage is institutional privatization, meaning that state-owned enterprises are changed into a corporation or limited liability company, which are managed by the government until becoming privatized. As in this case only the type of enterprise has been changed, it is not reasonable to expect productivity to improve or management to become more efficient.

In order to derive the merits of privatization in a systematic way, this paper proposes a three-stage privatization method. The three stages consist of institutional privatization, substantive privatization, and the strengthening of firms' competitiveness.

In the first stage, the government must prepare the institutional base for privatization. The institutional base here means the establishment of democratic institutions in general, and a stable and reliable legal system regarding property rights in particular. Only when such a stable legal system is clearly defined can potential buyers and investors be relieved of legal risks involving privatized properties, and swift privatization become possible.

Aside from the legal institutions, the various institutions of a market economy must also be established so that economic actors can freely engage in economic activities with their private properties.

Finally, based on the legal and economic institutions, firms should be legally transformed into joint-stock companies or limited-liability companies. Until they are privatized, all the stocks should be managed in trust by the government.

1.2.2. The Second Stage: Substantive Privatization

At this stage, ownership is transferred from the state to the private sector, which is called substantive privatization. Various types of privatization measures are applied at this stage. It is possible to decide on which measure of privatization to take based on whether it is disposal by sale or not, or whether the company is to be taken over by a national, foreigner or the original owner. In the case of East Germany, restitution to the original owner was applied, but this measure was eventually found to be an obstacle to investment and was replaced with a policy that placed compensation as a number one priority, which led privatization to take place through unofficial negotiations and MBOs, etc.

Figure 4.1. Second stage of privatization: substantive privatization

		Privatization Target			
		Corporate Executive	Public Interest	Original Owner	Foreign and Domestic Firm
Measure of Privatization	Sale 1. Sale by unofficial negotiation 2. Sale to the corporate executives 3. Auction 4. Sales in Stock Market	-Buying the corporate executive (MBO)/(MBI) -Buying the employee of the enterprise (Ex: Hungary, Rumania, Germany)	Taking over the stock market (Ex: Poland)		-Joint ventures -Foreign Direct Investment (FDI) (Ex: Hungary / Germany)
	Non-sale 1. Voucher system 2. Restitution		Voucher system (Ex: Czech Republic / Russia / Poland)	Restitution (Ex: Czech Republic / Russia / Poland)	

1.2.3. The Third Stage: Strengthening Firms' Competitiveness

The third stage involves strengthening firms' competitiveness. At this stage, enterprises are restructured in order to guarantee the competitiveness of privatized firms. The Trust Agency (Treuhandanstalt), which was responsible for the privatization of state-owned enterprises in East Germany, aimed for rapid privatization under the principle of "superlative management normalization through rapid privatization." The thought process behind the adoption of this policy stemmed from the belief that the Trust Agency did not possess the expertise to normalize the management of East German companies, and from the outlook that investors would be more successful in achieving better results through investment as well as management efficiency. Safeguarding company competitiveness is one of the most vital economic policies during the process of transitioning to a market economy. This raises the question of how to cultivate such competitiveness. Competition functions properly when rules apply fairly to all competitors, without exception. In other words, the competitive system works only when governmental subsidies or protection are absent from all firms or sectors.

Concerning subsidies, the question of whether to shut down a privatized firm that is losing money continuously or to maintain it with the help of governmental subsidies sits on the agenda. If privatized firms continue to depend on subsidies as they used to under the socialist command economy, the transition to a competitive market economy will be delayed. Without the cessation, or at least a substantial decrease, of subsidies, privatized firms will not be able to escape their past trademark of negligence and inefficiency. Subsidies must be reduced across all sectors as soon as possible, and even non-privatized firms should receive fewer subsidies so they are pressured to strive for cost reduction.

Until a competitive structure is firmly established, workers must be prepared for a considerable reduction of jobs. This is because under a market system, jobs without competitive advantages cannot be maintained. In political terms, however, unemployment would deepen social conflicts, due to uncertainty about the future. In the privatization process, therefore, the government must pursue the two goals of cultivating firms' competitiveness in the long term and creating as many jobs as possible in the short term. The problem is that the two goals are not compatible in economic terms. Securing the maximum number of jobs in the short term means the maintenance of North Korea's inefficient economic structure and the delay of a structural transformation. For this reason, the unified Korean government must break from the old policy of providing inefficient firms with subsidies for the sake of securing jobs. Instead of jobs, the government must turn to other methods, such as the provision of unemployment payments for a certain period, and the creation of various reeducation programs designed to enhance the quality of labor. This way, both unemployed individuals and firms will have a better chance of surviving the process of structural transformation. Only those jobs that are offered at competitive firms can enjoy long-term stability as well as genuine security.

Also, wages exceeding productivity lead to the bankruptcy of firms, which in turn results in unemployment, which causes social and political instability. This phenomenon was observed in the German unification process, and one of the biggest mistakes committed during the German unification was the wage policy in the East German area. A wage increase beyond real productivity and the appreciation of the East German currency by four times, resulting from the one-to-one currency exchange rate policy, virtually prevented East German firms from gaining competitiveness in terms of price or quality. Wages continued to rise above productivity, and East German firms lost the opportunity to utilize low wages to obtain international competitiveness. Consequently, East German firms had to overcome double difficulties: first, the difficulty of securing international markets for their goods, and second, that of increasing labor costs. The wage policy negatively affected the competitiveness of East German firms and investors.

Such a far-fetched political decision, namely to carry out a one-to-one monetary union and rapidly increase wages, followed by the hasty opening of the eastern market, left East German businesses completely vulnerable in the world market. Moreover, the demand for East German products from the eastern population quickly diminished as consumer interests shifted towards to the classier products of their western counterparts. As aforementioned, this was only possible due to factors such as social policies and a social security system, which guaranteed greater surplus compared to actual productivity. As a result, East German businesses lost their private market, and alongside the other eastern state markets economically faltering in their systematic endeavor for market transformation, a large number of East German businesses had to file for bankruptcy.

In order to resolve the issues of mass unemployment and bankruptcy in the eastern region, Akerlof proposed providing wage subsidies for the East German enterprises. Here we should take a closer look at Akerlof's wage subsidy scheme. Akerlof and Rose, Zellen and Hessenius calculated the cost function of the East German *kombinat* from the input tables of the Plancksbehörde, the former East German Planning Offices, and estimated how the wage policy would affect the survival rate of the East German enterprises. According to Akerlof, the short-term cost variables were highly dependent on wage costs, and accordingly East German industries could only stay competitive when the short-term cost variables were lower than the international market price. In other words, the lower the wage, the higher the survival rate of East German companies rose. In this respect, the German government engaged in the partial state funding of the wages of privatized companies in the form of subsidies. More precisely, Akerlof claimed that if the government were to offer a 50 percent wage subsidy, 37 percent of East German business were estimated to be salvaged, and likewise, a 75 percent wage subsidy from the government would salvage 77 percent of East German businesses.

The following advantages were expected when applying the Akerlof model. Firstly, unions will not demand wage increases above their productivity. Secondly, in the absence of wage subsidies, the net cost of wage subsidies will be lower than the total cost paid to the unemployed population, because the proportion of the population without a job will decrease. Third, the government can collect more taxes from the employed population. As a result, mass migration due to unemployment will cease and stability in the society can be expected.

Despite these advantages, Akerlof's wage subsidies pose the following drawbacks: The Akerlof model can only be effective if the subsidy is paid over a long period of time, which is not considered a desirable policy. Moreover, if the subsidy provision of the Akerlof's model were to be implemented, this implies the factitious prolongation of the companies, making it more difficult to secure competitiveness in the world market, and causing the subsidies to deteriorate the economic structure. Above all else, companies that cannot survive in the competitive market should be eliminated, according to the principles of a market economy. Under this model, inefficient companies occupy valuable assets such as land, resulting in an inefficient Pareto distribution of land use, which discourages the influx of new businesses and economic transition. On top of that, wage subsidies discourage the establishment of new businesses in the same sector, as the relative value of labor for individual investors carries a negative correlation.

As seen above, subsidies for preexisting companies not only solidify the counterproductive elements in the economic system, but also hinder the dynamic growth of the economy by preventing new economic activities. The wage subsidies will only slow down the motivation for retraining or the search for new jobs and impede the essential transition to the macroeconomic system, which in the long run will lead to higher unemployment rates and confusion in the transition to a capitalist market economy. Akerlof's proposals pose two disadvantages to the state treasury. Since subsidies must be paid for a long period of time, national spending will continue to increase and as a result the national income will decline due to lethargic economic activities. Vice versa, if the state relinquishes its policy of preserving the old methods, the government must allocate funds to social security in the short run. However, this policy encourages a rapid transition to the market economy, which will vitalize the economy and allow the government to quickly reduce the expenditure spent on social security powered by the surplus in state income. Thus, it is more desirable to promote investment in portions of social overhead capital that are urgently needed for economic development.

2. Case of Jenoptik AG

The privatization of East Germany is considered one of the most rapid instances of its kind, taking place over a five-year period from 1990 to the end of 1994. Although evaluations on the privatization of state property in East

Germany vary, when taking into account the scale and process of the privatization it can be evaluated as a success story. Many difficulties were observed during the privatization process of state-owned enterprises in East Germany, but numerous successes can be found within this challenging process. The most representative example would be the privatization of VEB Carl Zeiss Jena, a state-owned enterprise in the eastern region. Carl Zeiss Jena, a corporation that employed 69,000 workers under 25 company branches, was privatized and revived as a top-tier giant with a revenue growth rate of over 1000 percent in just eight years. This study aims to draw significant implications for the Korean unification by examining the successful privatization of Carl Zeiss Jena and the corporate restructuring policy that was employed, which took place under the aforementioned three steps of privatization.

2.1 Background of the Restructuring

Jenoptik AG is a company that was separated from VEB Carl Zeiss Jena during the privatization of state-owned enterprises in East Germany. Founded in 1846, Carl Zeiss Jena was the parent company of the East German company, which suffered from management difficulties after World War II and the resulting division of Germany. However, with the full support of the East German government the company grew into one of the largest corporations in the East.

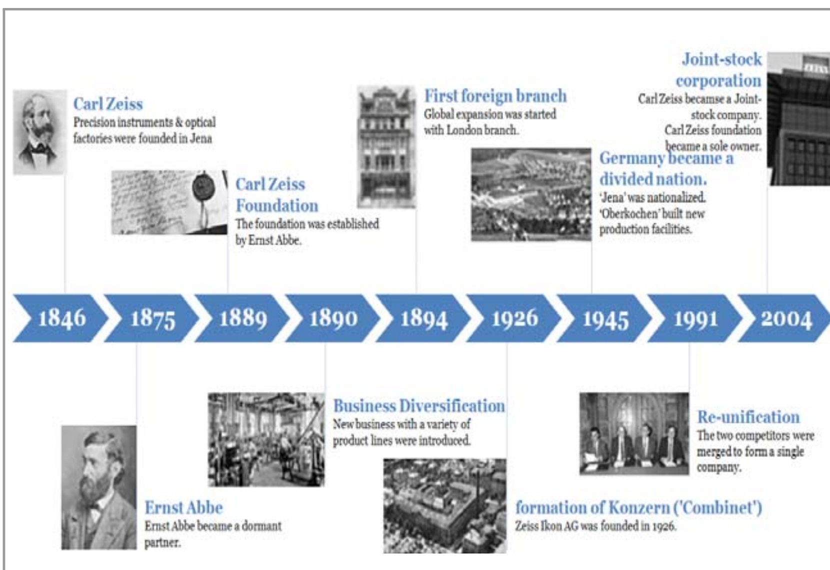
Carl Zeiss was founded in 1846 in the Jena region of East Germany as a company specializing in optical technology. The company received international recognition as a world-renowned technology leader in the science and medicine field up until the early 20th century. During World War II, Carl Zeiss was a key supplier of military supplies for the German forces, producing binoculars, cameras, and various lenses. The facility was eventually targeted and destroyed by the US-led allied forces and faced a considerable loss of human capital. In April 1945, as US troops occupied the Jena region, they forcefully relocated 84 Carl Zeiss managers and technicians, along with research papers and other important documents, into West Germany in June of the same year. This was to prevent the technology of Carl Zeiss being leaked to German and Soviet forces. In 1946, the Soviets moved the entire Carl Zeiss factory onto Soviet soil, along with employees who refused the US transfer, claiming the measure as a form of war crime compensation.

After the war, the East German government established VEB Carl Zeiss Jena, a state-owned enterprise centered on the remaining personnel and facilities in Jena, and promoted the establishment of a strong optical industry. Since 1965, Carl Zeiss Jena has grown to become one of the largest East German companies, with up to 69,000 employees by merging (Kombinat) 25 optical companies through industry restructuring. On the other hand, the engineers that were moved to the western region in 1946 founded Carl Zeiss Oberkochen in the Oberkochen region. After the unification of Germany in 1990, Carl Zeiss Oberkochen invested a considerable amount of financial resources as Carl Zeiss Jena's parent company and acquired Carl Zeiss Jena under its wings.

During the East German period, Carl Zeiss Jena produced more than 1,000 varieties of items, ranging from microscopes for educational purposes to core components of Soviet nuclear missiles. These products were exported not only to the Soviet Union and Eastern Europe but to some parts of Western Europe as well.

In the 1990s, after its unification, Germany faced the worst deterioration in business conditions, such as the collapse of the socialist market, the loss of competitiveness due to increased production costs, and the discontinuation of munitions production. In particular, as Eastern European countries, the major export markets for Germany, fell into recession due to the collapse of the socialist system between 1989 and 1991, market demand plummeted. In addition, the monetary union in 1990 caused a rapid increase in production costs, and it became impossible to maintain the previous sales strategy, which was to stay competitive by offering decent quality and technology at a low price. Plus, the military sector, which was the main generator of sales in the domestic market, faced difficulties in the integration process of the East and West German military. The global arms initiative in the early 1990s worsened the accumulation of deficits and liquidity problems in Germany. In 1990, the Treuhandanstalt, a state-owned asset management firm in East Germany, acquired the management ownership of the company and pursued a rapid privatization.

Figure 4.2. History of Carl Zeiss Jena



Source: Carl Zeiss (http://www.zeiss.co.kr/corporate/ko_kr/about/history.html).

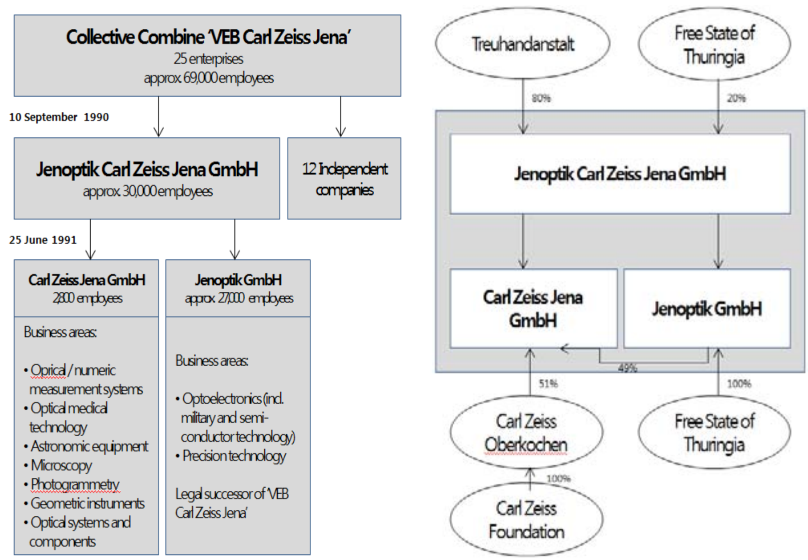
2.2 The Restructuring Process

2.2.1 Institutional Privatization

The Treuhandanstalt dismantled the *kombinat* and laid the foundation for smooth restructuring by reorganizing its ownership structure. In June 1990 the Treuhandanstalt first separated as affiliates 12 enterprises among the 25 enterprises which were merged in 1965, integrated the remaining 13 enterprises and changed the name of the company from "Carl Zeiss Jena" to "Jenoptik Carl Zeiss Jena GmbH." At first, Carl Zeiss Oberkochen in West Germany tried to acquire Carl Zeiss Jena, but this fell apart due to objection from the Turingen state government, over concerns that the local economy would fall into recession due to business reduction and a mass dismissal of the workforce. In July 1990 Carl Zeiss Jena established a plan for the rationalization of management, including employee layoffs, and tried to reach a compromise with the labor union after monetary integration was carried out, but this plan ran aground because of severe objection from the labor union. The Treuhandanstalt decided to pursue the restructuring of Carl Zeiss Jena in November 1990 in order to reintegrate Carl Zeiss, which had been divided into East and West Germany after World War II. Accordingly, an agreement was signed between the Treuhandanstalt, state of Turingen, Jenoptik Carl Zeiss Jena GmbH, and Carl Zeiss Oberkochen. The main business areas of Jenoptik Carl Zeiss Jena, optics and measurement systems, were relocated to the new enterprise Carl Zeiss Jena GmbH, and the remaining business areas and the legal rights of the company were acquired by Jenoptik GmbH.

In terms of ownership, Carl Zeiss Oberkochen possessed 51 percent of shares and Jenoptik GmbH held 49 percent when Carl Zeiss Jena GmbH was established, but Carl Zeiss Oberkochen acquired the shares of Jenoptik at the cost of 1 mark. In contrast, the shares of Jenoptik GmbH were wholly owned by the state of Turingen.

Figure 4.3. The operation history and dismantlement of Carl Zeiss Jena Kombinat



〈Separation of VEB Carl Zeiss Jena's United Constitution〉 〈The Front and Rear of Separated Ownership Structure of Jenoptik Carl Zeiss Jena GmbH〉

Source: Wulf, Torsten & Harald Hungenberg (2002), Jenoptik (2005).

2.2.2 Restructuring Prior to Privatization: Strengthening Firms' Competitiveness

The Carl Zeiss Jena Kombinat was willing to pursue rapid privatization when it was relocated to the Treuhandanstalt in 1990. Although the mother company Carl Zeiss Oberkochem expressed its willingness to buy the company, the Turingen state government intervened actively under the judgment that this form of privatization would result in a large number of unemployed people and badly undermine the economic stability of Jena. Carl Zeiss Jena, formed as 25 enterprises in 1965, was dismantled and 12 of these were bought preferentially. In this regard, this is a case where the firm underwent institutional privatization in the first stage and was privatized in the second stage directly after this. However, the remaining 13 firms were converted into Carl Zeiss Jena GmbH, of which the Treuhandanstalt held 80 percent of shares while 20 percent was owned by the Turingen state government. The company was again divided into two, one of which was diverted to Carl Zeiss Jena GmbH, and 51 percent of its shares were bought by the mother company Carl Zeiss Oberkochem. Meanwhile, the other company, Jenoptik GmbH, remained a state public enterprise whose shares were entirely possessed by the Turingen state government. In this regard, Carl Zeiss Jena GmbH is also a case of privatization taking place at the second stage. However, our research interest Jenoptik was not privatized and underwent rationalization of management and restructuring by the state government.

Lothar Spath, the former governor of Baden Wurttemberg, was appointed the president of Jenoptik following the negotiations which brought about the separation of Jenoptik Carl Zeiss GmbH. While the major goal of the Treuhandanstalt was not restructuring, but rather privatizing the firm, Lothar Spath had a different vision for Jenoptik Carl Zeiss Jena GmbH. Spath introduced a new business concept in order to pursue a long-term joint development project in the surrounding area of Jenoptik and Jena, instead of liquidating Jenoptik. This idea came from the Silicon Valley, which created an agglomeration effect based on the close relationship between technology-driven enterprises and regional infrastructure. Both the state of Turingen and Lothar Spath predicted that this policy measure would effectively alleviate mass unemployment following the collapse of major industries in the region.

Jenoptik GmbH and Carl Zeiss Oberkochen performed workforce reduction measures to a maximum of 17,000 and 1,300 employees, respectively. Jenoptik GmbH gained 27,000 employees as the legal successor of Carl Zeiss Jena, but found it inevitable to carry out massive layoffs to reduce production costs. Following intense discussion between the Treuhandanstalt and Betriebsrat, it was accepted that at least 10,200 (including 2,800 personnel of Carl Zeiss Jena GmbH) of these personnel were necessary for the optics industry in East Germany. As a result, they reached an agreement to reduce 17,000 employees on the condition of guaranteeing the employment of 7,400 employees. For its part, Carl Zeiss Oberkochen gradually phased out the number of its employees from 2,800 to 800 and 1,300 after acquiring Carl Zeiss Jena GmbH. According to East German law, low-skilled young workers should be let go to protect older and more skilled workers when carrying out workforce restructuring. However, faced by objections from within the company, the management decided to formulate a reduction standard which was based on age, work experience, marriage, number of children, and so on, and use a computer to apply this standard across the board.

Jenoptik GmbH revised the "elder first" principle of German labor laws and guaranteed the employment of young personnel with relatively higher work-efficiency and low cost in every factory and professional area. At that time, the employment of young workers in East Germany was threatened by the labor laws of Germany, which placed a priority on preserving the employment of old workers in case of dismissal. This means that a huge number of skilled young workers who came at low costs would have to be dismissed. In order to solve this problem, Jenoptik GmbH held the view that the "elder first" principle in labor law should be applied in certain areas only, not across the whole company. In line with this view, it assigned employees to be laid off to certain factory and expert groups, and then dismissed the entire group. For the remaining workers, the company reduced up to 10,000 of the employees, retaining an appropriate mix of old and young workers by relocating them to production sites. Jenoptik GmbH also invested a total of DM 1.42 billion in infrastructure to modernize obsolete production facilities and improve living conditions during the process of privatization and the rationalization of management. The production facility surrounding Jena and its neighboring small and medium cities had become superannuated, and in particular the ground was severely contaminated. In addition, the lack of electricity, including industrial electricity, and gas and inferior living facilities proved as obstacles hindering the entrance of investors in West Germany. Jenoptik GmbH established Aufbaugesellschaft Ostthüringen and pushed forward with development projects such as the reconstruction of obsolete production facilities and contaminated areas, even while undergoing restructuring. Business costs of around DM 310 million were procured by selling real estate owned by Jenoptik GmbH, which was valued highly because of its attractive location surrounding the city center of Jena. Also, other efforts such as attracting high-end technology enterprises, installing cleaning facilities in the semiconductor factory, conducting employee training programs for industry-education cooperation with universities in West Germany and building Plattenbauten were implemented to improve living facilities. Also, an "Investor Center" was established in Jena to prevent any delays in investment negotiations due to East German bureaucracy, and to actively support potential investors. While the construction company had been established to improve infrastructure, such as the modernization of the Jenoptik GmbH building and improvement of living conditions for the workers, it actively engaged in profitable business projects generated by higher demand for construction in Jena. Even though its profits rose through various real estate construction and remodeling projects, as the reason for establishing the company had been to modernize the living facilities and buildings of Jena, the construction business was eventually sold off separately in the name of "choice and concentration," during restructuring that took place at a later stage.

The greatest challenge in the process of restructuring is to increase competitiveness in the market. Although Jenoptik GmbH produced products with high-end functions based on new investments and excellent R&D, it recorded low sales due to lack of competitiveness. The amount of debt accumulated by Carl Zeiss Jena, which was acquired by Jenoptik GmbH, was almost DM 990 million as of 1991. In the face of its worst financial deficit, the company found itself unable to even deal with interest payments. Moreover, Jenoptik GmbH lacked any competitive items that could generate a constant flow of cash, in contrast to Carl Zeiss Jena GmbH, which had taken the core business. Jenoptik GmbH utilized its quality human resources and R&D to develop industrial items leading to new growth in sectors such as electricity, medicine and laser technology, etc. Nevertheless, these efforts failed to generate significant results due to the company's lack of market experience and sales channels. Accordingly, the management quickly secured a sales channel for new high-end products through affiliation and acquirement with enterprises in West Germany. Lothar Spath, who was appointed as the president of Jenoptik GmbH in 1991, aimed to build networks with business partners to enter the market, because he realized building a reputation and sales channels would require a great deal of time and cost. Lothar built strategical partnerships with high-tech enterprises which he had friendly relationships with when working as governor. By doing so, Jenoptik GmbH improved its status as a second mover in the market by integrating its high-end function items into a new business portfolio, while pursuing an aggressive management strategy such as acquiring relevant enterprises in West Germany to enter the global market.

Jenoptik GmbH reorganized its management structure into a holding company system, pursuing the development of high-end technology businesses, improvement of infrastructure, and enlargement of its market. Jenoptik GmbH was converted into a holding company system with the three business sectors of Jenoptik Technology Group, Jenoptik Development Group, and Trade and Services. They became the core sectors of Jenoptik GmbH after 1994 and established a comprehensive business portfolio in various technology sectors.

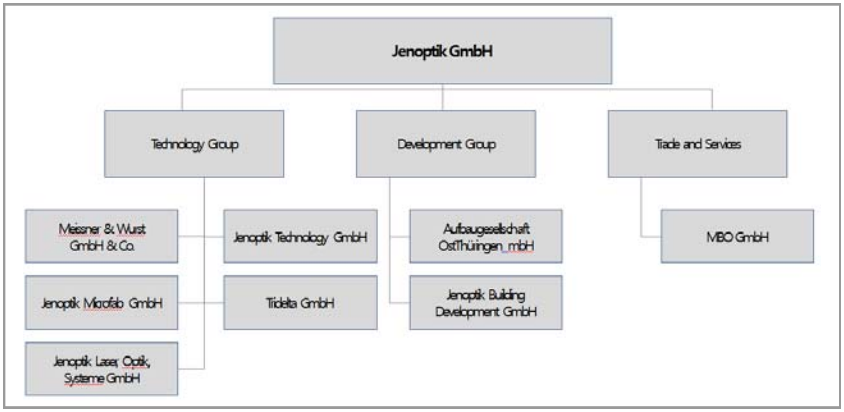
While Jenoptik Technology GmbH engaged in the business of precision, medical treatment and automobile technologies, it also acquired Tridelta

GmbH, an environmental technology and insulator supplier, from the Treuhandanstalt. Later, it acquired the Stuttgart-based Meissner & Wurst GmbH & Co., which possessed international-level technology in the clean system sector. This enterprise was an export-oriented company operating in markets in Southeast Asia, the USA, and Eastern Europe, as well as Germany. It generated profits of DM 570 million in 1995, which was approximately 60 percent more than the DM 350 million it recorded in 1994. In 1995, the company additionally merged three more enterprises (Jenoptik Microfab GmbH; Jenoptik Laser, Optik, Systeme GmbH; and Jenoptik Automatisierungstechnik GmbH), adding to the two existing subsidiary companies.

Jenoptik Development Group took charge of the infrastructure development business related to Jenoptik GmbH, located in Jena. The subsidiary company Aufbaugesellschaft Ostthuringen GmbH, which specialized in building renovation, project management, and land development, was sold in 1995 after finalizing most of its infrastructure improvements. On the other hand, Jenoptik Building Management GmbH took charge of developing, coordinating, and directing the construction project within the group and building a new edifice and factory. It gained a reputation as a core regional construction company in Jena even after 1995.

The Trade and Services part took charge of the sales, distribution, and purchasing of Jenoptik GmbH. It acquired MBC GmbH, a trade agency located in Munich in West Germany, in 1994 and entered the markets of medical treatment technology, office supplies, and automobiles. It secured sales channels for high-end function items within a short term, by affiliation and acquirement with other enterprises in West Germany.

Figure 4.4. Organizational structure of Jenoptik GmbH in 1995



Source: Wulf, Torsten & Harald Hungenberg (2002), p. 46.

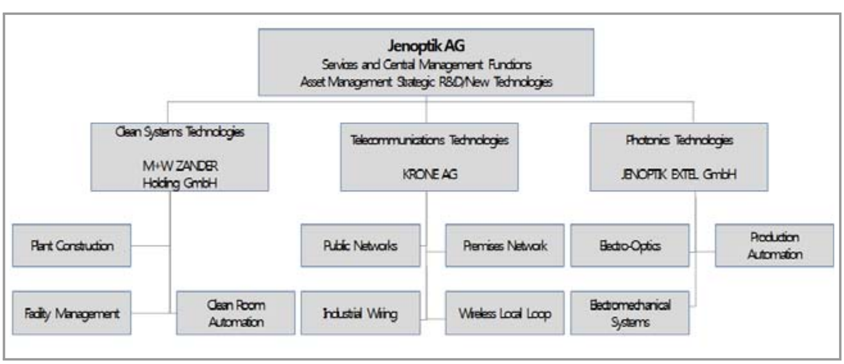
When Jenoptik continued to record a deficit despite the first round of restructuring, the company adjusted its portfolio towards clean system technology, automobile technology and photonics business. Most of the enterprises which underwent M&As at this time recorded sales deficits from 1993 to 1995, with the exception of Meissner & Wurst GmbH & Co. Accordingly, the management established four management principles for improving profits over all business sectors, and pushed forward with the second round of restructuring by reorganizing its structure in 1997. It created a center for controlling the entire business, and three core business departments focused on clean systems, automobile technology, and photonics. Particularly, the center for controlling overall businesses took charge of the management of factories and facilities in Hamburg, Berlin, Jena, Nuremberg, Stuttgart, as well as human resources, R&D and services. Meanwhile, Jenoptik Development Group, which had taken charge of the infrastructure development business, was restructured and the Trade and Service part was integrated into the center and three new business departments.

Jenoptik GmbH merged Meissner & Wurst GmbH & Co. with another relevant company, Zander Klimatechnik AG, in 1997 to enhance its capacities in the clean system technology business, and took 73.1 percent of stakes in the new company M+W Zander Holding GmbH. The new company built production facilities for companies specializing in semiconductor and biological products, which had a high demand for aseptic clean facilities.

Krone AG took charge of private automobile technology, data network connections and technology for the distribution of data networks. Krone AG, acquired in 1997, sought to expand its sales as an automobile system supplier in the market by merging with Jenoptik Elkoplus GmbH.

Jenoptik Extel GmbH, specializing in optics and photonics, acquired ESW-Extel Systems Wedel which had around 700 employees and recorded DM 180 million (as of 1997), and merged with Jenoptik Automatisierungstechnik GmbH. By doing so, it pushed forward with an expansive market strategy for optics, laser sensors and photonics for use as core parts in the global medical treatment and medicine, material process, munitions and high-speed railroad industries.

Figure 4.5. Restructuring to adapt to a new environment: <3> Stabilizing stage (organizational structure of Jenoptik AG in 1997)



Source: Wulf, Torsten & Harald Hungenberg (2002), p. 49.

2.2.3 Substantive Privatization

As seen above, VEB Carl Zeiss Jena Kombinat underwent the privatization of twenty-five firms through the first and second stages. Jenoptik was a very exceptional case in that it was not privatized through the second stage, but successfully achieved restructuring and management normalization under the state government, after which actual privatization occurred at the third stage. In other words, in this case ownership moved from the government to the private sector after normalizing management first.

Jenoptik AG was listed on the stock exchange market as an initial public offering (IPO) to secure stable funds for business enlargement in 1998. To do so, Jenoptik GmbH was converted into a corporation (Jenoptik AG) in 1995 and the amount of capital was increased from DM 100 million to DM 150 million in 1997. In this process, the state of Turingen, which held 100 percent of Jenoptik GmbH shares, sold all of its shares except for the 49.99 percent required to carry out its role as a major shareholder. The owner of Krone AG, Klaus Krone, sold 34.3 percent of Krone AG's shares and bought 9.17 percent of Jenoptik AG's shares. Also, 35.34 percent of Jenoptik AG's shares were acquired by bank groups consisting of Landesbank Hessen-Thüringen, Ladnesgirokasse Stuttgart and Sud-Kapitalbeteiligungs-Gesellschaft. Shares of Jenoptik AG were initially listed on the Frankfurt stock exchange market at the price of DM 34 per stock on June 16, 1998, and in December its stocks were included in the MDAX, an index which represents seventy representative enterprises in Germany.

3. Factors of Success

The restructuring of Jenoptik was very successful. The company exceeded the break-even point as early as 1994 and achieved a 1000 percent profit rate in 1998. It is hailed as the most successful case of privatization among state-owned enterprises in East Germany.

The major factors of success for the management normalization of

Jenoptik can be explained as follows.

First, the enterprises in East Germany were already interacting with enterprises in West Germany and Europe, thus enabling them to learn entrepreneurship and adapt to the market economy easily.

Second, the research capacity of Jenoptik employees was outstanding, and active interaction and cooperation with western countries led the company to quickly adjust to current trends in research development and the market.

Third, funds were supplied in the early stages of privatization to resolve the liquidity of the company, which enabled the company to continue its employment of competent workers who had excellent research capacity, and eventually became the driving force for the company to recover.

Fourth, experienced executives such as Lothar Spath presented a vision for the company and utilized business and political networks to secure early fund procurement, pursue M&As with West German enterprises, and carry out necessary layoff measures for surplus workers at an early stage. These led to the success of Jenoptik. In particular, it was very helpful that the local government implemented sufficient funds procurement at an early stage and the mother company Carl Zeiss pushed forward with resource procurement. Lothar Spath presented a convincing vision for the future of the company and persuaded the state government and Treuhandanstalt, finally securing DM 3.1 billion in grants.

Fifth, the decisive personnel reduction measures performed early on in the restructuring process lowered the cost burden on Jenoptik and offered a new vision for development to the remaining workers.

The above factors of success went against the basic principle of privatization for East German enterprises at the time, which was that "rapid privatization is the best way for management normalization," and it is still debated whether rapid privatization is the most desirable form of implementation. Rapid privatization is criticized for failing to give enterprises in East Germany the chance to adjust to a new environment, including a new financial system, exchange rate system, rapid wage growth, and the collapse of socialist countries in Eastern Europe.

4. Policy Implications for a Unified Korea

4.1 Guidelines for Subsidy Policies in Coordination with Competition Policies

As depicted in the Jenoptik case, the reason a company that had been split into several minor businesses, and which possessed relatively inferior technology and financing compared to its counterparts, succeeded in restructuring can be attributed to how the Trust Agency and the local government engaged in active funding from the initial stages. However, while from the standpoint of corporations such government subsidies are helpful for restructuring, from the perspective of competition policy, they sometimes induce distortions in the market. Subsidies may be deemed necessary when targeting social and political stabilization through job security and may be indispensable in the early phases of unification. However, a clear policy framework must be addressed first to decide upon the criteria of subsidy utilization and to coordinate them with competition policies.

The process of reunification of East and West Germany involved a similar plot development of implementing the democratic market economy system of privatizing state-owned enterprises. One of the policy schemes the West German government utilized was the prevention of monopolies in the market by dividing the preexisting national monopoly industries into small- and medium-sized enterprises. However, during the course of executing the privatization policy, the Treuhand (Trustees) failed to clearly reflect these competitive policy objectives in their policy measures. The formation of the market economy was not guided autonomously in East Germany, but instead induced through subsidies by the state, which brought distortion to the market. As a result, numerous unproductive companies were supported by the government to ensure some form of employment, regardless of their profitability. This not only hindered the optimal allocation of labor capital, but also downsized the incentive for workers to switch jobs or enroll in the vocational education of other industries. Such counterproductive measures created a vicious cycle of rising unemployment rates, which made restructuring the economic system more problematic. Furthermore, the "unofficial negotiations" of the Trust Agency resulted in the East German industries monopolizing their counterparts in the West, which defeated the purpose of the policy itself. The shares of Jenoptik were, too, sold through negotiations with the Trust Agency, the Turingen State Authority and Karl Zeiss. Although not in the case of Jenoptik, the West German companies that monopolized the market often bought their counterparts in the East, which had been considered competitive in the eastern market.

It is safe to say that subsidy utilization beginning from the initial stage prolonged the operation of Jenoptik. Nevertheless, subsidies provided to Jenoptik were merely initial subsidies. The success factor behind Jenoptik's restructuring program was the efficient utilization of subsidies backed by numerous efforts. Karl Zeiss Hildesheim, the parent company, participated as a stakeholder in what can be described as an oligopoly market structure; Jenoptik was able to secure its place in the market through technological advancement by allocating different concentrations in respective enterprises. Its example of conducting M&As with the necessary West German companies, securing the global market as a sales network, or securing new sources of finance, is very likely to provide implications to the restructuring policy of North Korean companies. Securing the global market as a sales network through M&As with the relevant West German companies, or perhaps developing a growth strategy based on new sources of finance, are highly suggested restructuring policies for North Korea.

A possible setback is that conflicts may arise between economic policies that are based on market economy principles and laws that are created to reflect future realities, which can pose a major speed bump in converting North Korea into a market-based economy. The economic policies formulated by the South Korean government to aid the North Korean economy will not be fundamentally compatible with the current distressing conditions of the North, and will likely require intervention from the Republic of Korea (ROK) to fix policy mistakes, which will take on an unwanted form of national interference. This is not a matter that can be alleviated through capital transfer to Pyongyang or by providing subsidies to companies.

The successful privatization of state-owned enterprises in East Germany is mostly due to their ownership by West German companies during the early stages of privatization. Most of these company shares were sold under informal negotiations, with the West German companies absorbing companies in the same industries in East Germany, which created a monopolistic market structure in the eastern region. For the East German companies, it was advantageous to regenerate and restructure faster by receiving technology transfers and funds from their western counterparts, but disadvantageous in terms of the market structure. Likewise, the South Korean oligopolistic market structure is highly likely to lead to further monopolization by South Korean firms in North Korea. An even bigger challenge is that government intervention in the market can make the industry less efficient and destabilize the economic order. In this respect, industrial structure reform and corporate restructuring are necessary for both Seoul and Pyongyang.

To resolve the above-mentioned problems, the Republic of Korea's government will have to concoct a policy in line with other economic order policies. To realize this, the ROK government must privatize state-owned companies in the Democratic People's Republic of Korea (DPRK) as soon as possible. The existing chain of command in the DPRK's planned economy must be eradicated and the system must be replaced by market competition. The DPRK companies' restructuring and monopoly will have to be transformed into a system where small- to medium-sized enterprises can become more competitive through privatization. In addition, the unified Korean government must reinforce systems to ensure greater competition among different industries. To spur the active generation of subcontractors, small- and medium-sized companies based in the ROK must be given higher priority over the purchase of DPRK companies. Industries focusing on investment goods are expected to form an interrelated effect which may vitalize the economy at a much faster pace.

Regardless of whether unification takes place as a step-by-step process or in the form of absorption, the ROK government must develop policies regarding company restructuring to reduce the social and economic impact during the transitional period. It is only through these methods that we can improve the survival rate of DPRK companies during the transition. Utilizing government subsidies or policies of a similar kind to assist the survival of DPRK companies during the transition period is a risky option from the competition policy perspective. Should this take place, such heavy government intervention may induce the paradoxes already rampant in the ROK: inefficient resource distribution and inappropriate industry structures may appear in the DPRK region as well. Thus, to transform the structure of the DPRK economy into one more suitable to the market economy, government subsidy policies and systems must be enacted with certain time limits. Even in cases where a subsidy is inevitable, those flows must focus on the absence of social overhead capital and administrative defects. Also, when such subsidies are provided, the direction of economic policies should be set in a way that induces the DPRK economy to pursue innovation through competitiveness. Through these policy frames, high administrative costs that used to hinder the DPRK's companies must be lowered, while systematic instruments must be set in place to guarantee legal protection and currency stability to foster privatization and investment.

4.2 Company Restructuring and Unemployment

Jenoptik's restructuring process caused a high degree of unemployment. Millions of laborers in most transition countries and eastern Germany became either unemployed or forced to change their occupation during the privatization process, while some of the laid-off workers succeeded in getting employed again through occupational education. Eastern Germany's company restructuring process also involved the elimination of incompetent job positions in order to transform them into occupations that are profitable and competitive in the long run. In January 1990, the working population of Eastern Europe amounted to roughly 9 million. However, when the trusteeship office began its project in July, only 3.5 million people were employed in eastern Germany. As seen in the table below, the working population of eastern Germany experienced rigorous changes in 1990. About 80 percent of the unemployed were able to retain their original jobs or acquire new ones. And in some cases, they were able to tentatively retain their jobs through early retirement or various labor market protection policies. The remaining 17 to 20 percent of the working population were laid off.

During the early stages of task implementation by the trusteeship offices, they tried their best to avoid the option of normalizing company operation through national subsidies. This was because, on the one hand, they were worried about an abusive reliance on subsidies provided by the office, and, on the other, they believed private investment should be able to more efficiently deal with the recovery of management operations. For this reason, the West German government recognized the need to prioritize privatization over normalizing operations and implemented privatization first, which entailed massive unemployment during the early phase. However, this phenomenon cannot be solely attributed to the trusteeship office's decisions, but rather stems from the structural problems dormant in East Germany's industries being brought to the surface during the transition to a market economy: East German industries used to employ more than enough laborers and this hidden unemployment became visible during the transition to a market economy.

Table 4.1. Employment in East German companies

14%	Workers who switched jobs due to the labor market policies supported by the Trust Agency
5%	Early retirees / retirees
8%	Volunteered retirees
11%	Unidentified whereabouts
45%	Retained
17%	Unemployed

Source: Treuhandanstalt, "Daten und Fakten zur Aufgabenerfüllung der Treuhandanstalt," 1, December 1994, Berlin, p. 13.

Starting from 1991, when political pressure increased due to the high unemployment rate, the Trust Agency began to normalize the business operations of East German companies in order to maximize the number of available jobs. Nonetheless, this business normalization process realized little measurable success. The management normalization policy was limited only to providing assurance services or ensuring payment capabilities for the enterprises. As a result, the Trust Agency focused only on the preliminary dimension needed for the prerequisites for normalization of management. For example, if the agency forecasted a company to remain competitive, the government only provided just enough for the company to bail out from excessive debt or insolvency. Without proper policies addressing large-scale investment and new technology development, the companies eventually went bankrupt or were forced to reduce their production scale.

In order to replace the old eastern industrial facilities with modern ones, large-scale job losses were inevitable, with no alternative choice available to prevent unemployment. Another external factor that contributed to the East

German unemployment rate was the principle of returning property rights to the original owner. This principle has been a decisive factor in hindering investment, not only impeding the creation of new jobs but also eliminating existing occupations. Yet, the biggest reason behind the mass unemployment was the discrepancy between high wages and low worker productivity. This was a product of ideological thought processes and the non-pragmatic wage policy made under the resolution of wage criteria from the workers and unions. It is difficult to establish an optimal relationship between wages and productivity, but applying the West German wage negotiation system to the eastern region without any tailored modification was a major economic policy error. This affected the unit wage costs in the East more than in the West, and caused an immense loss of competitiveness among East German companies. Wages of privatized companies and businesses under the Trust Agency have risen sharply. A notable phenomenon is that the productivity of privatized firms has a positive correlation with wage increase, while the productivity of firms that have not yet been privatized displays a much smaller wage increase. The unified Korean government should take heed of the flaws in Germany's employment policy to lessen the burden of reunification costs.

Many scholars in South Korea have calculated the expected rise in the unemployment rate resulting from the restructuring of North Korean companies after reunification. The size of the expected unemployment varies by scholar considerably, depending on different estimation methods. Setting aside the estimation approaches, the number of unemployed workers may fluctuate depending on the method of unification and labor market policies. It is challenging to articulate an inter-Korean labor market policy after reunification when the labor market structure of North Korea is unclear. Therefore, under current circumstances it is more advisable to seek a unification method that can reduce the number of unemployed people laid off due to restructuring.

South Korea has adopted a variety of labor market policies such as unemployment relief policies, but these have yet to form a stable system as the labor market frameworks that deal with the unemployment insurance system, vocational education and retraining programs are still in their infancy. With such unclear labor market systems, the sudden unification of the two Koreas will cause more social problems than those that occurred in Germany. Moreover, the anticipated North-South migration will have a significant negative impact on employment policy. The migration from North to South will intensify social problems such as the housing crisis, income inequality, and the regional development of slums in the southern part of the peninsula, especially when concentrated in large cities. If such social problems remain unaddressed, there is a great possibility that the issue of unification-related costs will spread skepticism about reuniting the two Koreas. Therefore, if North Korea abandons its current self-sufficient economic system and integrates with the world market by promoting an openness reform, this will minimize the impact of unification and burden on the labor market of a reunified Korea. Through this, Pyongyang would gain the opportunity to revitalize its stagnated economy, and to provide educational opportunities for North Korean workers to learn about the functions of the market economy, which in turn would minimize the impact caused by the new reunified labor market framework. This transitional period of inter-Korean economic integration can serve as an important driving force for political reconciliation and a smooth unification . However, the prerequisite is that wage liquidity in South Korea must be guaranteed. If both wages and prices are flexible, the migration of population in the North may occur at a controlled pace. This is because satisfying the labor demands in South Korea can greatly improve the welfare of the entire population.

4.3 Implications for Individual Companies

From a company standpoint, there is an analysis that privatization methods, timing, and position greatly influence business restructuring. According to this study, the East German companies that succeeded in restructuring and privatization were the companies bought by their western counterparts in the early stage, rather than by East German investors or foreign investors. This can be attributed to the West German parent company's ability to provide adequate technology, funds, and markets for the East German enterprises. An MBI (management buy-in) structure allowed parent companies of the West to improve productivity and corporate restructuring, which made them more competitive than other East German companies. Even in the case of Jenoptik AG, whose parent company from West Germany did engage in investments, the CEO closely worked with western companies through active participation in M&As to fortify market accessibility and company technology. Other labor market transition economies also displayed the same tendencies in companies privatized by foreign investment, which showed much better economic performance than other domestic companies. On the other hand, companies privatized under an MBO (management buyout) framework showed a high survival rate but little success in terms of sales and profits. This can also be attributed to a lack of knowledge about the capitalist market on the part of business executives, and relatively poorer conditions in terms of capital procurement to normalize business or push for new market discovery.

In this respect, the restructuring and privatization of North Korean companies must follow tailored policy measures that coordinate privatization with South Korean companies to secure capital, technology, and markets, for the normalization of management. However, as seen in the case of East Germany, privatization through informal negotiations results in distortion and opacity of the market structure. Therefore, it will first be necessary to evaluate management normalization and restructuring proposals based on their investment volume and plans for employment, and invite qualified potential investors to participate in a two-stage auction process. Through this process, efficient restructuring and management normalization is likely to be guaranteed.

4.4 Preventing Outflow of Talented Human Resources

During the privatization of VEB Carl Zeiss Jena, which consisted of 25 companies, in 1965 through the Treuhandanstalt, all companies were sold except for Jenoptik, which was acquired by a public enterprise in Turingen and sold in the stock market in 1998 after stabilizing the business. It stands as a very exceptional case among East German companies undergoing privatization. Therefore, it would be difficult to generalize the case of Jenoptik as a model for the privatization of North Korean state enterprises. It is worth noting, however, that the competitive industries of North Korea are those based on the natural sciences, such as software, missile, and nuclear technologies, etc. Privatizing these enterprises and their workforce talent could result in an outflow of this talent. For this reason, these industries should be converted into public enterprises in the way of Jenoptik, and they should secure a talented workforce during business stabilization to enable the development of new products and technology. In particular, as seen from the example of East Germany and the former Soviet Union, many scientists chose to depart for western developed countries during the early stages of reunification and transition. In this regard, Jenoptik provides meaningful insights to consider.

4.5 Rapid Privatization

When reunification is realized, many enterprises will have to prepare for rapid privatization. It would not be feasible to have a single authority for state-owned enterprises, tentatively named the "Trust Agency for State Enterprises," to manage the huge number of North Korean state enterprises.

Moreover, it would be impossible for this trust authority to push forward with business stabilizing measures before privatization. Above all, investors are the most clever and competent entrepreneurs and the most adequate restructurers. This principle must be applied to the privatization policy of unified Korea. In some exceptional cases, where a significant group of businesses show a high risk of technology outflow and have the capacity to contribute to the national industry, they should first be turned into public enterprises before stabilizing their business.

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Internal Migration in East Germany After Reunification: Demographic and Economic Effects

Matthias Wieschemeyer†

1. Introduction

After 25 years of continuous net emigration, in 2015 East Germany reported its first internal migration surplus. For most observers this came as no surprise since emigration to West Germany had been decreasing continuously from 180,000 individuals in 2007 to 130,000 in 2014[1]. On the other hand, migration from West to East Germany increased slightly from almost 130,000 to 140,000. The turn in migration is remarkable given that economic differences persist: Since the early 2000s average GDP per capita in East Germany stagnates at around 70 percent of the West German level. While in the 1990s the economic gap largely contributed to population decline in the eastern part, persistent aggregated economic differences have become a rather poor measure of East-West migration today. At first sight, both decreasing emigration and stagnating convergence may indicate a gen-

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1) Berlin is considered part of East Germany as migration statistics no longer allow for a sharp differentiation between East-Berlin and West-Berlin.

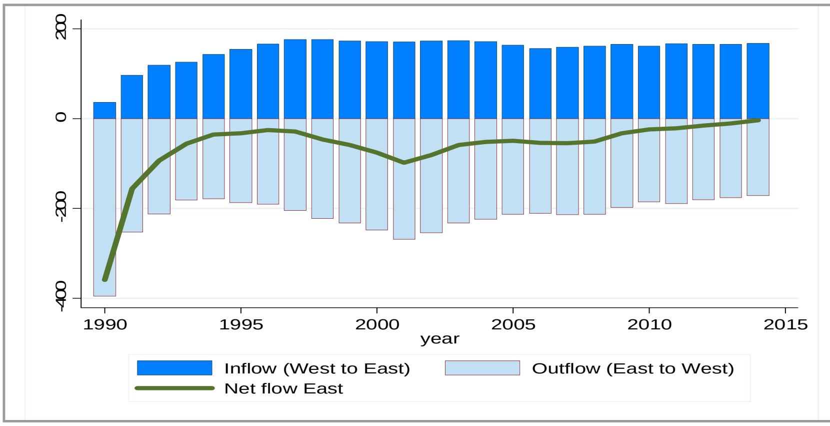
eral slowdown of social and economic activity in East Germany. This report provides evidence that such an interpretation is potentially misleading. By shifting the geographic focus away from a simple East-West comparison towards a comprehensive view including agglomeration dynamics within East Germany, we get a different picture of the situation today: In fact, then people from East Germany appear on average as mobile as ever and structural economic changes as present as ever. What we observe is an increasing polarization between growing major cities and decaying peripheral regions. More than 25 years after German reunification, dissatisfaction with the political establishment is nowhere as high as in East German peripheries. This cannot be explained by simple East-West comparisons and stagnating convergence, but requires a comprehensive analysis on the regional level.

2. Three phases of East-West migration after reunification

Post-unification migration in Germany can be broadly described in three consecutive phases (see Figure 5.1): The first phase started in 1990 (or 1989) when almost 400,000 individuals from East Germany moved to the West. This phase ended in the mid-1990s when emigration to West Germany dropped to less than 180,000 individuals. The second phase is characterized by a resurgence of emigration that reached a local maximum of 270,000 individuals in 2001. Given the fact that wages as well as the unemployment gap did not decrease as rapidly as in the early years after unification, economists tend to explain the second phase as an outcome of disappointment involving sluggish East-West economic convergence. The option value of waiting for a rapid convergence—once stopping people from leaving right after unification—decreased significantly and accordingly emigration increased

(Fuchs-Schundeln & Schundeln, 2009, Burda, 1993).

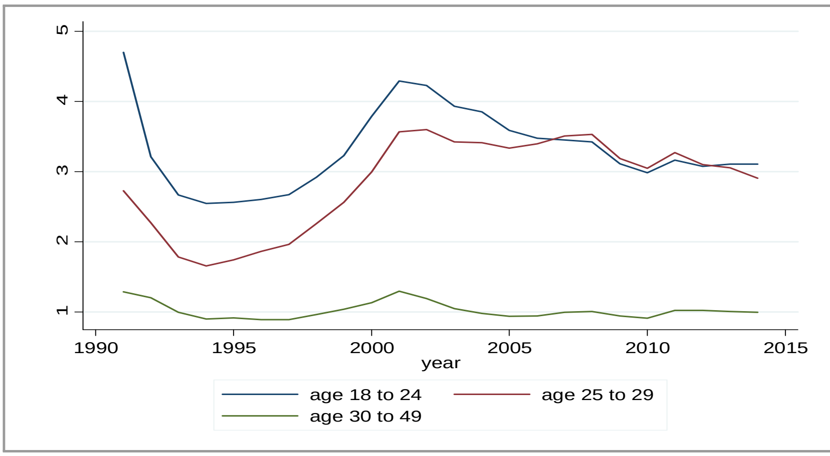
Figure 5.1. Internal migration between East and West Germany (in thousands, East Germany including Berlin)



Source: BBSR, own calculations.

The third phase then started in 2002 and has not yet ended. From this year onwards, outmigration has been continuously decreasing to a level of almost 170,000 individuals. In contrast, the level of migration from West to East Germany has not changed much since the mid-1990s, fluctuating around 165,000. The decrease of outmigration in recent years can partly be explained as a consequence of demographic change. It is a common phenomenon that the likelihood of migration is the highest among the young age cohort, and given that the absolute number of young people is rapidly declining in East Germany, we would naturally expect lower outmigration. However, the change of demographic composition appears to be a minor factor as the emigration rate as a percentage of the respective age cohort is also significantly decreasing for the young or working age population (see Figure 5.2). Interestingly, migration from West to East Germany has nevertheless remained rather stable over the last twenty years. Part of it can be attributed to circular migration, including people that left East Germany in the early years and moved back to East Germany for economic or family-related reasons. In sum, even in the absence of any legal restrictions, balanced migration and a significant gap in average income do not appear to be mutually exclusive. To better understand the development that took off in the years after 2000, a closer look at shifts in migration within East Germany is necessary.

Figure 5.2. Age specific outmigration from East to West Germany as percentage of total age cohorts

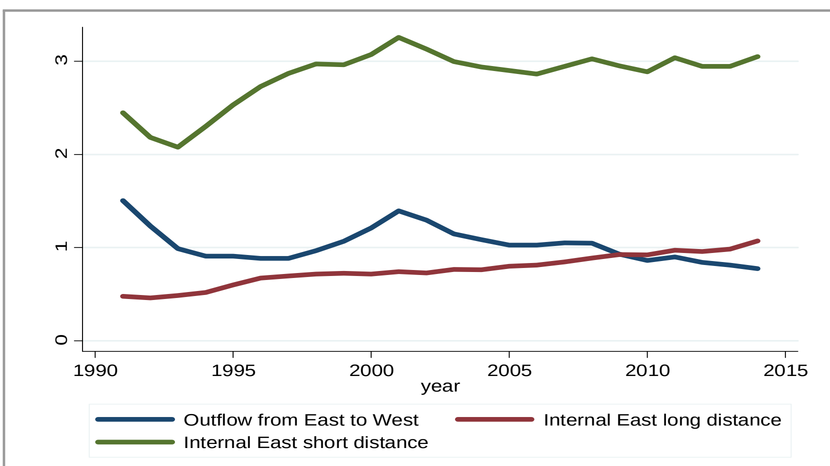


Source: BBSR, own calculations.

3. The revival of major East German cities

In the following the East-West perspective from the previous paragraph is complemented by a core-periphery focus. As can be seen in Figure 5.3, people in East Germany in general have not become less mobile but rather changed their preferred destination over the last 15 years. Whereas in 2001, almost 1.6 percent of the total population moved towards West Germany, this number dropped below one percent in 2014. In the same period the share of the total population that migrated within East Germany (excluding migration between adjacent counties) increased from 0.7 to 1.1 percent (see Figure 5.3). Thus, most of the relative decrease in East-West migration was replaced by internal migration within East Germany. What are the characteristics of this shift in direction? A structural differentiation between counties and major cities allows us to identify a shift in the relative attractiveness of urban cores and peripheral areas as the main sources of recent internal migration dynamics. This change becomes most obvious if we depict the components of annual population growth separately for the nine major cities (excluding Berlin) and rural, or rather peripheral, counties.

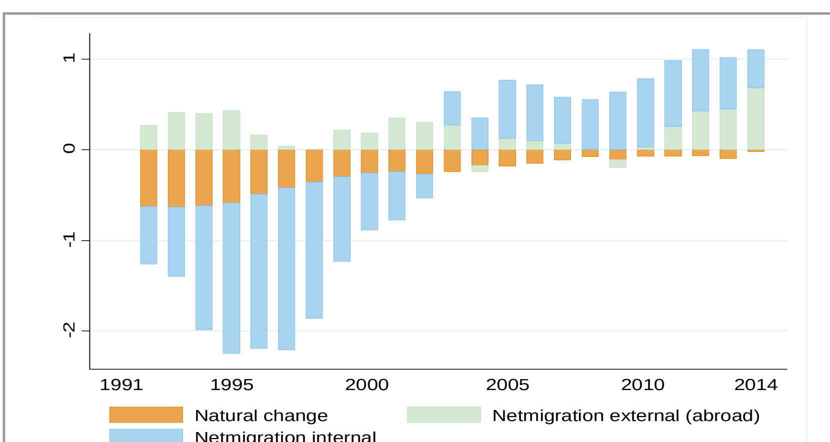
Figure 5.3. Internal migration (percentage of total population) from East to West Germany and within East Germany by distance



Source: BBSR, own calculations.

Beginning with the group of urban cores, two features of population growth in the 1990s stand out (see Figure 5.4): First, most of the population shrinkage can be attributed to emigration, either towards West Germany or towards the hinterland of East German cities. Second, the sharp drop in birth rates in the aftermath of reunification produced a negative rate of natural increase (Eberstadt, 1994). In sum the major cities' populations annually shrunk by 1 to 2 percent during the 1990s. The main reasons for this are (Couch *et al.* 2003): decaying inner cities as a heritage of socialist urban planning, while a huge loss of industrial jobs and increasing social problems in some former working class areas made living in the major cities relatively unattractive. In contrast, new housing fueled by tax allowances and neighboring shopping malls increased the attractiveness of the hinterland. However, despite a pessimistic outlook the shrinkage did not last long. Since 2003, in sum the cities have recorded positive population growth, a positive migration balance and a significant improvement of birth rates. The main factors for this relate to the increase in quality of life that many cities accomplished by renovating most part of the inner city and building up attractive amenities. In combination with rents that were still relatively low and the renewal of higher education institutions, major East German cities became particularly popular among the young age cohort. An increase in local job opportunities has to some extent reduced the incentives for young graduates to move to prosperous regions in West Germany.

Figure 5.4. Contribution of migration and demographic change to annual population growth (%) in major East German cites (excluding Berlin)

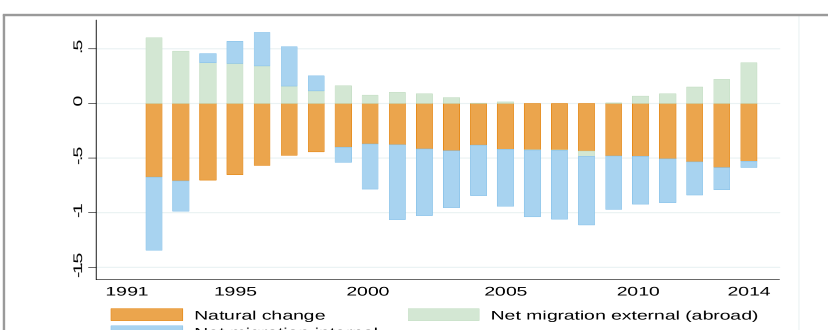


Source: BBSR, own calculations.

4. The shrinkage of peripheral areas in East Germany

In contrast the demographic development in the rest of East Germany has followed a very distinct path from the beginning of the 2000s (see Figure 5.5). After losing the population heavily up until 1993 due to emigration to West Germany, in the mid to late 1990s, the remote areas reported an internal net migration surplus. This period relates to the influx from urban sprawl that, as described above, came to an end around the turn of the century. From the year 2000 onwards, the peripheral areas recorded an average annual loss of 0.5 percent of its population due to internal migration. In recent years an increase in migration from abroad supported population growth to some extent. However, as external migration to major cities rose at an even stronger rate, it did not help to reduce demographic polarization between core and periphery. In contrast to the trend in major cities, here the rate of natural increase has not improved after the initial reunification shock. Instead, after some improvement in the late 1990s, the rate of natural increase has been negative and decreasing since the turn of the century.

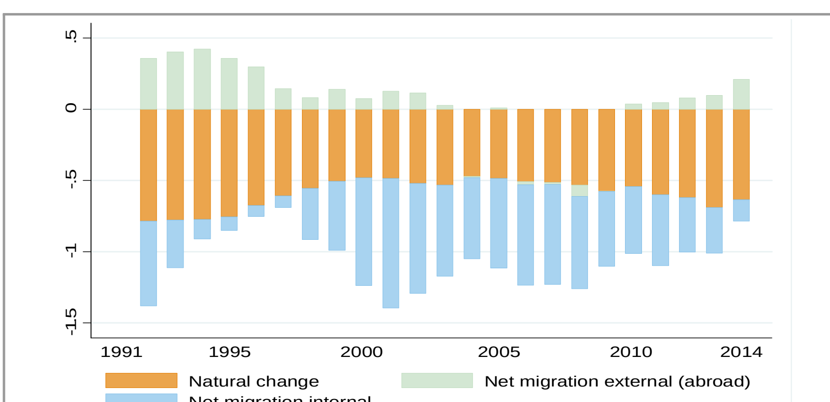
Figure 5.5. Contribution of migration and demographic change to annual population growth (%) in East German counties (excluding major cities and Berlin)



Source: BBSR, own calculations.

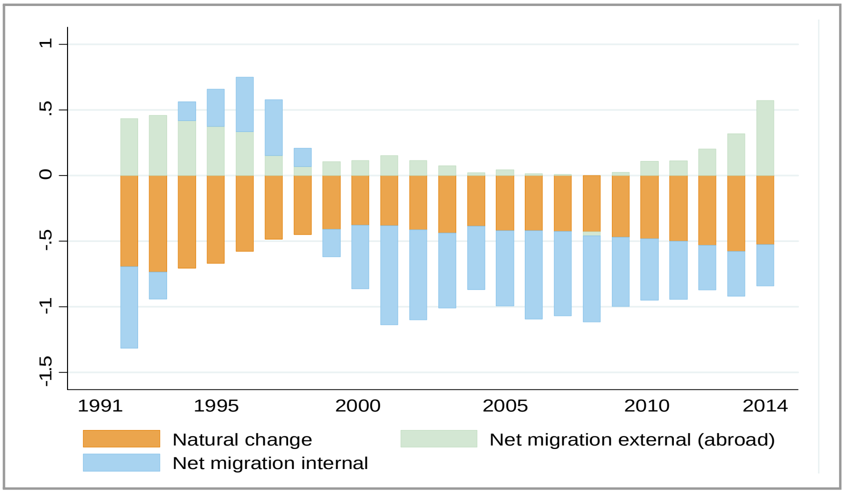
A further disaggregation reveals that it is not the level of urbanization as such that can explain the recent episode of outmigration. Urban counties in peripheral regions have faced emigration to the same extent as rural counties with a certain degree of urbanization or sparsely populated rural counties (see Figures below). In line with classical economic agglomeration theory, this evidence strengthens the view that distance to core is more important for growth than the sole degree of urbanity. The coincidence of low fertility rates and outmigration of young women accelerates an ongoing process of population shrinkage in the peripheral areas. Current birthrates in peripheral counties are up to 50 percent lower compared to major cities (see Figure 5.9). In contrast, the number of elderly people in care homes is twice as higher in peripheral counties compared to major cities (see Figure 5.10). The development of the old age dependency ratio (OADR), that is the ratio of old age (> 64 years) to the working age population (18 - 64 years), further indicates an increasing demographic polarization between core and periphery (see Figure 5.11). While in the 1990s the OADR of major cities and periphery tended to converge, we now observe that population aging in the periphery is dramatically decoupling towards higher rates.

Figure 5.6. Contribution of migration and demographic change to annual population growth (%) in East German urban counties



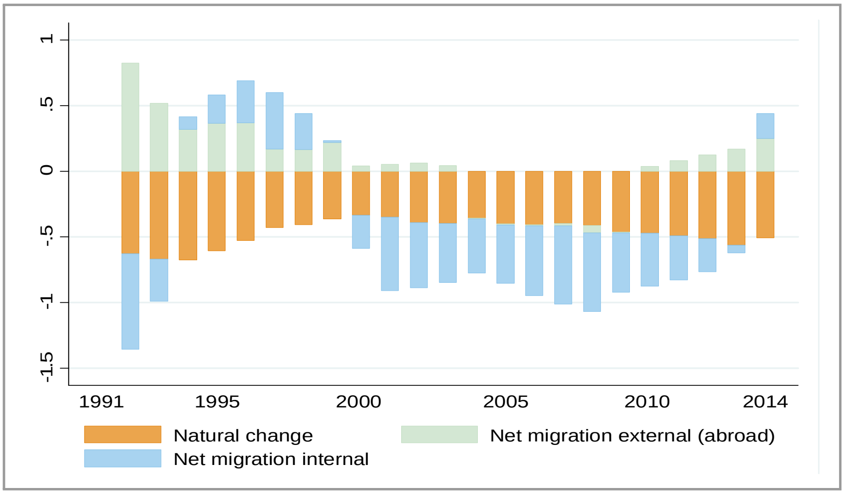
Source: BBSR, own calculations

Figure 5.7. Contribution of migration and demographic change to annual population growth (%) in East German rural counties with a certain degree of urbanization



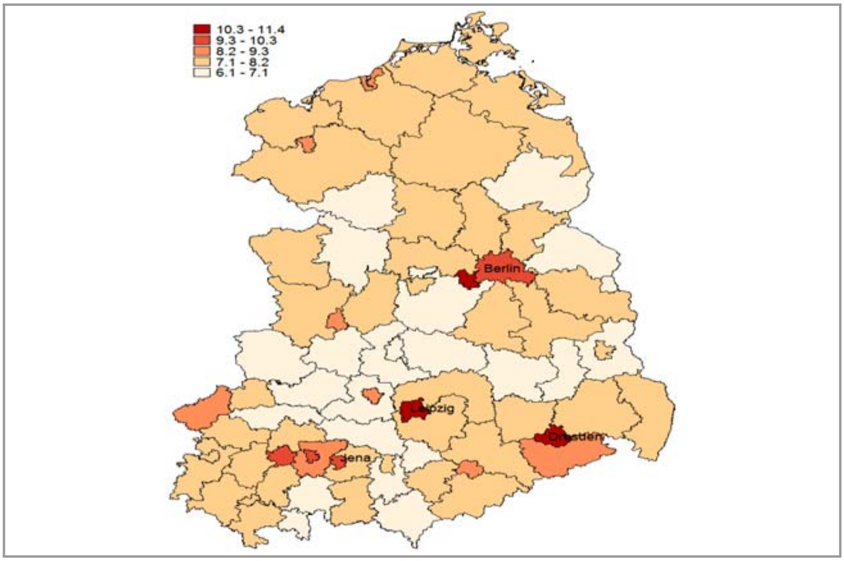
Source: BBSR, own calculations.

Figure 5.8. Contribution of migration and demographic change to annual population growth (%) in sparsely populated East German rural counties



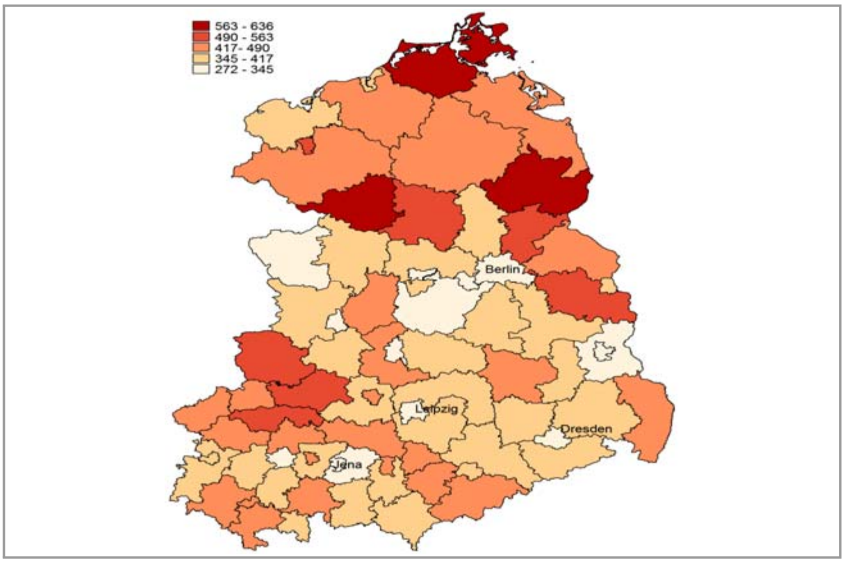
Source: BBSR, own calculations.

Figure 5.9. Births per 1,000 individuals in East Germany



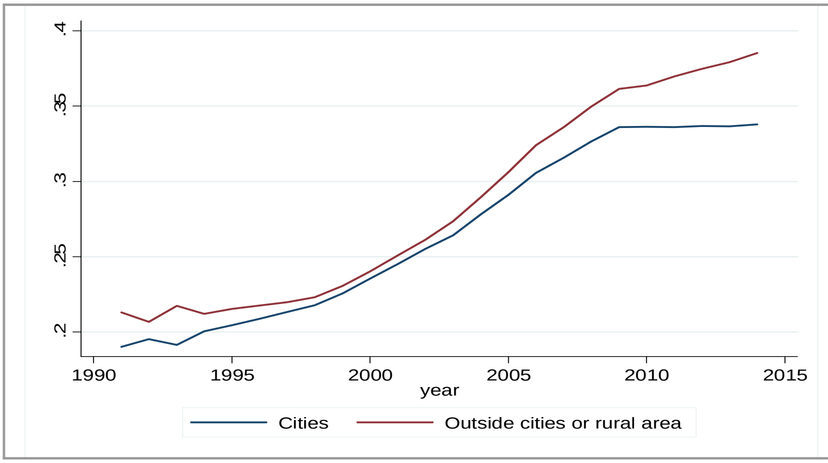
Source: BBSR, own calculations.

Figure 5.10. Number of nursing homes per 10,000 individuals in East Germany



Source: BBSR, own calculations.

Figure 5.11. Old age dependency ratio in East German major cities and peripheral East German counties



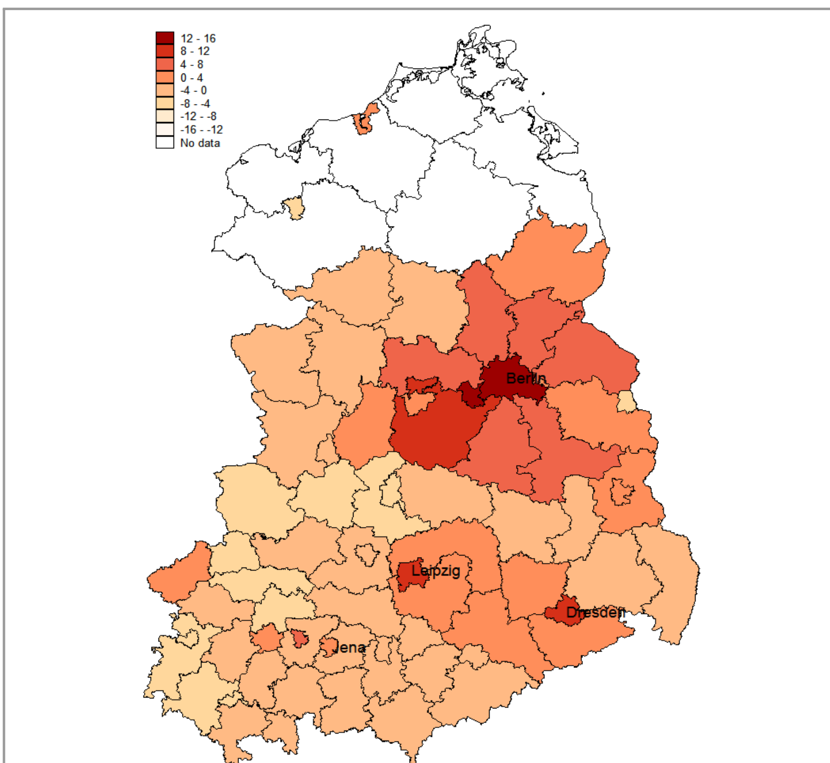
Source: BBSR, own calculations.

The demographic divergence between major cities and peripheral areas in East Germany is closely linked to the process of economic agglomeration. If we take a look at the number of firms that have been newly established or closed in recent years, the gap between major cities and the rest becomes obvious (see Figure 5.12). Between 2006 and 2013 the city of Leipzig recorded a jump in the number of firms by more than 10 percent, while the peripheral county *Nordhausen* in Thuringia recorded a net loss of over seven percent. Though strong growth in the number of firms does not indicate high productivity, it nevertheless serves as a rough measure of current economic activity.[2)] The most important factor for future economic growth in East Germany is the development of human capital (Brautsch *et al.*, 2016). To maintain competitiveness or further catch up with productivity levels in West Germany, the economy in East Germany heavily relies on a qualified

2) Berlin and its surrounding counties turn out to be the epic center of economic agglomeration, though due to its history as a divided city, Berlin is not considered as a part of East German major cities in this report.

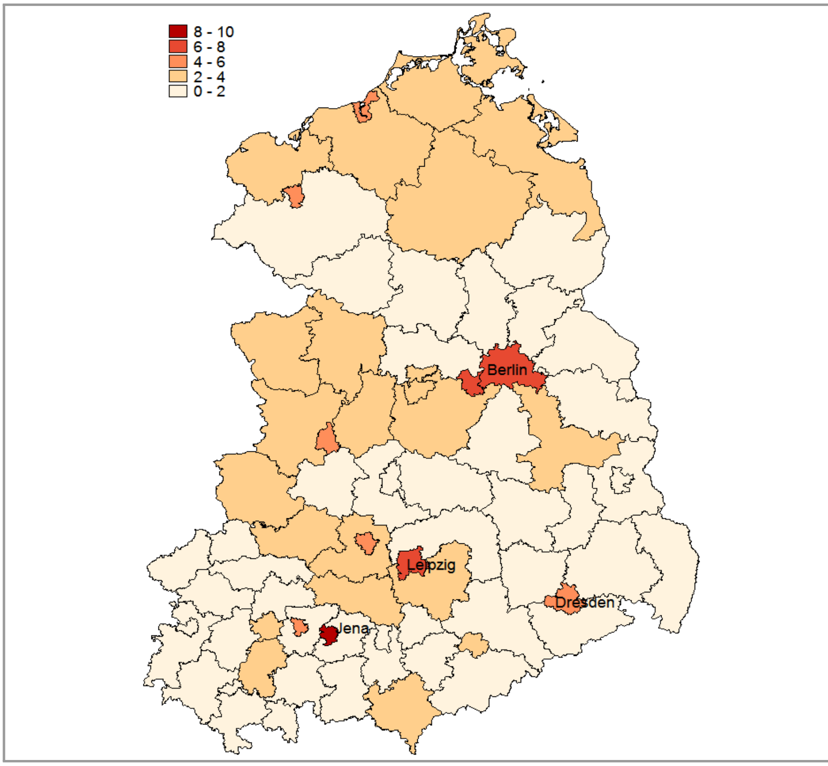
workforce. However, given the huge loss in the young age cohort, some East German peripheral areas are already suffering from the shortage of specific labor supply or will likely do so in near future. The heterogeneous increase in high-skilled employees measured by the share of employees with a college degree gives further evidence to regional divergence (see Figure 5.13). The city of *Jena* is at the top, recording an increase in high-skilled workers of almost 10 percentage points between 2004 and 2013. At the lower end is the rural county *Uckermark* in Brandenburg, where the share of employees with college degrees has been stagnating for almost 10 years.

Figure 5.12. Number of firms – Total growth between 2006 and 2013 (%)



Source: BBSR, own calculations.

Figure 5.13. Share of employees with college degrees – Growth between 2014 and 2013 in percentage points

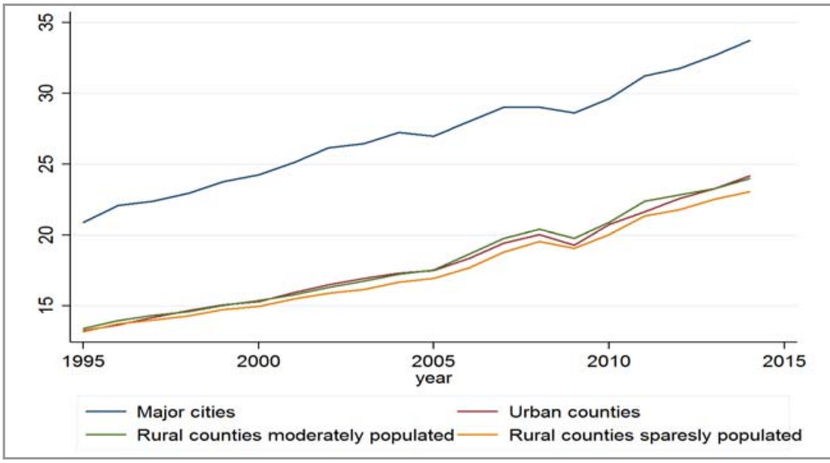


Source: BBSR, own calculations.

However, the potential negative macroeconomic consequences of population de-growth in peripheral areas are probably yet to come. In the short run, peripheral counties on average may have benefited in terms of GDP per capita due to a potential increase in marginal labor productivity[3] In fact, the gap between real GDP per capita in major cities and rural areas has remained relatively stable in recent years (see Figure 5.14).

3) See Chapter 6 of this volume for a detailed exposition of short- and long-run economic effects of emigration from East German states.

Figure 5.14. GDP per capita (EUR 1,000) in East German major cities and East German counties



Source: BBSR, own calculations.

5. Conclusion

In the first decade after reunification, the biggest East German cities were among those regions that lost most heavily in terms of population. Cities suffered from a rotten infrastructure, bad housing conditions and few economic opportunities, making them an unattractive place to live for a large fraction of the population. But times have changed: Since 2003, the major cities recorded a sustained positive internal net migration balance, a continuous improvement in birth rates and in more recent years, a strongly growing foreign population. The population growth goes hand-in-hand with an increasing number of firms and a steady increase in highly skilled workers. The downside of this revival can be found in external regions: Rural areas disconnected from economic cores suffer from the negative consequences of a rapidly aging population. Today there is no evidence that peripheral regions will experience a revival in the way major cities did after 15 years of post-unification shrinkage. Although economic convergence with West Germany is still considered a long-term goal, an increasing polarization between growing cities and a dramatically aging periphery appears to be the most apparent and challenging phenomenon for policymakers in East Germany today (Gropp, 2015).

What could have been done differently if this lagging process of agglomeration had been taken into account as a probable scenario in economic policy planning? As Burda (2010) put it, a "selective policy of regional development focused on these areas (and perhaps extended to smaller cities such as Chemnitz, Cottbus, Gera, Magdeburg, Rostock and Schwerin) might have been a better alternative to a carte-blanche subsidy approach which ended up in poorly chosen infrastructure projects." Whatever the right approach might have been, it is important to note that in the beginning of the 2000s the revival of major cities in East Germany was considered a very unlikely scenario among urban scientists (see Bontje, 2005). Thus, a general lesson that can be drawn from the German experience is that forward-looking planning should consider the likelihood and consequences of agglomeration processes early enough to minimize future economic and social costs.

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Convergence Between East German Regions and East-West Migration

Axel Lindner[†]

The German unification was a unique historical experiment: hardly ever was a region so quickly and completely integrated into a larger economy as was East Germany into the Federal Republic in the years since 1990. Economists examining this process usually ask the question of whether this experiment succeeded or failed: has economic performance in the East converged to the West German level fast enough (see, for example, Paqué 2009)? The results are mixed: per capita GDP in the East, being less than 40 percent of the West German level in 1991, grew rapidly in the first half of the 1990s, but the catching-up later slowed down and has come to a halt at below 70 percent in recent years.

Another convergence, however, was rather complete: that of per capita GDP between regions inside East Germany. This is shown in Section 1.1 of this report. Section 1.2 shows, however, that convergence between East

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German regions cannot be detected if we look at the time paths of absolute GDP levels. Section 2 gives an explanation for these two basic facts: migration from East to West that, from a neoclassical perspective, should be a major driving force of convergence between the two areas, has instead mainly contributed largely to the per capita convergence between regions inside East Germany. The conclusion argues that the forces keeping output levels per person of East German regions close to each other are at present becoming weaker, and that per capita GDP in East German regions will probably start to diverge in the coming years.

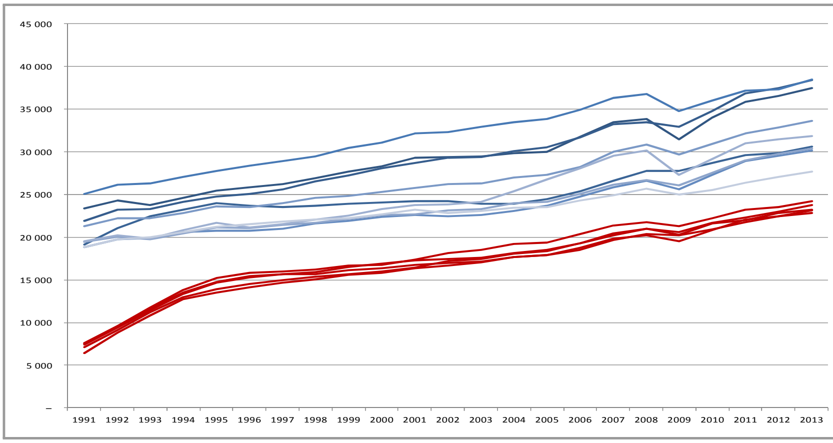
1. Trends of regional (in-)equality in East Germany since unification

1.1 GDP per capita

Quite a lot of insight about regional dynamics inside Germany after unification can be gained by looking at a very simple figure that shows the time paths of GDP per capita in the federal states (Figure 6.1).[5] What first meets the eye is how GDP per capita quickly caught up in the East German states in the early years following unification, as well as the slowdown of this process after 1995. Moreover, the spread between western states (blue lines) appears to increase over the years. In 1991, GDP per capita in Hesse (which includes the financial center Frankfurt), the most prosperous of the states depicted in Figure 6.1, was a third higher than in the poorest West German state, Schleswig-Holstein; in 1991 the gap was almost 40 percent. Among East German states, however, GDP per capita has always been very similar,

5) The West German city states Hamburg and Bremen, which have very high income levels, are not included in the figure for reasons of exposition.

Figure 6.1. GDP per capita in current euros



Note: German federal states (Bundesländer), East German states in red, West German ones (including Berlin) in blue.

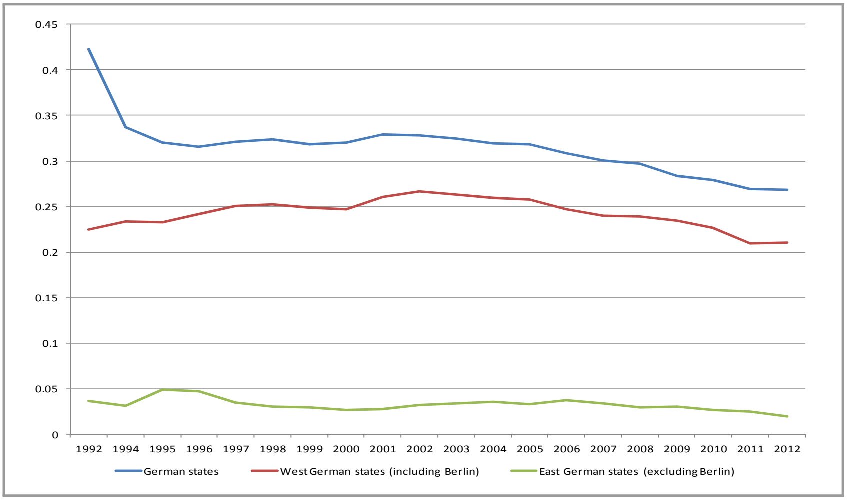
Source: Statistisches Bundesamt (2014), Volkswirtschaftliche Gesamtrechnung der Länder. The West German city states Hamburg and Bremen are not included, because their GDPs per capita, relative to those of the other federal states, are very high.

with the highest figure (that of Saxony) in 2013 being only four percent above the lowest one (of Mecklenburg-Pomerania).

Since unification, the coefficient of variation has been 5 to 10 times higher among West German states than among East German ones. It fell markedly in Germany as a whole, when the gap between income levels in the West and in the East quickly shrank in the first few years after 1990, while it has stayed about constant among West German states since unification (Figure 6.2). The low level of variation in the East, however, has further fallen by about a half (Figure 6.3). This is not an accidental result made possible by the small number of East German states. It holds (albeit not as drastically) if we look at GDP per capita at the district level (Landkreise and kreisfreie Städte, Figure 6.4).[6] Thus, the data on GDP per capita gives the impression of a

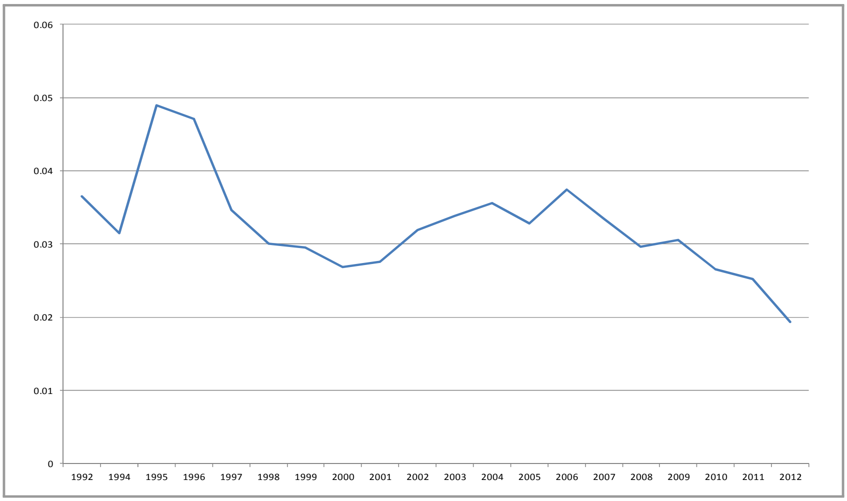
6) There are 152 districts in West Germany (including Berlin). For the 76 districts in East Germany, a complete set of data is only available for years since 2000.

Figure 6.2. Coefficient of variation since unification: GDP per capita in the federal states



Source: Statistisches Bundesamt (2014), Volkswirtschaftliche Gesamtrechnung der Länder; own calculations. The West German city states Hamburg and Bremen are not included.

Figure 6.3. Coefficient of variation since unification: GDP per capita in the East German federal states

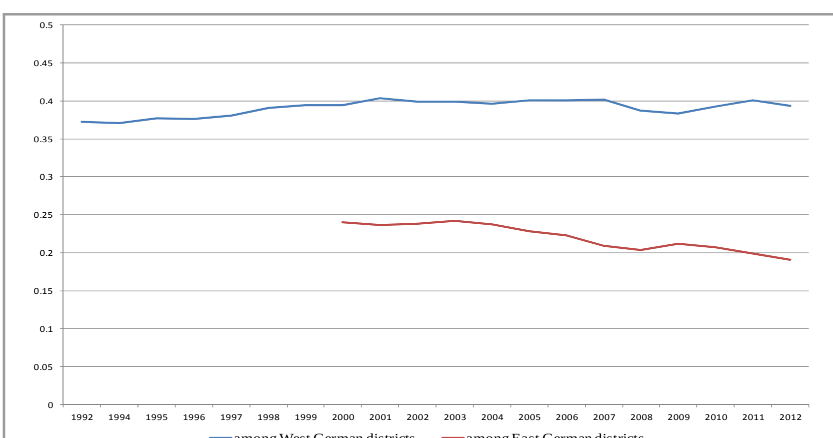


Source: Statistisches Bundesamt (2014), Volkswirtschaftliche Gesamtrechnung der Länder; own calculations.

high degree of homogeneity among East German regions at the time of unification, which has increased further markedly since then. This is quite a remarkable result, given that the regions differ greatly in their economic structure: there is not much industry in Mecklenburg-Pomerania, but this state, with its many lakes and the Baltic sea-side, has a successful tourist sector. Brandenburg benefits from its position around the German capital Berlin, the main chemical district in East Germany is in Saxony-Anhalt, while investment goods are mainly produced in Saxony and Thuringia. All these differences appear to have no visible effects on GDP per capita.

Regional redistribution, mainly from West Germany to the East, can partially explain this fact: it brings public spending per capita in all German federal states roughly into line. Moreover, the equalizing effect is larger in the East than in the West, since public consumption has, at about 27 percent, a much larger share of GDP in East Germany than in the West (18 percent). But it still appears difficult to argue that public transfers are strong enough to equalize GDP per capita almost completely in East Germany.

Figure 6.4. Coefficient of variation since unification: GDP per capita in German districts (Kreise and kreisfreie Städte)

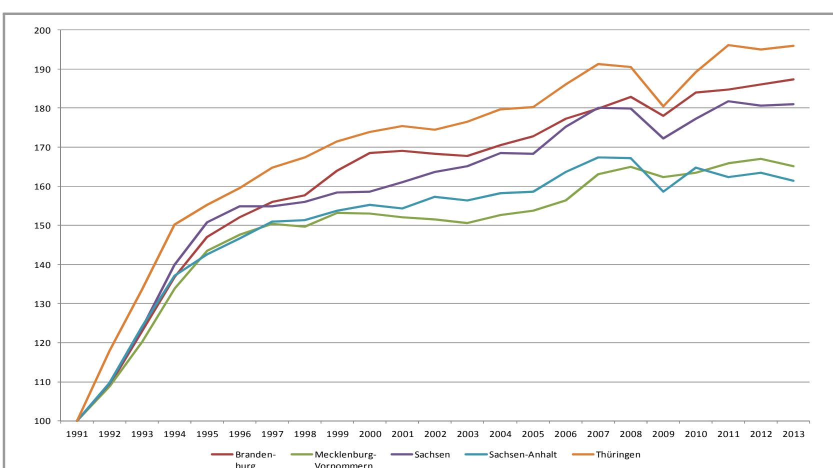


Source: Statistisches Bundesamt (2013), Bruttoinlandsprodukt, Bruttowertschöpfung in den kreisfreien Städten und Landkreisen der Bundesrepublik Deutschland; own calculations.

1.2 Absolute GDP, population, and migration

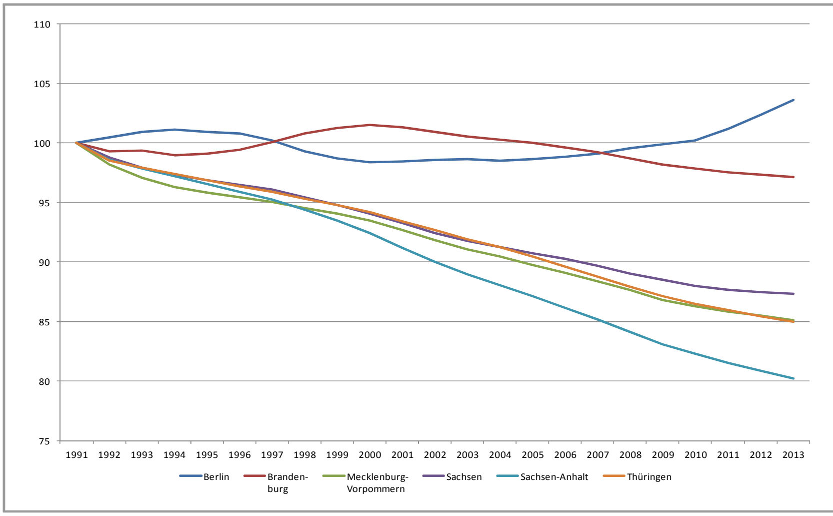
If we change the perspective from GDP per capita to one that looks at absolute sizes, the results change drastically. Figure 6.5 shows that the growth of absolute GDP diverged quite a lot between the East German federal states. For example, while nominal GDP in Thuringia is now almost twice as large as it was in 1991, it has grown by only 60 percent in Saxony-Anhalt. Of course, this finding is compatible with what was said in the section above, because of the variation of the population dynamics between the regions. In general, population shrank in all five East German states, but Figure 6.6 reveals that population declined in some states much faster than elsewhere: while it was 20 percent lower in Saxony-Anhalt in 2013 than in 1991, in Thuringia and Mecklenburg-Pomerania it was only 15 percent, and in Saxony 13 percent, lower. Brandenburg is a special case: it surrounds the capital Berlin which economically belonged, with more than 60 percent of its population living in West Berlin at the time of unification, to West Germany.

Figure 6.5. GDP of the five East German federal states (1991 =100)



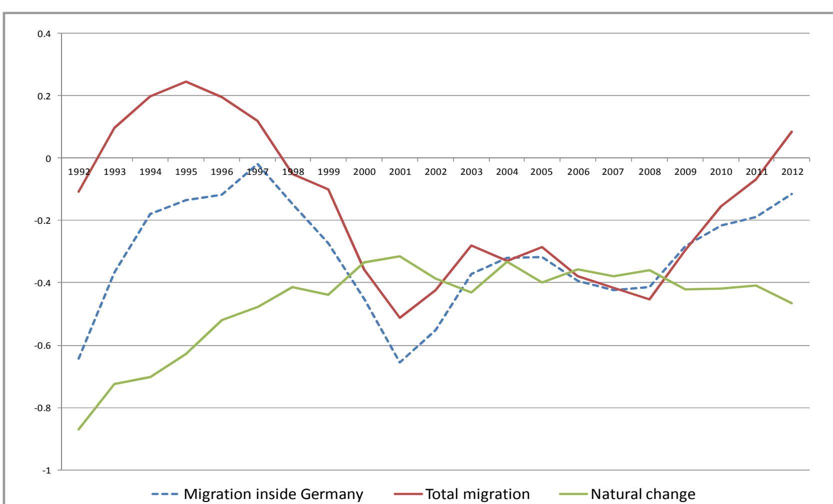
Source: Statistisches Bundesamt (2014), Volkswirtschaftliche Gesamtrechnung der Länder; own calculations.

Figure 6.6. Population of the East German federal states, including Berlin (1991 =100)



Sources: Statistisches Bundesamt (2014), Volkswirtschaftliche Gesamtrechnung der Länder; own calculations.

Figure 6.7. Annual percentage change in East German population (excluding Berlin) in percentage



Sources: Statistisches Bundesamt: Fachserie 1, Reihen 1.1 und 1.2; own calculations.

After 1989, many people working in the capital moved to the near countryside, keeping the population of Brandenburg almost constant (and making the population of the city shrink for some years, see Figure 6.6).

For most of the 1990s, immigration from abroad, mainly of people with German ancestors that came from the former Soviet Union, stabilized the population in East Germany (Figure 6.7). The shrinkage of the East German population was due to a low birth rate as well as to outmigration to the West Germany, with both factors of about equal relevance between 1999 and 2009.

2. How to explain the facts

This section presents an easy way to explain both basic facts: first that the variation in GDP per capita is much lower in East Germany than in the West, with (unlike in the West) a clearly declining trend; second, that absolute GDP has been strongly diverging among East German states, mainly due to variations in outmigration.

2.1 The neoclassical model for regional growth

The convergence of productivity per head or of incomes per capita is an important implication of regional growth models that are based on the assumption of a neoclassical macroeconomic production function (see, e.g. Abreu 2014). In the simplest version of the models, technical progress is common to all regions, and differences in factor incomes derive from different endowments of regions with labor and capital. The wage rate that equals the marginal productivity of labor is low and capital income is high where labor is relatively abundant and capital is scarce. According to such a model, the reactions of firms and workers will cause differences to shrink over time.

Profit maximizing firms will invest more capital in a region with scarce capital endowment than in regions where more abundant capital has a lower marginal productivity. Utility maximizing workers will move from regions with relative abundant labor and low wages to regions where the capital intensity of production is higher and where, therefore, wages are higher. Both reactions of agents cause capital intensities and thus factor incomes and per capita incomes to converge. If labor moves faster than capital, regions that start with a lower capital intensity will become smaller in terms of population and total GDP, but not poorer (if measured by GDP per worker) than regions that start with a higher capital intensity. Thus, according to the neoclassical theory productivities in East and West German regions should converge. But in fact, convergence has almost come to a halt.

One reason why reality does not behave according to the neoclassical theory might be that, first, the high technical level of production in West Germany cannot simply be transferred to the East. For example, important parts of the technological level might pertain to the production of special goods with limited demand for which West German firms are world market leaders, and these firms might refrain from moving to the East despite cheap labor, because of high moving costs. Second, in such a case, wage differentials can persist if their present value is smaller than (monetary or psychological) costs of migration for many workers in the East, so that the flow of migration is comparably small. Both of these reasons, however, might not apply for differences between East German regions: they started from similar technological levels after unification, and flows of migrations have been much more significant simply because they are much larger relative to the population of East German regions than they are relative to the much larger population in West Germany. Thus, it can be argued that flows of migration from East to West have contributed to the convergence of per capita incomes in East Germany in an indirect way: in regions where, even by the low standards of the East, wages were particularly low, outmigration to the West were particularly high, reducing the abundance of labor and propping up wages relative to other, less poor regions in the East.

In its most simple form, such a model consists of the following equations:

- A production function fulfilling the INADA conditions relates, for each region i and each year t, output Y to the level of technology A, and to factors labor L and capital K:
- The wage rate equals the marginal productivity of labor:
- GDP per capita equals output divided by the number of workers:
- Net migration of workers from region i to j, L_{ij}, depends positively both on the difference between regional wages and on the number of workers in the regions L_{it}, L_{jt} (gravity approach):

An estimated version of such a model for the German regions between 1991 and the present should contain an equation for migration inside Germany and an equation for the effect migration has on per capita income in a region. Features that would make such a model more realistic and avoid misspecifications are the inclusion of the unemployment rate as a determinant of in- and out-migration and moving costs that might depend on geographical distances between regions, on dummies for common borders, and on a dummy for the fact whether a region was formerly part of the GDR.

2.2 A simple application of the model

Even without recourse to macroeconometric estimations, we can check whether the simple neoclassical model introduced above helps explain the findings of Section 1. Under some simplifying assumptions, it is possible to calculate how levels of GDP per capita in the federal states and its variation coefficient would have evolved if no migration had occurred. The time series for capital in all federal states K_{it} are given by national accounts data for the years between 1995 and 2011. Technological levels A_{it} are calculated from the

Cobb Douglas production function $Y_{it} = A_{it} L_{it}^{\alpha} K_{it}^{(1-\alpha)}$, choosing $\alpha=0.7$, a standard assumption. Replacing L_{it} by $L_{it=1995}$ for all t and assuming that the time paths of technology and capital are the same as in the de facto case, it is straightforward to calculate as hypothetical GDP per capita for a constant labour force (Figure 6.8). According to the model, the coefficient of variation of GDP per capita in the East German states in case of constant labour forces would have, instead of declining, been constant from 1998 onward and would in 2011 have been 32 percent higher than it actually was (Figure 6.9).

Of course, it is debatable if such a simple version of the neoclassical model of regional growth is appropriate. For example, less labour does not necessarily mean higher labour productivity, if capital quickly follows the out-migration of workers.

Figure 6.8. GDP per capita in current euros if labor had been constant in all federal states according to a simple neoclassical model

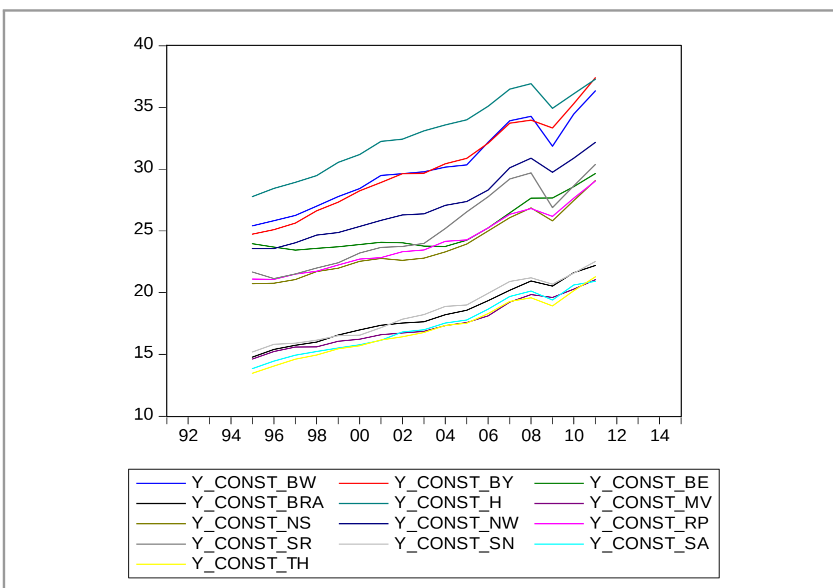
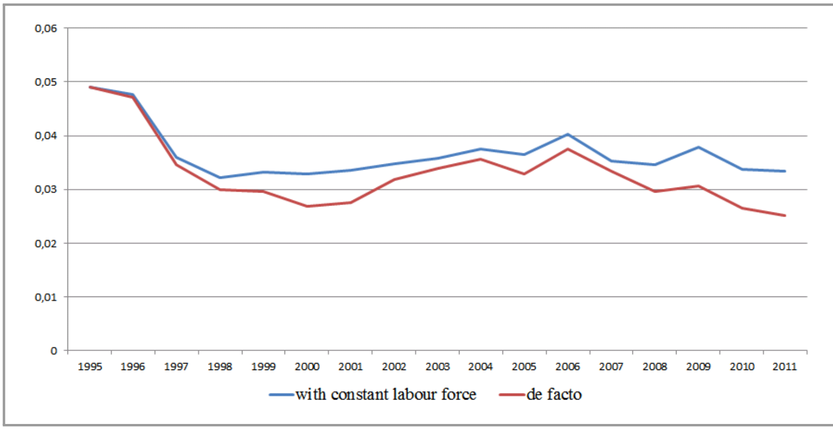


Figure 6.9. Coefficient of variation of GDP per capita in the East German states: de facto and with a constant labor force according to a simple neoclassical model



Moreover, labour is not homogeneous, and the more productive workers might leave first, reducing labour productivity in the poorer regions even further. More basically, the new economic geography and endogenous growth theories are alternatives that would render very different results, because they focus on agglomeration or scale economies that put shrinking regions at a disadvantage (see Krugman (1991) and, for the case of East Germany, Schäfer and Steger 2014). Meta-analytic evidence shows some, but not overwhelming support for these objections (Ozgen, Nijkamp and Poot 2000). Thus, a closer econometric look would seem necessary for deciding whether the neoclassical approach is appropriate for modelling regional dynamics in Germany after 1990.

2.2 Unemployment and migration

There are, however, plausible arguments that the neoclassical approach applied in the past section might even strongly underestimate the positive effects of regional labour movement on GDP per capita. Clearly, the neo-classical assumption of full employment is not realistic for East Germany. If unemployed persons leave (or replace others leaving at work), emigration might lower the population, but production would not be affected. Thus, emigration should push GDP per capita upward in regions with high unemployment by more than inthose with low unemployment rates. Indeed, there is a clear correlation between the level of the unemployment rate at its peak and the size of outmigration from East German federal states. Figure 6.10 suggests that the relation is close to linear, with Brandenburg considered an outlier due to the immigration of people who moved from nearby Berlin to the countryside. It seems plausible that strong outmigration from regions with high unemployment rates such as Saxony-Anhalt has lowered unemployment and supported production per capita.

Figure 6.10. Unemployment and outmigration in East Germany

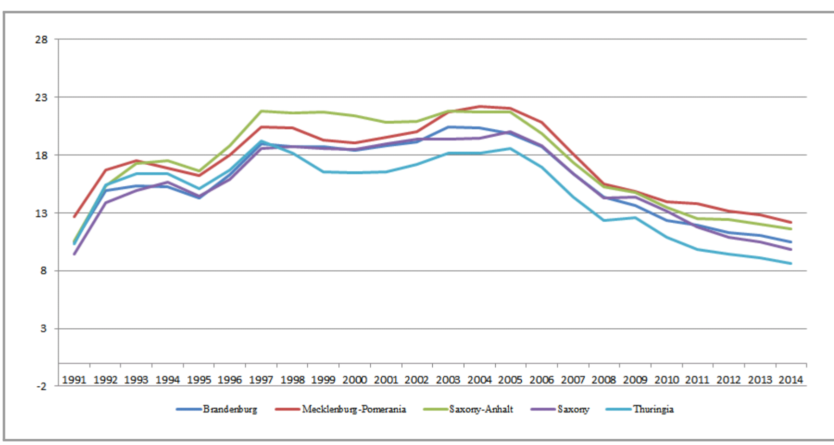
Source: Statistisches Bundesamt: regional statistics; online data.

3. Conclusions

This report has argued that outmigration to the West is a main cause for the high uniformity of GDP per capita in East German states. It reduced the abundance of labour, supporting wages, in regions with particularly high unemployment rates and prevented those rates from diverging too much between East German regions. That, however, does not mean that all regions in the East were equally successful; rather, it suggests that a better measure of success than GDP per capita is overall GDP, or simply the time paths of population numbers.

As Figure 6.11 shows, labour markets have recently become more balanced in East Germany. At the same time, migration from East to West has substantially declined. Thus, if the argument made in this paper is correct, levels of GDP per capita in East German regions should start to diverge in the coming years.

Figure 6.11. Unemployment rate (number of the unemployed relative to the number of civilian employees in %)



Source: Statistik der Bundesagentur für Arbeit; Arbeitslosigkeit im Zeitverlauf, Nürnberg.

What this report did not present is econometric evidence. Future work should comprise estimating the determinants of migration inside Germany, and finding econometric evidence for the positive effects of outmigration on per capita incomes in East Germany. Finally, as long as the neoclassical regional growth model sketched in this report is not extended by involuntary unemployment, a central feature of the economic transformation in East Germany is missing.

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The Korean Labor Market after Reunification: Internal Migration and Unemployment Rates

Kim Bo-min†

1. Introduction

The reunification of the two Koreas will necessarily entail the integration of both the production markets and the factor markets (capital and labor) of both countries. The integration of the factor markets, in particular, will serve as a key source of distinction between the economic integration of, say, the European Union, on the one hand, and the political unification of cases such as Germany and Korea. Of the Korean factor markets to be integrated, the job market is the primary subject matter of this study. Park's administration in South Korea has recently organized the Presidential Committee on Preparations for National Reunification, and there is a growing anticipation for the ultimate reunification of the two Koreas. In this context, it is crucial for us to try to foresee how the integrated Korean economy will pan out after the reunification. The job market, in particular, holds significance because it directly affects the quality of life of North Koreans. The changes in the post-reunification North Korean job market will exert a significant impact on the South Korean counterpart as well.

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Numerous empirical and theoretical studies have been conducted regarding the migration of labor and the unemployment rates of transition periods after the integration of two or more states worldwide. There is already an extensive body of literature on these topics in Germany (Burda and Hunt, 2001; Bonin and Zimmermann, 2000; Krueger and Pischke, 1995).[8] The German experience and the accounts thereof provide ample implications and grounds to analyze and forecast likely changes in the post-reunification Korean job market. The German reunification involved a radical integration of two very different societies as well as the complete merger of all factor markets, and as such, it has provided significant clues as to how the reunified Korean job market will evolve in the future. However, we must keep in mind that the German reunification was rather radical in nature, contingent upon the premise of East Germany's complete transition to the market economy.

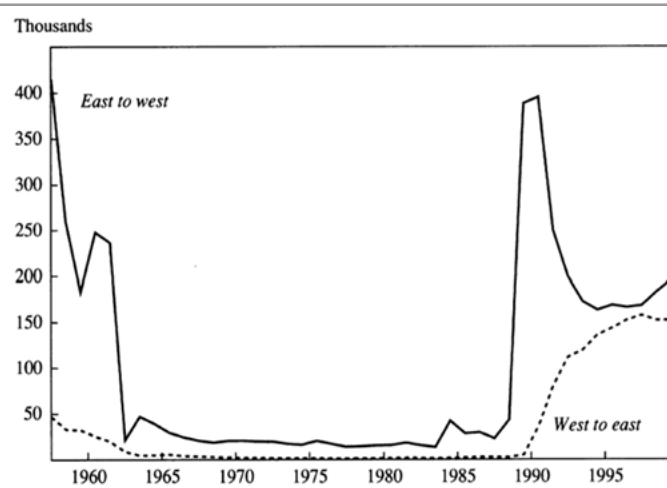
More specifically, this study attempts to forecast changes in internal migration and unemployment rates in the Korean job market after the national reunification. The rise of internal migration should be regarded as the result of the economic integration of two states with different levels of economic power, rather than as a necessary part of the transition economy. The transition state will begin to witness a brain drain after opening up its borders, but such a phenomenon would not amount to internal migration per se. At any rate, there is a consensus in the German academic community that the migration of labor from East Germany to the West was a natural part of the reunification experience (Burda, 2006; Fuchs-Schuendeln, 2009; Merkl and Snower, 2006; Uhlig, 2006). In order to stem the continuing influx of population into the West, the unified German government allowed for the exchange of East German deutschmarks for West German ones in equal value, and introduced wage subsidization programs to keep the level of wages in East Germany on par with the West (Merkl and Snower, 2006). However, the analysis of post-reunification microscopic data by Fuchs-Schuendeln

8) For the Korean study on the post-reunification job market, see Koh (2011).

(2009) demonstrates, with empirical strength, that the current wage level of East Germans was not a decisive factor that led to internal migration. East Germans were rather motivated by other factors, such as age and educational attainments, to move to the West. In other words, the anticipation for future wage increases, not the current wage level, served as a decisive factor.

Figure 7.1 charts the fluctuating internal migration rates in Germany after the reunification. The graph shows that a significant number of East Germans migrated to the West in two years, i.e., 1989, right before the reunification, and 1990, right after the reunification. Beginning in 1991, however, the trend was reversed somewhat, with West Germans starting to migrate and the migration rate among East Germans slowing down. The net migration rate began to approximate zero in 1992. In other words, a sizable number of East Germans may have begun to migrate to the West in the immediate years following the reunification, but such migration soon stopped.

Figure 7.1. Germany's internal migration trend after unification



Source: German Federal Statistical Office.
a. East Berlin is included with eastern Germany and West Berlin with western Germany.

Source: Burda and Hunt (2001).

The rise in unemployment rates in states transitioning into the market economy and low economic growth rates are common characteristics of transition. Aghion and Blanchard (1994) have proposed a theory that the unemployment rate of a given transition state is proportional to the pace of the transition process. In the case of Germany, the wage subsidization program that was intended to keep the wage levels of East and West Germans similar was also a major culprit for the rampant unemployment rate (Merkl and Snower, 2006). While the unified German state did not institute a new wage policy after the reunification, it did let the newly integrated labor unions to negotiate and decide the levels of wages and severance benefits in East Germany. This practice indirectly helped workers in East Germany to enjoy higher wages, while driving the unemployment rate to unprecedented heights in the region. The gap between the actual demand for labor and the wage level accelerated the increase in production costs for numerous corporations in East Germany, leading them to go bankrupt and lay off workers.

Table 7.1 shows how high the unemployment rate peaked in East Germany after the reunification. The rise of the unemployment rate, unlike the internal migration rate, did not stop even years after the reunification.[9] The gross product of the East German region began to plummet, while the unemployment rate continued to soar. The cause of this tragedy can be traced back to the privatization of formerly state-run corporations, which ended in the bankruptcy of these corporations. Numerous public corporations of East Germany ultimately collapsed alongside socialism,[10] while new capital investments from the West and entrepreneurism in East Germany were slow to come. The demand for labor in East Germany began to dissipate, while the

9) Socialist economies, in principle, guarantees complete employment of their constituents, and the unemployment rate in East Germany prior to the reunification was officially zero.

10) This has been a common experience among the Eastern European states in general that had transitioned late into the market economy. The inefficiencies of the planned economy and the collapse of the Eastern economic bloc were also important factors. These phenomena have already been thoroughly researched by scholars worldwide (Koh, 2011).

economy and the job market in the West also suffered severe blows.

Table 7.1. Germany's GDP growth and unemployment rate after unification

(Unit: Percent)

Year	GDP growth rate		Unemployment rate	
	East Germany	West Germany	East Germany	West Germany
1990	−15.6	5.7		
1991	−22.7	4.6	10.3	6.3
1992	7.3	1.5	14.8	6.6
1993	8.7	−2.6	15.8	8.2
1994	8.1	1.4	16.0	9.2
1995	3.5	1.4	14.9	9.3
1996	1.7	0.6	16.7	10.1
1997	0.3	1.6	19.5	11.0
1998	0.6	2.3	19.5	10.5
1999	1.0	1.6	19.0	9.9

Source: Burda and Hunt (2001).

The economic growth rate continued to drop and the unemployment rate to soar in the newly reunified Germany until the late 1990s or so. However, East Germany began to experience a development boom at the dawn of the new millennium, and the unemployment problem naturally began to disappear. This is because of the series of measures that the German government introduced to ensure the systematic integration and reform of the job markets (Koh, 2011; Kim, 2010). While the unemployment rate remains slightly higher in the East than in the West, it is nothing serious compared to the rising unemployment rates elsewhere in Europe. Compared to other transition states in Eastern Europe, East Germany has been remarkably successful (Kim, 2010).[11] Germany today is one of the very few economies around the world that came out even stronger after the onset of the world-

11) As for the economic growth of the transition states in Eastern Europe, see Jeong *et al.* (2014).

wide recession that originated in the United States in 2008. The national reunification appears to have boosted Germany's economic growth and revitalized the German job market in the end.

This study discusses how we may refer back to this German experience to forecast the internal migration and unemployment rates in the reunified Korea. Given the dearth of relevant statistics and data on North Korea, we face a limit in terms of the extent to which we may derive direct lessons from the German experience,[12] but we can develop a basic framework for quantitative analysis from the body of empirical literature on the German case. This study assumes North Korea as a part or region of the unified Korea in making its forecasts, and applies Germany's radical mode of reunification to the Korean case. In other words, this study assumes that North Korea will become an administrative unit of South Korea that shall be given complete freedom of movement for work, and tries to speculate how these conditions will affect North Koreans' migration into the South. Based on the estimated migration rate, this study will apply the discussions made by Keil and Newell (1993) to estimate the possible unemployment rate in North Korea. Having forecast the post-reunification internal migration and unemployment rates, this study will discuss measures to ensure the stability of the integrated job market and the policy implications of such measures.

In Section 2, this study provides a brief survey of the literature that can help us forecast the internal migration and unemployment rates in North Korea after the Korean reunification. In Section 3, this study compares the current demographic structures of the two Koreas and forecasts the extent to which North Koreans will move into the South after the reunification in the light of the current economic gap between the two Koreas. Section 4

12) There are a number of studies that offer macroscopic estimates of the effects of reunification on the two Koreas based on the German reunification model and coefficients (Funke and Strulik, 2000; Funke and Strulik, 2005). These studies, however, lack access to microscopic data on the current job market and industrial structure in North Korea.

presents the empirical model used to make the forecasts and provides an interpretation thereof. Section 5 summarizes the findings of this study and lists the policy implications we may derive from the German case.

2. Literature Survey

Numerous scholars have undertaken studies to forecast the conditions of the Korean job market after the national reunification. Gu (2000) and Lee (2010), in particular, have provided noteworthy analyses of the migration patterns likely to emerge after the Korean reunification. It is Jo (1994), however, who has provided the most reliable model to estimate the post-reunification changes in the unemployment level in North Korea. Kim (2002), in his doctoral dissertation, also makes interesting discussions.

Gu (2000) argues, on the basis of the models developed by Todaro (1969) and Harris and Todaro (1970), that economic factors like the unemployment rate and the expected wage level will be the major motivations for post-reunification migration between the North and the South. Estimating the likely differences in the expected wage levels and the shortages of labor in South Korea, Gu predicts that about 2.8 million North Koreans will move southward. With the currency reform and the integration of the product market, the figure may rise further to 4.27 million.

Lee (2010), citing Gu's research, reviews the likelihood and desirability of imposing partial or total restrictions on the migration of North Koreans after the reunification. From Gu's model of the population migration, Lee develops the population migration pressure coefficient. He then analyzes the possible economic policy options that may be implemented after the reunification, in relation to differing rates at which North Koreans may migrate. Lee also applies various factors, such as the wage gap, the employment prospects, and the cost of living in the two Koreas to estimate and identify the effects of various new policy measures, such as privatization, new social security benefit rates, and the currency reform on migration.

As for the post-reunification unemployment rate, Jo (1994) and Kim (2002) assume the Cobb-Douglass gross product function and estimate the amount of accumulated capital in North Korea to arrive at the likely demand for labor in the region. Using various economic variables in South Korea as proxy variables for the North, the authors then apply the demand estimate to calculate the surplus demand in North Korea after the reunification and thereby arrive at an estimated unemployment rate. Jo predicts that the Korean reunification will cause 5.68 million North Koreans to lose jobs, raising the unemployment rate to 58.9 percent.

The foregoing studies bear important findings and implications for this study. However, the goal of this study is not to present new economic models that show the likely effects of post-reunification policy measures but to predict the likely economic phenomena that may take place after the reunification. The focus is on predicting the changes and shocks that the Korean job market may experience should the Korean reunification process and the transition of the North Korean regime become as radical as that experienced in Germany.

3. Economic and Demographic Structures of the Two Koreas

The economic gap between South and North Koreans has been growing significantly since 1990. Table 7.2 shows statistics from Statistics Korea (South) on the gross national income (GNI) of the two Koreas, based on the estimate by the Bank of Korea (South) of North Korea's GNI. In 1991, South Korea's GNI was 11.7 times greater than that of the North, and it grew to 32 times that of the North by 2000. As of 2013, South Korea's GNI was 42 times as great as that of the North. The gap becomes even more glaring when comparing GNI per capita. South Korea's GNI per capita was KRW 4.46 million in 1990, about 5.5 times greater than the North's KRW 0.81 million. The gap widened even further as South Korea's GNI per capita became 15.3 times greater by 2000 and over 20 times greater by 2013 at KRW 28.69 million to the North's KRW 1.38 million. While South Korea's GNI per capita multiplied by 6.4 times from KRW 4.46 million to KRW 28.69 million between 1990 and 2013, North Korea has managed to increase its GNI per capita by only 1.7 times over the same period. While South Korea's economic status continued to grow at a rate ranging between three percent and nine percent during that time,[13)] the North Korean economy kept shrinking, until it began to grow at a rate of one percent or so after the new leader, Kim Jong-un, came to power.

Compare North Korea's GNI to the gross regional domestic product (GRDP) of each province of South Korea, and the paltriness of the North Korean economy becomes even more manifested. The nominal GRDP of Gangwon-do of South Korea reached KRW 33.853 trillion, while the nominal GRDP of Jeju-do, also of South Korea, amounted to KRW 12.706 trillion in 2013. North Korea's gross domestic product (GDP) lies somewhere between these two figures. The GRDPs of Seoul and Gyeonggi-do reached KRW 313.478 trillion and KRW 288.147 trillion, respectively, in 2013. North Korea possesses far vaster territories and a larger population than the province of Gyeonggi-do, yet Gyeonggi's income outweighed North Korea's by 8.5 times.

The two Koreas, however, do not differ from each other as significantly in terms of the demographic structure. Table 7.3 shows the sizes of the pop-

13) South Korea's economic growth rate plummeted in 1998 and 2009 because of the Asian Financial Crisis and the worldwide recession resulting from the subprime mortgage crisis in the United States.

Table 7.2. Scale of South and North Korean economies

Year	South Korea			North Korea		
	Nominal GNI (South Korean Billion won)	Per-capita GNI (South Korean ten thousand won)	Economic growth rate (%)	NominalGNI (South Korean Billion won)	Per-capitaGNI (South Korean ten thousand won)	Economic growth rate (%)
1990	191,284.3	446.0	9.3	16,407.3	81.1	-4.3
1991	231,097.1	534.0	9.7	16,766.7	81.8	-4.4
1992	263,501.1	602.0	5.8	16,446.6	79.1	-7.1
1993	298,057.1	674.0	6.3	16,430.5	77.9	-4.5
1994	348,955.6	782.0	8.8	17,025.5	79.5	-2.1
1995	408,013.6	905.0	8.9	17,169.5	79.1	-4.4
1996	458,636.3	1,007.0	7.2	17,255.5	78.5	-3.4
1997	502,865.4	1,094.0	5.8	16,814.2	75.7	-6.5
1998	492,574.3	1,064.0	-5.7	17,597.2	78.7	-0.9
1999	542,177.5	1,163.0	10.7	18,741.0	83.3	6.1
2000	600,158.8	1,277.0	8.8	18,977.9	83.6	0.4
2001	683,447.1	1,443.2	4.5	20,287.0	88.6	3.8
2002	758,862.6	1,593.5	7.4	21,330.7	92.4	1.2
2003	807,778.0	1,687.8	2.9	21,946.6	94.4	1.8
2004	874,238.7	1,819.8	4.9	23,767.1	101.5	2.1
2005	912,608.6	1,895.8	3.9	24,791.6	105.2	3.8
2006	962,446.6	1,989.7	5.2	24,429.2	103.0	-1.0
2007	1,040,091.8	2,140.2	5.5	24,826.8	104.1	-1.2
2008	1,104,414.3	2,256.3	2.8	27,347.2	114.3	3.1
2009	1,148,981.8	2,336.2	0.7	28,634.6	119.0	-0.9
2010	1,266,579.8	2,563.4	6.5	30,048.7	124.2	-0.5
2011	1,340,529.8	2,692.9	3.7	32,438.3	133.4	0.8
2012	1,391,595.5	2,782.9	2.3	33,479.0	137.0	1.3
2013	1,441,063.5	2,869.5	3.0	33,844.0	138.0	1.1

Source: Statistics Korea.

ulations at age 15 or older of both Koreas. South Korea's population has been about double the North's in size since the 1990s, which indicates that North Korea has maintained a population growth rate similar to that of

South Korea. South Korea used to possess a far greater population at age 15 or older[14] than the North, but the latter has managed to narrow down that gap. This indicates that South Korea's birth rate is far lower than the North's, and that the number of teenagers and young adults is growing at a higher rate in North Korea than in the South.

Table 7.3. Population Structure of South and North Korea

Year	Population(thousand)			Population_15 years or older(thousand)		
	South Korea	North Korea	difference	South Korea	North Korea	difference
1990				30,887	14,847	2.08
1992				32,020	15,190	2.11
1994	44,642	21,412	2.08	33,046	15,611	2.12
1996	45,525	21,991	2.07	34,274	15,907	2.15
1998	46,287	22,355	2.07	35,347	16,190	2.18
2000	47,008	22,702	2.07	36,186	16,574	2.18
2002	47,622	23,088	2.06	36,963	16,926	2.18
2004	48,039	23,411	2.05	37,717	16,920	2.23
2006	48,372	23,707	2.04	38,762	17,342	2.24
2008	48,949	23,934	2.05	39,598	17,781	2.23
2010	49,410	24,187	2.04	40,590	17,464	2.32
2012	50,004	24,427	2.05	41,582	17,946	2.32

Source: Statistics Korea.

Table 7.4 lists the sizes of the two Koreas' economically active populations as well as economic activity rates. The economically active population refers to the portion of the working-age population that is willing to engage in the production of goods or services. South Korea's economically active population was 1.9 times greater than the North's in the 1990s, 2.2 times greater in the first decade of 2000, and about double in size after 2010. Note that, according to Table 4, North Korea's economically active partic-

14) Also known as the working-age population.

ipation took a brief downturn in the first several years of 2000 before beginning to increase again. This pattern, however, may indicate either of two things: an error in the census data (estimates) or structural changes that occur in the factors deciding the size of North Korea's economically active participation.

Table 7.4. Population participating in economic activities within South and North Korea

Year	Economic activity population(thousand)			Participation rate of economic activities(%)		
	South Korea	North Korea	difference	South Korea	North Korea	difference
1990	18,539	9,873	1.88	60.0	66.5	−6.5
1992	19,499	10,390	1.88	60.9	68.4	−7.5
1994	20,353	10,803	1.88	61.6	69.2	−7.6
1996	21,288	11,055	1.93	62.1	69.5	−7.4
1998	21,428	11,203	1.91	60.6	69.2	−8.6
2000	22,134	11,548	1.92	61.2	69.7	−8.5
2002	22,921	11,797	1.94	62.0	69.7	−7.7
2004	23,417	10,443	2.24	62.1	61.7	0.4
2006	23,978	10,699	2.24	61.9	61.7	0.2
2008	24,347	10,962	2.22	61.5	61.7	−0.2
2010	24,748	12,253	2.02	61.0	70.2	−9.2
2012	25,501	12,598	2.02	61.3	70.2	−8.9

Source: Statistics Korea.

However, North Korea's economic activity rate has always been higher than the South's, except in the years 2004, 2006, and 2008. This is due to the emphasis of socialist regimes on maintaining a perfect employment rate. The dips in the size of North Korea's economically active population in 2004, 2006, and 2008 may therefore point toward an error in the census data. The economic activity rate hovers somewhere around 60 percent in South Korea, and around 70 percent in the North. There are people of working age not economically active in North Korea, such as students and soldiers. However, there is no one in North Korea's planned economy, at least in theory, who is unemployed for the want of jobs. In North Korea, both men and women are conscripted to the military and serve longer terms than their Korean counterparts, which is why North Korea's economic activity rate is always higher than the South's.

The larger-economic-gap, smaller-demographic-gap pattern evident between South and North Korea does not apply to the German case. Shortly before the reunification, the gap between the two Germanys was more pronounced on the demographic front than the economic side, as East Germany had a population noticeably smaller than that of the West. It was in these circumstances that almost 400,000 of the 1.6 million people who used to make up East Germany rapidly migrated southward immediately after the reunification (Burda and Hunt, 2001). The net migration rate, however, dropped from 2.5 percent in the year of the reunification to 1 percent (approximately 150,000 persons) two years after the reunification. The internal migration rate between former East Germany and West Germany is nearly zero percent in Germany today (Figure 7.1). From this data, we may infer that the net internal migration rate in the unified Korea will be higher than that of Germany and that the size of the Korean population migrating will also be greater than that of Germany. Moreover, the unemployment rate in North Korea will run even higher than was the case in Germany, which is the subject matter of the following section.

4. Empirical Analysis and Forecasts

The internal migration rate, immediately ensuing the reunification, was estimated using the model that was developed to gauge internal migration patterns among the provinces of South Korea from 1985 to 2012. There are two reasons for using this model. First, there is simply not enough data on the population and economic activities of North Korea that we can easily access. Second, the causes for interprovincial migration in North Korea differ from those in the South. North Koreans face far greater constraints on their mobility than their Southern counterparts. Once the freedom of mobility becomes the rule in North Korea after the reunification, a model similar to the internal migration model being used in South Korea today should apply to the North as well. In doing so, in other words, we treat North Korea as an administrative unit of South Korea. Given the dearth of data on North Korea's population and provinces, this study generally treats North Korea as a single province.

Figure 7.2 shows the net migration rate in South Korea among major cities and provinces. Major cities like Seoul continued to see more people entering than exiting until the mid-1990s or so, but the pattern completely reversed afterward. While the net exit pattern has persisted in underdeveloped provinces, such as Jeollanam-do, since the 1970s, the more industrialized provinces like Chungcheongnam-do and Gyeongsangnam-do witnessed more people entering than exiting over time. More people continue to enter than exit Gyeonggi-do, because of the unending urbanization of the province. The absolute size of the population on move, however, has decreased for all provinces since 2005 or so.

The internal migration model applying to South Korea from 1985 to 2012 has the following formula. ("i" indicates each province, and "t" stands for the year.)

$$migration_{i.t} = \beta_0 + \beta_1 pop_{i.t} + \beta_2 poprate2445_{i.t} + \beta_3 industry1_{i.t} + \beta_4 pergrdp_{i.t} + \epsilon_i$$

The model assumes that the net size of the migrating population depends on the size of the existing population ("pop"), the proportion of the population aged between 25 and 45 ("poprate2545"), the weight of the primary

Figure 7.2. Internal migration rate in South Korea by region

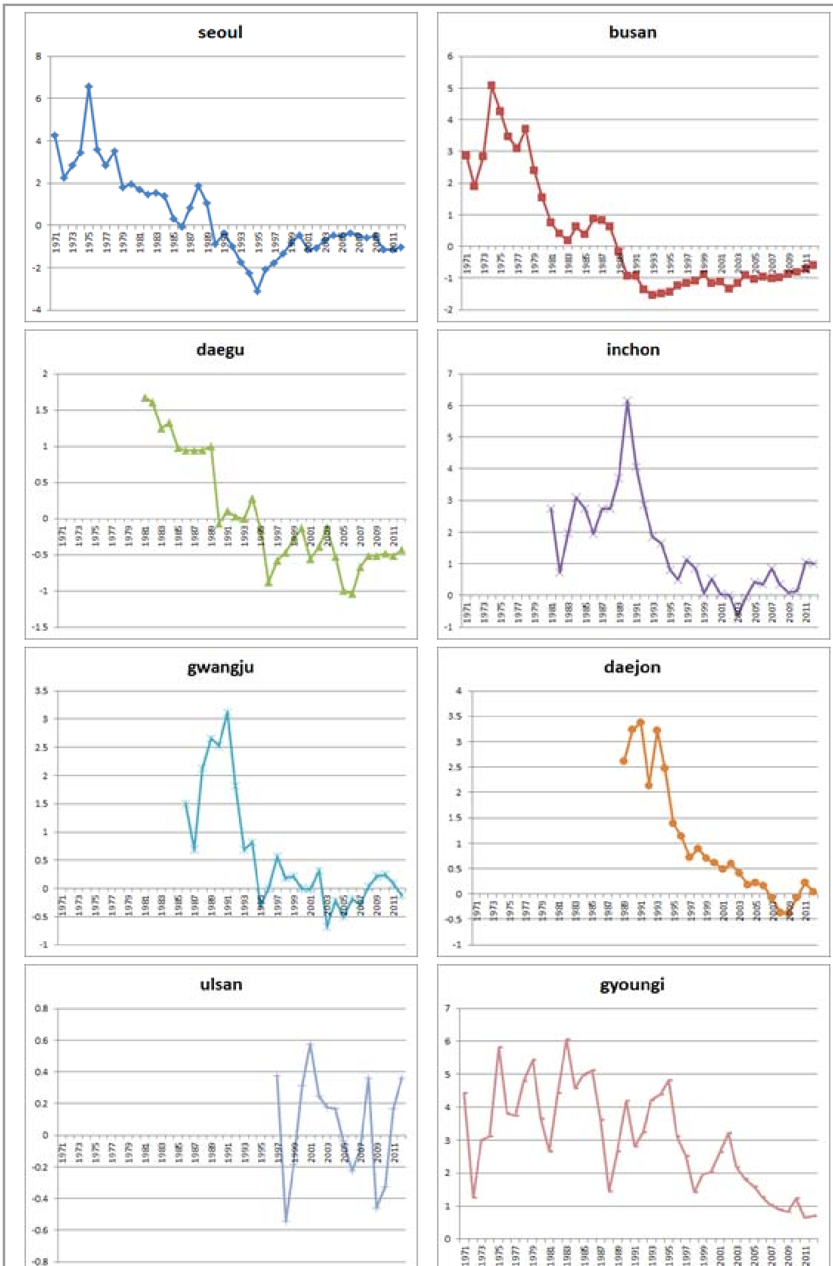
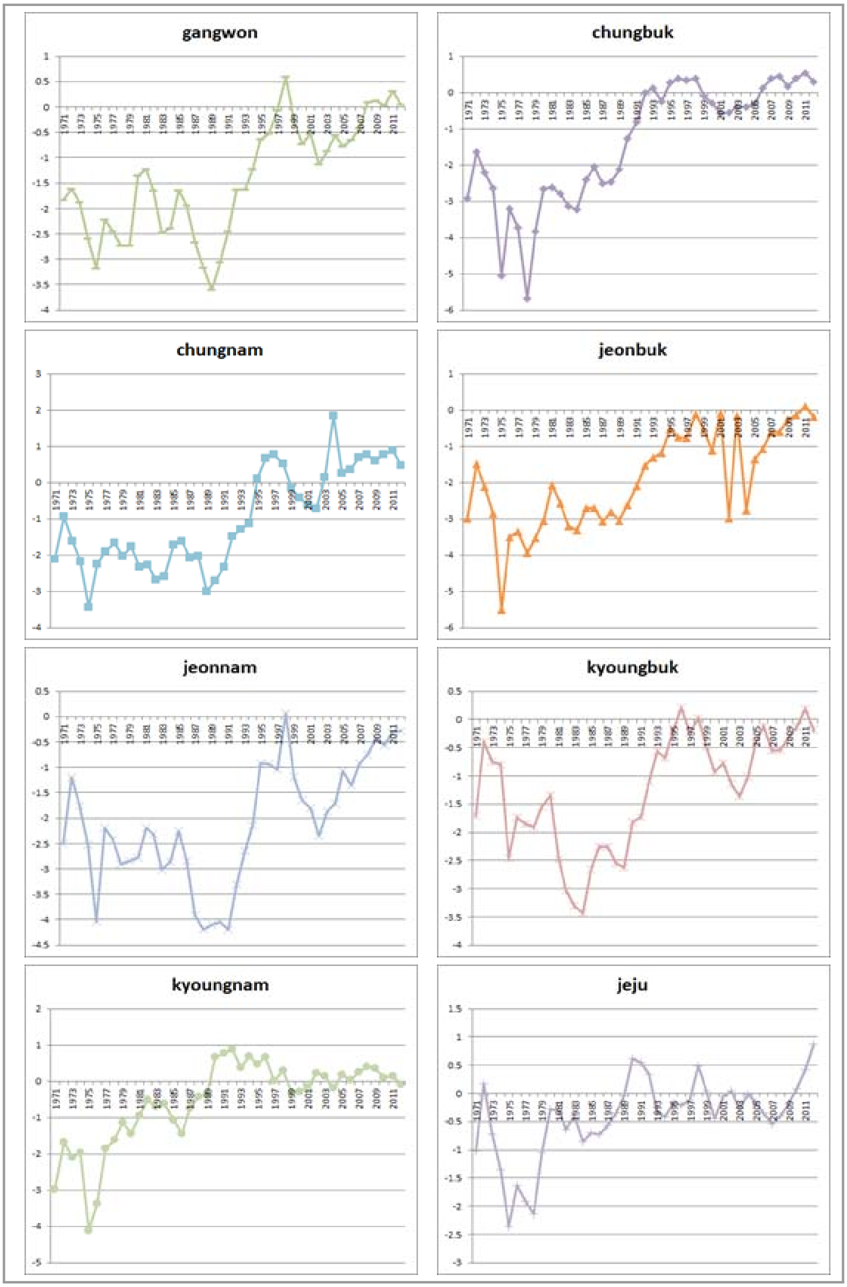


Figure 7.2. Continued



Source: Statistics Korea.

sector ("industry1"), and the GRDP per capita ("pergrdp") of each given region. The underlying hypothesis is that the net size of the migrating population is under the influence of not only the current wage level, but also of the expected future income level as well as the current size of the population. The formula also takes into account possible fluctuations in economic conditions from year to year.

Table 7.5 lists the estimates on the internal migration rate in South Korea. The rate differs significantly in relation to all the variables except GRDP per capita, thus confirming the microscopic findings of Fuchs-Schuendeln (2009) on labor in Germany. What leads people to move to another region is not the current level of income but other factors, such as the population pressure, fore-thinking about the future development of one's region, and the anticipation for future income increases, which tends to be higher among the younger population.

Table 7.5. Model estimation: internal migration rate in South Korea

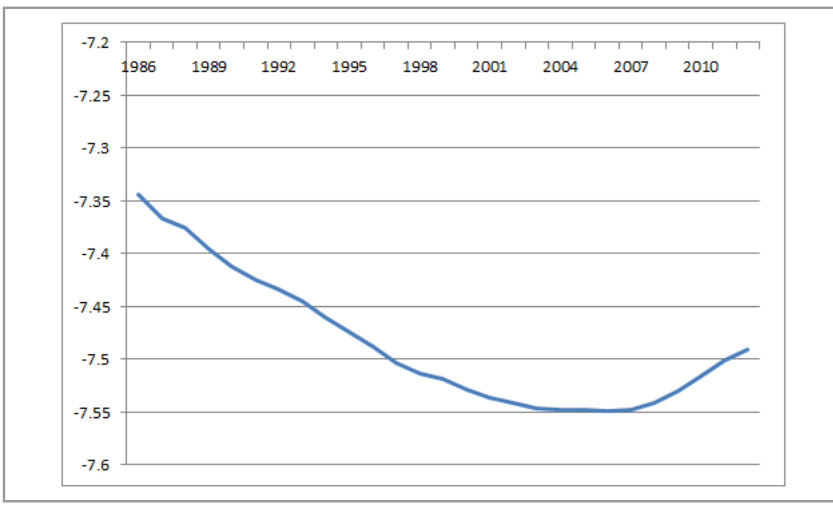
	estimate	standard error
Population	−0.07416***	0.017026
Population ratio: 25~45-year-old	173.6589***	38.45062
Industrial Ratio: Primary Industry	−1138.24**	458.601
per-capita GNI(Regional)	−0.13519	0.57343

Note: The estimated value of *** is significant at 1% level, ** is significant at 5% level, and * is significant at 1% level.

Source: Author's estimate.

Based on the estimates on internal migration within South Korea, we can begin to estimate internal migration in North Korea as well. Should the two Koreas become unified at present, in 2013, about 1.76 million to 1.78 million (7.3–7.6 percent) of the 24 million North Koreans are likely to migrate into the South. This means that the South Korean population, which is about 50 million now, will also increase by 3.3–3.5 percent (Figure 7.3). Considering that, shortly after the reunification 400,000 of the 16 million East Germans moved to the West, a far greater number of people would move from the North to the South after the Korean reunification. Even in East Germany, the net population exit rate reached 2.5 percent but declined rapidly to 1 percent or less from the second year of reunification.

Figure 7.3. Net migration rate from North Korea to South Korea



Source: Author estimate.

We can infer that the Korean experience with reunification will be at least as difficult as the German experience. Given the unbridgeable chasm between the two Korean economic systems, we need to find and develop measures that are even more carefully refined and considered than the measures Germany implemented in its integrated job markets. This study predicts that up to 3,000,000 more North Koreans than estimated by either Lee (2009) or Gu (2000) may migrate southward after the Korean reunification, and asks whether South Korea can withstand and absorb such tremendous population pressure. As Lee (2009) and other scholars he cites concur, it will become necessary for the Korean government to place at least partial restrictions on North Koreans' migration southward.

It is even more difficult to forecast the post-reunification unemployment rate in North Korea than its internal migration rate. While we are able to estimate labor suppliers on the basis of the North Korean census data from 1993 and 2008, as well as the data provided by Statistics Korea, we are unable to forecast the demand for labor from North Korean industries and corporations with any measure of specificity and reliability. Although the Bank of Korea provides estimates on the gross product of each of North Korea's industries every year, there is almost no data that can tell us how many persons each industry employs. We may infer this from North Korea's census data, but will run into difficulty while trying to connect it to the industrial categories defined by the Bank of Korea. At present, we do not have enough data to perform the requisite forecasts on post-reunification industry dynamics in North Korea.

Jo (1994) still provides a useful model of estimation and forecast in this regard. He equates the likely surplus of labor in post-reunification North Korea to the likely level of unemployment. Jo's study, from 1994, uses the economically active population of North Korea from 1990 as the employed population, as the official unemployment rate of socialist regimes is always zero. Comparing the amounts of capital accumulated in the two Koreas at different periods of time, Jo assumes that the North Korean economy as of 1990 was comparable to the South Korean economy of 1975, and produces a labor input curve of North Korea on the basis of quantifiable data from South Korea's experience. Should the two Koreas be reunified as of 1994 in a radical manner akin to the German reunification, Jo concluded that 5.68 million North Koreans would lose their jobs and the North Korean unemployment rate would soar to 58.9 percent. His study, however, does not make room for the rise of new demand for labor and does not take into account the North Korean population migrating southward in search for employment. His static model assumes that such a number of North Koreans will be out of employment straight away. The actual unemployment rate after the reunification will therefore be substantially lower than what Jo predicted.

Notwithstanding these flaws, scholars have appropriated Jo's model to estimate the likely unemployment rate in North Korea. There are, however, several reasons to avoid applying the same model to our current situation in 2014. Jo's model involves estimates of the amount of capital accumulated in North Korea. We have lost access to such data since 2010.[15)] The North Korean government has hardly grown at all since the 1990s, if not shrunken, so it is not so far-fetched to compare the North Korean economy of the 1990s to the South Korean economy of 1975. However, two decades have elapsed since the publication of Jo's study. We need more up-to-date data to analyze and forecast the economic conditions of North Korea.

Accordingly, this study applies the model of estimation developed by Keil and Newell (1993) instead of Jo's model, as the former does not require data on capital accumulation. Keil and Newell assume that, given two states that are reunified, the net migration rate of one state will be influenced by the unemployment rates and wage levels of both states involved. The authors first begin their forecast with respect to the English-Irish relations and apply the formula to the German case to estimate the net migration and unemployment rates of both Germanys. The authors then try to forecast how the unemployment rate in East Germany would change in relation to the local wage level after reunification, once the net migration rate is brought down to zero. They thereby demonstrate the presence of cointegration among the variables and apply the error-correction model of Johansen (1988) to estimate the cor-

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15) Kim (2002) brought the data up to date, but there are virtually no official estimates on capital accumulation in North Korea after 2010.

relation between internal migration and unemployment. Table 7.6 shows the results of Keil and Newell's calculation. It shows that the greater the amount of wage subsidies, the higher the unemployment rate in East Germany. This corresponds to the findings of Merkl and Snower (2006).

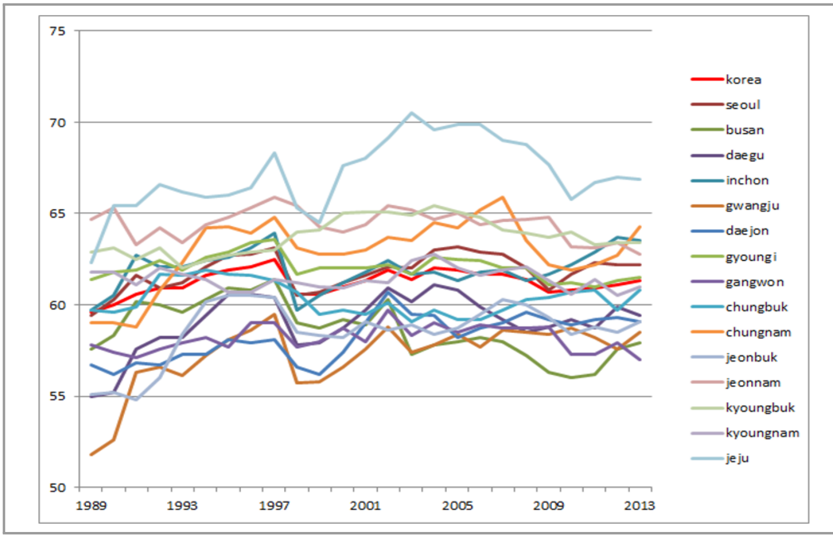
Table 7.6. Unemployment rate after unification in East German states (prediction)

ratio of per capita income (East/West)	0.4	0.6	0.8
Unemployment rate(West)=10%	6.80%	15.40%	27.30%
Unemployment rate(West)=5%	5.30%	11.90%	21.10%
Unemployment rate(West)=3%	4.40%	9.20%	17.50%

Note: It is assumed that the internal migration rate converges to zero between East and West Germany.
Source: Author's estimate based on Keil and Newell (1993).

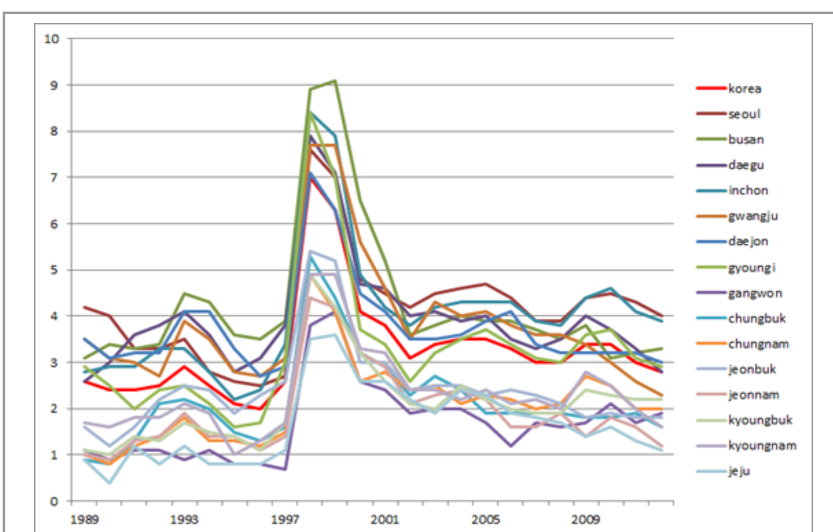
We must now look into the unemployment rate in South Korea. Figures 7.4~5 respectively show the economic activity rate and the unemployment rate in each province of South Korea. Unlike the internal migration rate, the economic activity rates and unemployment rates of all the provinces show similar patterns, except for the fact that the economic activity rate is noticeably higher and the unemployment rate lower in underdeveloped, rural provinces. The economic activity rate is lower, and the unemployment rate higher in large cities because of the presence of a significant number of highly educated young people taking time to look for jobs. These rates nonetheless remain even throughout the provinces, showing extreme changes only in response to serious external shocks, such as the Asian Financial Crisis. South Korea is set apart from other advanced economies around the world by its low unemployment rate nationwide.

Figure 7.4. Participation rate in economic activities within South Korea by region



Source: Statistics Korea.

Figure 7.5. Unemployment rate in South Korea by region



Source: Statistics Korea.

Based on Keil and Newell (1993), this study first estimates the unemployment, internal migration, and wage levels of the 15 provinces of South Korea. The net migration rate of each province has been estimated by identifying the difference between the province's unemployment rate ($u_{i,t}$) and the nationwide unemployment rate (u_t), while the unemployment rate of each province is calculated by identifying the difference between the province's income per capita ($w_{i,t}$) and the nationwide income per capita (w_t). As these unemployment rate and income-per-capita differences are stationary in character, they present no problem of spurious regression. The estimates concerning South Korea are then used to estimate the GNI per capita in North Korea, and, by extension, the unemployment rate in relation to each wage level. The important underlying assumptions here are that South and North Koreans will enjoy complete freedom of movement after the reunification and that the net migration between the two regions at equilibrium will be close to zero, as inferable from the German experience.

Table 7.7 lists the unemployment rates in North Korea when the net migration rate between the two regions is assumed to be zero. First, the smaller the income gap between the two Koreas, the lower the unemployment rate in the North. Second, the lower the unemployment rate in South Korea, the lower the unemployment rate in the North as well. The second finding is similar to the German experience, but the first clearly contradicts it. We need to be careful in interpreting these findings. At the time of reunification, the income level of West Germany was about three times higher than that of the East, while the income level of South Korea today is at least 20 times greater than that of the North. Moreover, West Germany at the time was one of the most economically powerful nations in the western world, while East Germany for its part was not doing poorly, either. In other words, the level of income convergence between the two Germanys was already quite high. In such a context, the wage subsidization policy accelerated the layoff of East German workers and contributed to the high unemployment rate. The

Table 7.7. Unemployment rate after unification in North Korea (prediction)

Ratio of per capita income (North/South)	0.049 (Year=2013)	0.25	0.5
Unemployment rate(South)=5%	48.8%	12.8%	7.2%
Unemployment rate(South)=3%	29.3%	7.7%	4.3%

Note: It is assumed that the internal migration rate converges to zero between South and North Korea.
Source: Author's estimate.

income gap between the two Koreas, on the other hand, is almost unbridgeable, and even narrowing down that gap to the range of four times would still keep the two Koreas far from an equilibrium. Applying estimate coefficients to this situation to forecast future unemployment and wage levels can invite numerous errors. We should not, therefore, accept the findings listed in Table 7.7 at face value. However, assuming the two Koreas to have been reunified as of 2013 and the net migration rate to be zero, the unemployment rate in North Korea can easily go beyond 30 percent to reach 50 percent, as has been suggested by Jo (1994).

These are results that can be obtained when we assume the Korean reunification process to be radical and treat post-reunification North Korea as a single administrative unit of South Korea. The unemployment rate estimates, moreover, are based on the current income gap between the two Koreas rather than a direct outcome of North Korea's transition to the market economy. Unlike Jo (1994), this study assumes that North Korea's transition has been completed and that no surplus of labor exists. The leading factor of unemployment in such a situation will therefore be the decline of productivity, that can be translated into wage levels.

5. Conclusion and Policy Implications

This study attempts to predict changes in the North Korean job market that are likely to occur after the Korean reunification, but on the basis of the economic development data on the provinces of South Korea due to the dearth of accessible data on the North Korean economy today. The model shows that about seven percent of North Koreans are likely to emigrate to the South, while the unemployment rate in North Korea will rise to reach somewhere between 30 percent and 50 percent. In other words, the radical and abrupt economic integration of the two Koreas in the mold of the German reunification will exert serious shocks on the job markets of both Koreas. Fortunately, both sides recognize that such a radical reunification process would not work for Korea, and the Korean reunification is not likely to come about in such a manner.

Nevertheless, the findings of this study carry important implications. First, North Korea needs to reform and open itself to the outside world and embark on a course of transition, at least to an extent, before full reunification. The gaping economic gap between the two Koreas needs to be narrowed down as much as possible before full integration.

Should it become necessary for South Korea to place partial restrictions on the movement of North Korean workers prior to the full integration of the two Koreas' job markets, South Korea will also need to postpone the full integration of the product and capital markets. During the tryout phase, it is important to allow North Korea to form and experiment with its own free market system so that North Korean workers will learn how to produce goods and services and improve industrial productivity. This will help mitigate the level of shock exerted on the integrated Korean job market, and benefit both North and South Koreans in the long run.

This phase-by-phase approach to economic integration will help reduce the cost of the national reunification. Given the low wage and price levels in

North Korea, wage and employment subsidies will necessarily be provided for North Koreans, thus allowing businesses in the region to maintain their wage competitiveness. Integrating the markets fully, while the vast economic gap is left intact, may not only raise the wage level of North Koreans quickly but also cause the unemployment rate to run rampant, ultimately discouraging North Koreans from opening or running their own businesses in the long run. This is because such businesses will be forced to hire unproductive workers at high wage levels while trying to compete with the already advanced South Korean businesses.

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Analysis of Germany's Social Security Integration for the Integration of the Social Security System in a United Korea

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1. Analysis on the Integration of Germany's Social Security System

1.1 Introduction

Germany's unification can be approached in two ways: at the international level and the domestic (Korean) level. Internationally, Germany's unification implies the establishment of a new world order. The collapse of the Communist bloc was very influential in terms of politics and diplomacy. On the other hand, it has two domestic implications, in that it offers hope for the realization of Korea's unification, but at the same time involves the burden of unification costs and the ensuing aftermath. This coexistence of hope and burden causes confusion, changing the basic perspective on unification.

The unification of the Korean Peninsula was basically understood as a war-time policy, as an extension of the cold war system. However, Germany's

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unification suggested the possibility of peaceful unification, raising awareness on the importance of preparing for the event. However, unification costs and the socio-political aftermath during and after unification bring about negative perceptions toward unification. Consequently, there have been several evasive discussions calling for prudence and the suspension of unification. Germany's unification brought confusion to Korea by suggesting both hope and burdens, and thus changed our perception toward unification by implying the necessity of thorough preparation.

Germany's unification is meaningful to Korea in that it raised awareness on the appropriateness of unification. Germany's unification holds significant implications in three aspects. First, it suggests the historical necessity of reunifying the two Koreas into one state, emphasizing the value of national integration. Second, there lie benefits in transferring military spending to economic development and welfare expansion to ultimately improve quality of life. Third, unification provides the opportunity for development as a normal country in the international arena: in other words, national prosperity.

1.2 Challenges for social security within the unification policy

Germany's unification had two tasks: political and diplomatic unification externally, and the integration of the social security system internally. At the early stage of unification, the major policy issue was to solve problems that arose in the process of East Germany's rapid transition to a market economy. Major issues immediately following unification included mass unemployment for the economically active, and livelihood stabilization for the economically inactive.

An imminent problem in the East German economy was mass unemployment, which was inevitable as an adverse side effect of reorganizing the economic structure. To alleviate this problem, job creation and unemployment policies were required. As for the economically inactive population in East Germany, it was necessary to enhance the level of income security to improve their standard of living. At the same time, there was an institutional challenge to organize the system. These two major challenges were necessarily policy issues that had to be solved, due to the high possibility of large-scale migration from the East to the West and the opposition of East German residents against unification.

However, there being population-proportional elections in East Germany and policy measures that differentiate between East and West Germany, phasing in the improvement of income levels or migration control was infeasible. East German residents, who were unstable immediately after the unification, exercised their political influence through their choice of political party in elections. In fact, social policy in the aftermath of unification was no more than a matter of stabilizing income security, in that it was successful in boosting the regional economy.

The social security policy of united Germany was responsible for minimizing the aftermath of the unification, such as social discontent arising from integration and the stabilization of the lives of East Germans residents. In particular, the major challenge was large-scale migration to the West German area. One of the key factors by which East German residents assessed unification was the opportunity for improvement in economic standards. If their needs were unmet, social discontent could be prevalent. Therefore, social security policy was necessary to control large-scale migration to the West German area, and furthermore, the backlash over unification. Under these conditions, West Germany had no choice but to focus on institutional possibilities in the integration of the social security system and minimize the problems through interim measures, rather than financing issues arising from an increase in benefit levels.

1.3 The basic structure of the social security integration in Germany

Social security integration in united Germany was mainly carried out through the application of the western scheme to East Germany. It involved interim measures to alleviate the burden on East German citizens stemming from the institutional difference. In part, it chose to first apply improvement plans to the East German area, and then apply them to the western area later on.

The simple application of the western scheme to East Germany implies reform without reasonable balance enabled through the comparison of western and eastern schemes or consideration of the advantages and disadvantages of each system. This was inevitable for several reasons. First, there were concerns over confusion in both regions when restructuring social security schemes that were already mature, as this was the case in both East and West Germany. It was inappropriate to pressure West German citizens by shifting the fiscal burden. Furthermore, there were limitations in analyzing the advantages and disadvantages of each system and anticipating the impact of reorganizing them. Therefore, Germany had no other option but to choose the western scheme and adopt temporary and complementary measures for disadvantaged citizens from East Germany. However, there were many disagreements among government branches or stakeholders over the preparation of a financing plan against the spending surge. There were indeed efforts for coordination, which turned out to be inconsequential in the long term.

1.4 Comparison of East and West Germany's social security systems and form of integration

One significant point regarding the social security integration of unified Germany is that the systems of East and West Germany were similar, in that East Germany had a social insurance-centered system as well. Thus, less institutional conflict occurred when adopting the western scheme. East Germany had maintained a traditional social insurance system despite its socialist planned economy. This is because the social insurance system was already quite mature before division. Therefore, it was relatively unproblematic to apply the western scheme to East Germany. In the process of social security integration, united Germany had pivoted on the West German system while alleviating the burden on East German citizens arising from institutional differences. In part, it chose to first apply the improvement plans for West Germany's issues on the East German area.

Table 8.1. Comparison of East and West Germany's social security systems and form of integration

	West Germany	East Germany	Post-unification
Basic structure and direction	• Social market economy • Central social insurance system • (distributed management • system) • Earnings-related	• Socialist planned economy • Central social insurance system (integrated management system) • Basic security: mandatory • Earnings-related • scheme: optional	• Social market economy • Central social insurance system (distributed management system) • Earnings-related
Remarks (East Germany)	• Universal recognition of contributory principle of social insurance among the East German population • Alleviation of financial burden for the state budget through insurance policyholders' contributions • Implementation of contribution-related benefit level (individual equivalence): (voluntary supplementary pension insurance: FZR)		

The analysis of the social insurance of each system can be divided into five parts: coverage, contribution, finance, (kind, condition, level of) benefits, and management. Therefore, this paper is to compare and analyze each system using this framework.

As for coverage, East Germany had a larger population than the West. Therefore, East Germany's coverage was maintained in the process of integration. Instead, in terms of targeted income, regulations reflected the difference between West and East Germany by taking account of East Germany's situation.

First, the larger coverage of mandatory enrollment in East Germany—especially for the self-employed—-was maintained. Furthermore, the income ceiling for mandatory enrollment of health insurance and accident insurance was differentiated. This was to reflect the income inequality between East and West Germany. However, the West German system was adopted for the lower income limit of social insurance. This was because it corresponded to the policy goal of guaranteeing the minimum level in East German area.

As for contribution, East and West Germany had equal contribution rates for pensions, while applying differential contribution rates for accident insurance; this is the West German method. In the case of health insurance, however, West Germany applied differential rates while East Germany applied equal rates.

Unified Germany had adopted a unitary public pension scheme. Therefore, it imposed a unified single premium rate to apply the same scheme. On the other hand, in the case of accident insurance, premium rates varied by labor unions, as accident insurance was run by a distributed management system based on labor unions.

This was not the case for health insurance. Since West Germany had a very segmented health insurance system, there was a risk of confusion in East Germany if the same scheme was to be applied. Further, according to recent developmental trends, it chose to preemptively apply the advanced form of the West German system. Accordingly, a unified single premium rate was applied within the East German area.

As for finance, the West German scheme was adopted in the East German system. The increased fiscal burden was imposed on West Germany, while co-payments were gradually adjusted higher for East German citizens.

Table 8.2. Unified social security system and comparison of former East and West Germany (1)

	West Germany	East Germany	Post-Unification
Coverage	• Mandatory for every employee • Exemption for income above the ceiling or under the lower limit	• Mandatory for every income-earning individual • Exemption for income under the lower limit	• Adoption of West German scheme • Right of choice given to mandatorily insured groups of East Germany • Application of ceiling for income subject to exemption (ceiling: differs between West and East / lower limit: equal for East and West)
Contribution	• Public pension: • equal premium rate • Health insurance, accident insurance: differential premium rate	• Equal premium rate for all types of social insurance • Different premium rate for accident insurance (exception)	• Adoption of West German scheme • Advanced form of regulation applied in health insurance: unified single premium rate in East German area
Finance	• Independent financing of each branch • Government subsidy: pension (19%), accident insurance (farmers 50%) • Health insurance: co-payment	• Integrated into a single premium rate • Government subsidy takes up 1/2 of the total expenditure	• Independent finance for each branch (West German system) • Rapid increase of fiscal burden - Resolved by West German participants' contributions and government subsidies - Gradual upward adjustment of co-payment for East German health insurance

In West Germany, each branch was independently financed by partial government subsidies. Further, West Germany operated co-payments for health insurance. Meanwhile, East Germany applied a unified single premium rate for all schemes with government subsidies taking up to half of the total expenditure; this shows a considerable difference from the western system. The rapid increase of East Germany's fiscal burden was resolved by West German participants' contributions and government subsidies. Further, co-payments for East German health insurance were gradually raised.

As for the benefit levels of pension schemes, West Germany's benefit conditions and calculation method was applied to East Germany. In particular, the acknowledgement of the formal enrollment period in East Germany was made by applying the West German average income level, and this determined the benefit levels.

Regarding public pension, both West and East Germany differentiated benefit levels by duration of enrollment, income level, disability, and number of family members. Based on this method, the increase of benefits in East Germany was fully accepted while the decrease of benefits was avoided by maintaining the level of the former East German scheme.

Concerning maternity benefits and duration of parental leave within health insurance, the West German scheme was applied in principle. However, interim measures were applied to child delivery before January 1991. The former East German scheme, which was more advantageous for beneficiaries, was applied in this case.

Although the West German system was adopted for management, an advanced form of transition was applied beforehand in the East German area. This was to address the inefficiency caused by West Germany's fragmented management system. The pre-application of the advanced form in East Germany served as a momentum for the improvement of the West German system.

Whereas the West German system was characterized by its segmentation due to voluntary associations for each branch of social insurance, East Germany had a government-run centralized system classified by occupational category.

Table 8.3. Unified social security system and comparison of former East and West Germany (2)

	West Germany	East Germany	Post-Unification
Benefit level	• Differentiation based on duration of enrollment, income level, disability, number of family members • Provision of maternal benefit and parental leave within health insurance: 6 weeks prior to delivery, 8 weeks after delivery • Differentiation of cash benefits by income	• Same as West Germany in principle • Maternal benefit and parental leave: 6 weeks prior to delivery, 20 weeks after delivery • Adjustment of cash benefits every 2–3 years	• Adoption of West Germany's benefit conditions and calculation method to East Germany • Increase in benefits accepted • Decrease avoided by maintaining level of former East German scheme • Acknowledgement of formal enrollment period in East Germany by applying West German average income levels • Maternity benefits and parental leave: Application of former East German scheme for child delivery before January 1991
Management	• Separated in the form of voluntary associations for each branch of social insurance • Categorized by occupational, territorial and individual factors	• Mandatory insurance or voluntary insurance classified by occupation • Government-run centralized system classified by occupation	• Adoption of West German system while preemptively applying advanced form of transition to East Germany • Pension: Scheme for-blue collar workers transformed into five local insurance corporations in East Germany • Health Insurance: Conversion into extended West German local health insurance union system into East Germany • Accident Insurance: Expansion of West German insurance union to cover East Germany

Consequently, East Germany's pension scheme for blue-collar workers was transformed into five local insurance corporations. Further, health insurance was converted into an extended (West German) local health insurance union system. As for accident insurance, West Germany's pre-existing labor unions were expanded to cover East Germany. After unification, however, the total of 35 labor unions were merged into nine labor unions.

1.5 Evaluation of Germany's social security integration

External and internal issues emerged in the process of adopting the West German scheme in the East German area, as a result of sudden unification. It is necessary to note that there was not enough time to consider the interrelationship between the two; policy was formulated under these circumstances.

There was no margin to consider the interrelationship between social security policy and the exchange rate for monetary integration, decisions on ownership in the former East German region, or economic revitalization plans involving business support; whether it would be complementary or substitutive.

One of the major social issues for united Germany was the unemployment of the economically active and impoverishment of the economically inactive, resulting from social risks. Considering that the unification involved the risk of massive migration of East German residents to the West German area, it was virtually impossible to fully consider social security integration.

Furthermore, there were technical difficulties in implementing reform while maintaining a reasonable balance between western and eastern schemes, or by considering the advantages and disadvantages of each system. This can also be deduced from the fact that West Germany had difficulties with pension reform, the financial stability of health insurance and long-term sustainability of the system.

Limitations in the process of social security integration that could be attributed to several features of Germany's social security system are as follows.

First, fiscal instability surged in the integration process, due to a sudden increase in benefit levels. Also, the interregional income gap sharply widened following unification. Due to the selective nature of "contribution-based compensation" and "weak redistribution," there were limitations in social insurance functions for East German citizens.

West Germany's pay-as-you-go method and selective nature of the social security system caused financial difficulties in the process of integration. That is, these features led to financial difficulties during the course of unification.

Most of West Germany's social insurances are based on a pay-as-you-go system, with public pensions in particular running solely on this scheme. Due to a sudden increase in benefits after unification, and the high sensitivity of West Germany's full pay-as-you-go system to economic circumstances, financial expenditures surged. This directly resulted in a financial burden on policyholders and West German citizens.

As Germany's social insurance system was of a selective nature, it was highly earnings-related. Therefore, there were limits to responding to income inequality due to weak redistribution. This is why other forms of poverty alleviation programs were required.

Due to the sudden increase in benefits following the adoption of the West German system, the finances of social insurances deteriorated. However, it was impossible to resolve this solely through social insurance, for there was no fund that could act as a stabilization measure to alleviate fiscal instability.

Eventually, no substantial measures for financial stabilization were available. This caused a substantial increase in expenditures in the short term, and Germany had to raise premium rates and seek funding through taxes. Thus, Germany had to suffer from financial deficits for a considerable period following unification.

2. Implications of the German case for the integration of a united Korea's social security system

2.1 Differences between Germany and Korea regarding the conditions of unification

Germany's experience of social security integration certainly has significant implications for Korea. However, it is also important to recognize the differences between Germany and Korea, and the limitations of applying the German case to Korea ahead of unification. To apply Germany's experiences to Korea, it is necessary to compare West Germany to South Korea, East Germany to North Korea, and the inter-German relationship to the inter-Korean relationship. It is especially important to correctly understand the differences, in that these differences are likely to serve as unfavorable elements in the preparations for the unification of Korea.

Given the fundamental differences in the conditions of unification, there must also be marked differences in social integration policies. Korea must engage in much more thorough preparations for unification, owing to the differences between Germany and Korea. The reasons for this are as follows:

(a) Gap in the economic power between East and West Germany, vis-à-vis that between South and North Korea;
(b) Difference in the basic ideology between North Korea and East Germany in the process of communization;
(c) Difference in the degree of mutual trust;
(d) Difference in shared information between the two Koreas and between the two Germanys; and

(e) The difference in the emotional shock during the transition to the market economy following unification.

While (a) the gap in economic power and (e) the difference in emotional shock are challenges that occur during or after unification, the rest are policy issues that must be minimized by South Korea in the current state of division.

The economic gap between South and North Korea and East and West Germany involves differences in the size of population, GDP, etc. This gap suggests there will be considerable differences in overall financial capability and level of individual burden in the course of unification. First, the population of South Korea is twice larger than that of North Korea, while that of West Germany was four times the East German population. This means that two South Koreans must support one North Korean, while four West Germans had to support one East German. Further, the GDP gap between North and South Korea is more than twice the gap between West and East Germany. This means that much more economic and financial efforts are required in Korea to improve the North Korean situation than was needed in Germany to improve the East German situation. Most of all, it is very clear that the unification of Korea is faced with much more unfavorable conditions than that of Germany, when considering the gap between the absolute economic capabilities of West Germany and South Korea. As seen from above, the disparity in the financial and economic situations between Germany and Korea suggests that financing social security integration in Korea will be more difficult, and thus the German method cannot be immediately applicable to Korea.

Table 8.4. General comparison of economies

(Germany:1989, Korea:2013)

	Unit	West Germany	East Germany	South Korea	North Korea
Population	thousand persons (%)	62,063 (78.8)	16,614 (21.2)	50,220	24,545
GDP	100 million DM / trillion KRW	24,550 (DM)	816.5 (M) 181.4 (DM)	1439.6	33.8
GDP per capita	1,000 DM / 10,000 KRW	35.8 (DM)	21.5 (M) 4.8 (DM)	2,867	138
Trade scale	100 million USD	6,111	470	10,752.2	73.4
Government budget	100 million USD	333	123,5	2,257	67.6

Note: West Germany's currency (DM), converted at a ratio of 4.5:1 (West German MD: East German M= 4:1-5:1).

Source: West Germany, East Germany - Korean Embassy in Germany, Unification of Germany with numbers, 1992.

South Korea, North Korea – Bank of Korea website (comparison of South and North Korea's major economic indicators).

Differences in the basic ideologies between North Korea and East Germany in their course of communization imply people's potential receptiveness and the level of participation in the new regime after unification. The communization of the Eastern Bloc, including East Germany, was in general conducted not voluntarily but forcefully by the former Soviet Union. The communization, furthermore, was not entirely complete as established religions still survived. On the other hand, North Koreans, despite having access to limited information, do not seem to strongly oppose the communist regime. Rather, there seems to be dissatisfaction with the poor economic conditions, which is an important variable. This suggests that there may be a strong movement to quickly return to the old communist regime following unification. Thus, it is necessary to focus on narrowing the economic gap between the South and North, to prevent foreseeable problems.

Differences in the degree of mutual trust between South and North Korea and East and West Germany would be important in terms of receptiveness and a possible dispute over the post-unification integrated social security system, together with the possibility of third-power intervention influencing the unification process. It is important to foster interregional connectedness, mutual understanding, and a sense of unity, as these are important preconditions for unification. Ideological differences can particularly be a major cause of potential dispute over the social security integration policy. Mutual exchanges and visits can serve to estimate the degree of ideological differences. Mutual exchanges between South and North Korea is comparatively non-persistent and intermittent, while mutual exchanges between West and East Germany

Table 8.5. Interregional visits before Germany's unification

(Unit: 1,000 persons)

	East German visitors to West Germany			West German visitors to East Germany			
	Total number of visitors	Pensioners	Urgent family circumstances	Total number of visitors	West Berliners visiting East Germany	West Germans travelling in East Germany	West Berliners visiting East Berlin[1)]
1953	1,516	1,516					
1957	2,720	2,720					
1958	690	690					
1962	27	27					
1965	1,219	1,219		1,424[2)]			
1970	1,048	1,048		2,654		1,400	1,254
1975	1,370	1,330	40	7,734	3,210	1,400	3,124
1980	1,594	1,554	41	6,746	2,600	1,400	2,746
1985	1,666	1,600	66	5,620	1,900	1,120	2,600
1986	2,002	1,760	242	6,740	1,800	1,150	3,790
1987	5,090	3,800	1,290	6,620	1,800	1,120	3,700
1988	6,750	–	–	6,671	1,972	1,120	3,579

Note: 1) One-day city tour.

2) Data from 1967. Estimates of two million each year between 1961-1966.

Source: Korean Embassy in Germany, Unification of Germany with numbers, 1992, pp. 96-97.

were consistent and persistent, despite differences on each occasion.

Even in the case of Germany, there were considerable differences between the actual situation after unification and expectations, due to the limited amount of information available when East and West were divided. West Germany secured substantial information about East Germany before unification, by means of social and cultural contacts, economic support, and continued relations with neighboring states. The reality of East Germany, however, was considerably different from what was anticipated. This suggests that information acquired under a state of division tends to be limited. These errors and omissions of information were caused by statistical fabrication in East Germany, and the West German government's oversight of environmental pollution, underdeveloped SOS, manufacturing facilities, and the basic industries of East Germany. Such misunderstandings may result in the formulation of social security integration policies that do not make any consideration for individual citizens.

When it comes to the difference in emotional shock in the transition to a market economy after unification, in East Germany there had been, to a certain extent, a priori awareness of the western world. Nevertheless, the unwillingness of former East Germans to work in a market economy and the desire to return to a communist regime has lasted considerably. In the case of Korea, North Korean people would lack the comprehension that the income they acquire in the transition to a market economy implies "autonomous expenditure"': this has been evident in the experiences of North Korean defectors. This unique situation that North Korea is faced with must be considered in the course of social integration in the aftermath of unification.

2.2 Similarities and differences in social security integration: Germany and Korea

It is true that the social security integration of unified Germany provides very beneficial implications for Korea. However, we must determine whether to accept Germany's experience following a comparative analysis of each system. In terms of social security integration, the unified system should be established in accordance with the situation of each social security system.

Table 8.6. Comparison of social security systems of West Germany and South Korea

	West Germany	South Korea	Comparison
System	• Mature/traditional social insurance system	• Social insurance-centered social security system	• Important implications through indirect experience of establishing social insurance-centered system after unification
Degree of system development	• Mature social insurance system • Difficulties in changing West German scheme and system	• Flexibility in stages of introduction, settlement and improvement/ development of social insurance-centered system	• Stable integration in Germany vs. Risk of instability in Korea • Consideration of overall/partial application in accordance with maturity of the South Korean system
Feasibility of integration	• High feasibility of integration due to social insurance-centered social security system and its practical operation	• Less feasibility of integration due to North Korea's state-run social security system and its limitations in actualization of regulations	• Policy based on the analysis of the North Korean system to guarantee security and minimize the gap
Tasks under division	• Preparation for unification by promoting interconnectedness of systems and enhancing mutual trust	• Situational changes in the process of settlement/ development of social security system	• Necessity to promote maturity and development of the system before unification

Therefore, it is important to consider the differences of the social security systems between West Germany and South Korea, West Germany and East Germany, South Korea and North Korea, and East Germany and North Korea. Based on these comparisons, we may decide whether Germany's experience can be applied to the social security integration of a unified Korea.

The social security system of South Korea was formed in a very similar manner to the German system. The fact that the social security system of Germany was maintained after unification has important implications for South Korea in establishing a social insurance-centered social security system. Both systems are similar in that they feature a three-tier structure of (contribution-based) social insurance as a primary social safety net for poverty prevention, social assistance as a secondary social safety net for poverty protection and poverty escape strategies.

The social security system of South Korea is still in its development phase and thus has its limitations; this differs from the situation of West Germany. As these limitations seem to persist, there is a high possibility of confusion if the South Korean scheme is adopted in North Korea. There are several aspects that illustrate such concerns. First, South Korea's national health insurance has a co-insurance rate of over 35 percent, while North Korea adopts a health care system based on socialism. As there are limitations in the direct application of the South Korean scheme to North Korea, it is necessary to design both short-term and long-term policies. Second, South Korea's national pension scheme is yet immature. The adoption of the South Korean scheme in North Korea may have a negative impact on benefit levels, in that the levels of North Korea might be higher than those of South Korea. Considering the beneficiaries that do not meet the required enrollment period in South Korea, the application to North Korean residents must be conducted with more flexibility. Third, as for accident insurance, lump-sum benefits remain and rehabilitation benefits are in want. Lastly, unemployment insurance has strict eligibility conditions and a short duration of cash benefits. In sum, the social insurance system of South Korea possesses some limitations, when considering its adoption in unified Korea.

While it was relatively easy for East Germany to simply adopt the western scheme, this is not the case for North Korea. Therefore, the consideration of additional policies for integration is required. East Germany had maintained a traditional social insurance system despite its socialist planned economy. Further, the social insurance system was already quite mature before division. As the systems of East and West Germany displayed similarities, it was possible to integrate the systems and expect a substantial impact on the benefit levels. As opposed to East Germany, communism-based North Korea shows little similarities with South Korea. Thus, if the current situation of North Korea continues to last, social security will be unable to perform properly. Thus, overcoming differences by integrating the systems should be an important policy task. Further, guaranteeing an adequate level of benefits in North Korea is also important.

While the case of Germany involved the integration of two mature systems, in the case of Korea, South Korea's immature social security system must be applied to North Korea. Therefore, the adoption must be aligned with the maturity of the South Korean system. Further, there is also a necessity for further development and improvements to the South Korean system prior to unification. Similar to the German case, integration must be based on the principle of applying South Korea's social security system to North Korea. In contrast to the German case, where the integration of two mature systems implied the determination of actual benefit levels, South Korea must apply regulations in a flexible manner since the system itself has been undergoing circumstantial changes. South Korea's social security system must be applied to North Korea in accordance with its improvement and development. In the case of early unification, the application of the current basic pension system would be more adequate than the acknowledgement of North Korean residents' formal enrollment period. Also, the higher the co-insurance rate of health insurance, it is more likely for North Korea to choose a state-run healthcare system.

Consequently, South Korea is responsible for minimizing the disturbances that attend integration, through the stable development of social security prior to unification. Moreover, it is necessary to utilize an improved and advanced social security system in North Korea.

2.3 The basis and contents of the different social security integration plans of Germany and Korea

The basis and contents of the different social security integration plans of Germany and Korea are as follows. Each scheme has been introduced and operated for individual purposes, thus the integration thereof must differ in line with the maturity of the system, funding method, and management method.

The public pension of South Korea can alleviate the financial burden incurred by unification and secure the basis for a minimum standard of living through pension funds and the introduction of the basic pension. Unlike the German system, the national pension of Korea is yet in the phase of introduction and development; there are limitations in the adequacy of its benefit levels. However, there are several positive aspects, in that massive pension funds and the introduction of the basic pension open up possibilities for guaranteeing basic security. To maximize these positive aspects, consistent policy efforts must be made for the stabilization of finances, considering the risk of financial deficit or depletion of the funds. Furthermore, it is necessary to guarantee a minimum level of security by effectively linking the national pension and basic pension.

In the case of health insurance, a phased approach is necessary to overcome the differences between the social insurance systems; that of South Korea involves cost-sharing while the state-run healthcare system of North

Korea is free of charge. In the stage of establishing medical facilities and equipment in North Korea, it will be necessary to differentiate cost-sharing among regions and equalize the contribution system with South Korea through the implementation of health insurance. Unlike Germany, the healthcare systems in the two Koreas show marked disparities. In particular, it will not be easy to adopt the South Korean system due to considerable differences in cost-sharing and the assessment of property in the contribution system. Rather, it will be necessary to secure the continuity of North Korea's healthcare system by postponing the adoption of cost-sharing, and by improving the quality of medical services through the establishment of medical facilities and equipment. Further, we must find a way to facilitate a gradual transition to the health insurance system through the application of an earnings-related premium rate. This must involve a decline in the level of cost- sharing, the reorganization of the contribution system and the expansion of the public medical delivery system in South Korea.

As North Korea does not have accident insurance, it will be possible to adopt the South Korean scheme. The introduction of unemployment insurance is also possible, by maintaining separate unemployment policies in the short term and establishing a system in the long term. As there are no problems with the main body of operation or coordination of disability ratings like Germany, it will be possible to maintain the provision of benefits for the beneficiaries of former North Korea while adopting the South Korean scheme. At the same time, it is necessary to improve the functions of prevention and rehabilitation, and to enhance the provision of pension benefits instead of lump-sums, for proper functionality. In the case of unemployment insurance, unlike the German case it will be necessary to adopt separate measures for the unemployed in the event of an emergency like unification.

It is highly possible that every North Korean resident will become a beneficiary of public assistance immediately after unification; thus, it is necessary to consider the urgency and effectiveness of initial measures, followed by the early preparation of immediate financing and establishment of a delivery system. Unlike Germany, which primarily applied a social insurance system and kept public assistance as a secondary social safety net, Korea will be faced with difficulties in adopting a social insurance-centered system. As it is either an impossible scenario or cannot be guaranteed to happen at the same time as unification, Korea must primarily provide public assistance or a basic pension in the context of social allowance. Further, a separate delivery system should be prepared in advance for emergency relief, since it will be impossible to utilize the former delivery system of North Korea.

Table 8.7. Comparative analysis on the contents of the different social security integration plans of Germany and Korea

	West Germany	South Korea	Comparison
Basic Perspective	• Possibility of a simple application through integration of two mature social insurance-centered systems • Temporary and complementary measures for disadvantaged citizens due to a simple application	• Integration of a social insurance-centered and state-run system • Integration with flexibility in accordance with when unification takes place • Necessity of further development and improvements in the South Korean system	• Necessary for Korea to consider a more elaborate, flexible, and adequate integration of the social security system in accordance with when unification takes place
Pension System	• Finance: • pure pay-as-you-go • A unified single system • Basic security: minimal pension payments	• National pension: funded pension (unstable) • Dual system (retirement pension) • Basic security: basic pension	• Necessity of consistent policy efforts for stabilization of finances, considering the risk of financial deficit or depletion of the funds • Necessity for effective connection between national pension and basic pension

Table 8.7. Continued

	West Germany	South Korea	Comparison
Health Insurance	• Independent financing of each branch • Earnings-related contribution • Low level of cost-sharing	• Centralized management of a unified single system • Multiple criteria including income and property • High level of cost-sharing	• Confusion in the transition of NHS based on a planned economy to social insurance (Impossible to apply cost-sharing) • Phased approach required
Accident Insurance	• Distributed management system based on labor unions • Prevention – rehabilitation – protection-centered system • Fiscal disparity among unions	• Centralized management of a unified single system • Protection – prevention – rehabilitation system (immature) • Remaining tasks of total prevention of industrial accidents and expansion of coverage	• Absence of an accident insurance in North Korea • Prior application of a prevention-centered system and large coverage of an accident insurance required in the process of industrialization
Employ-ment Insurance	• Unemployment policy in normal economic situations • Part of unemployment policy within unification	• Urgent countermeasures in times of financial crisis • Limitations as an unemployment policy within unification	• Necessary to link separate job creation measures
Basic Security	• Limited to social assistance programs • Connection with voluntary organizations, including religious groups	• Basic pension: alleviation of blind spot in national pension • Social assistance: transition into individualized benefits	• Temporary measures for urgent situations of North Korean residents • Securing accessibility for the poor

3. Policy suggestions for the integration of a united Korea's social security system

3.1 Comparison of South and North Korea's social security system

A fundamental heterogeneity can be found when comparing South and North Korea's social security systems. This implies that the application of systems in the course of social security integration following unification must proceed on separate tracks in terms of coverage, beneficiaries and benefit level.

While South Korea's social security system is based on social insurance, that of North Korea is more of a state-run security system, which involves guaranteeing the security of residents rather than providing compensation for contribution. South Korea's social security has elements that emphasize individual responsibility, in that it is related to income and the duration of enrollment in principle, and features co-payment in terms of in-kind benefits. This has two implications: South Korea is based on a market economy, and the social security system is yet immature. Meanwhile, North Korea strictly employs a state-run social security system, but it is limited to guaranteeing security on the minimum level. Instead, it provides extra benefits when one's service to the state is credited.

As it is highly possible that North Korea's social security system is different in reality, the integration of the social security systems will face significant limitations. This means that emergency aid must be provided for a considerable period prior to social security integration.

Table 8.8. Comparative analysis of the social security systems of South and North Korea

		South Korea	North Korea
Public Pension	Coverage and Eligibility Conditions	Coverage (National Pension) : Employees, farmers, fishermen, and self-employed Initiation of payments : 61 years old (to be extended to 65 years old by 2033) Duration of enrollment: 10 years at minimum	Coverage : The entire economically active population Initiation of payments : Male – 60 years old, female – 55 years old Duration of entitlement: Unidentified
	Benefits	Cash benefits: Income replacement rate of 40% (40 years) Contributor pension (applicable to patriots and veterans)	Provision of both in-kind benefits (grain foods, 300g) and cash benefits (60-70% of monthly basic living costs) Contributor pension
	Finance	Adjusted funded pension Contribution: Shared between employer and employee (9%)	Pay-as-you-go
	Manage-ment	National Pension Corporation	State
Accident Insurance	Coverage	All workplaces	The entire economically active population
	Benefits	Disability rating : 14 classifications Disability benefits: Determination between pension and lump sum : Class 1-3 (pension), Class 4-7 (selection between pension or lump sum), Class 8-14 (lump sum) Medical benefits: Accident insurance Provision of temporary incapacity benefits, personal care benefits, occupational rehabilitation benefits, etc.	Disability rating : 3 classifications in accordance with the degree of loss of labor capability and dependency on care from others Determination between pension and lump sum : Loss of labor capacity for more than 6 months (pension), loss of labor capacity for less than 6 months (lump sum) Medical benefits: government budget (NHS)
	Finance	Finance: Pay-as-you-go Contribution : All expenses covered by employer, differential rate by industrial sector, merit rate	Finance: Pay-as-you-go Contribution : Employee 1%, government budget-centered
	Manage-ment	Korea Workers' Compensation and Welfare Service	State

Table 8.8. Continued

		South Korea	North Korea
Unemploy-ment Insurance	Coverage	All workplaces with at least one employee	Absent
	Benefits	Unemployment benefits, maternal benefits, employment security service · vocational training, etc.	
	Finance	Contribution: (unemployment benefits) Employee: 0.65% (½) Employer: 0.65% (½) + 0.25%~0.85% (employment security service, vocational training) Finance: Pay-as-you-go	
	Manage-ment	State (Ministry of Employment and Labor and relevant local institutions)	
Social Assistance	Eligibility Conditions	Households with income lower than the minimum cost of living, plus fulfillment of family with duty of care regulations (individualized benefits)	Aid targets, victims
	Benefits	Type of benefits : Individualized benefits (subsistence benefits, medical benefits, housing benefits, education benefits, self-support benefits) Benefit levels: Up to the minimum cost of living (principle of subsidiarity)	Type of benefits : Inclusive provision of subsistence benefits and self-support benefits Benefit levels: Relatively high
	Finance	Government budget	Government budget
	Manage-ment	State (Ministry of Health and Welfare)	State
Social Services for the Elderly		• Basic pension, housing reverse mortgage, senior citizens' job creation project • Management of diseases such as dementia/strokes and establishment and management of elderly care facilities • Homecare service for the elderly, advocacy protection of rights and interests for the elderly, prevention of suicide, establishment and management of leisure facilities for the elderly	• Enhancement of respect towards the elderly and serving one's parents with devotion • Provision of old-age allowance or 500g of grain food to descendants, • Nursing home • Provision of jobs for the elderly

Table 8.8. Continued

	South Korea	North Korea
Social Services for Children	• Provision of infant care benefits or home care allowance • Prevention and protection of children requiring protection : Institutional care (child-care centers, group homes, fostering care) : Prevention of child abuse and child ignorance : Human investment project (Dream start)	Management of child-care centers and child-care counseling centers
Social Services for Women	• General women: basic law on gender equality, support for female workers (maternal protection) • Vulnerable women: self-support service for low-income single-parent families, support for sexual violence victims or domestic violence victims, support for women with disabilities, support for migrant women	: Focus on protection of rights of general women and labor power : Comprehensive regulations of gender equality, healthcare and care for pregnant women
Social Services for the Disabled	• Registration system for the disabled, pension benefits for the disabled, disability allowance • Employment quota system, employment promotion subsidies for the disabled, occupational rehabilitation for the disabled • Provision of convenience facilities and medical care • Personal assistance support for the disabled, special education • Management of welfare facilities for the disabled	• The disabled, with the potential to get employed: Obligated to work • The disabled, without the potential to get employed, but able to work in farming: Obligated to work in farming • The mentally disabled, without ability to work: Convalescent No.49

3.2 Pathway to the social security integration of a united Korea

As the integration of social security systems in a united Korea will be different from that of Germany, it is impossible to simply apply the South Korean system to North Korea. Since side effects are expected, the new system must be phased in.

In the case of Germany, the social security system of West Germany was already mature, and East Germany also employed a social insurance- centered system. Further, the system actually worked. Under these conditions, it was possible to simply apply the western scheme to East Germany. In the case of Korea, however, South Korea has an immature system, which yet remains in the phase of introduction and expansion. Further, North Korea adopts a state-run system and it is not even clear whether the system is functioning. Therefore, the full integration of the systems may cause confusion for Korea.

Thus, the social security integration of South and North Korea should be phased in. The process of integration can be divided into three phases: the emergency transitional phase, to ensure basic security for North Korean residents in risk, the institutional integration phase and institutional settlement phase. The emergency transitional phase concentrates on transitional emergency measures for North Korean residents; in the institutional integration phase, the systems of the North and South must be integrated to the maximum extent possible; in the institutional settlement phase, the integration must be complete and established.

The emergency transitional phase, by ensuring basic security, should minimize the confusion that immediately follows unification Basic security can be guaranteed through existing schemes, such as in-kind benefits that could maintain a certain level of security, leading to social stabilization. Meanwhile, basic security for the elderly can be guaranteed by providing a basic pension to North Korean pensioners. Given the institutional differences in healthcare, the national health system must work to expand medical institutions and facilities in the public sector. Industrial accident insurance must be available, while an active labor market policy within unemployment insurance can be applied to North Korea. In terms of social assistance, a secondary social safety net must be ready to embrace people who have been left out of the primary social safety net, and an additional delivery system must also be established.

In the institutional integration phase, the South Korean system is to be applied to the North in principle, in the context of a transition to a market economy. While coverage should abide by regulations in the South Korean system, benefits should be flexibly applied. In terms of security for the elderly, South Korea's national pension scheme and retirement pension scheme can be applied to North Korea. A basic pension should be introduced for people already in their senior years, in accordance with when unification takes place. For healthcare, the South Korean system could be applied in general, with interim measures to maintain the North Korean state-run system by eliminating co-payments in primary and secondary medical institutions. The mandatory enrollment status of North Korean insurance policyholders must be reflected when applying South Korea's accident insurance scheme and unemployment insurance to the North. Further, South Korea's social assistance scheme must be extended to the North. At this stage, different poverty lines must be temporarily applied to North and South Korea so as to minimize problems of basic security. Meanwhile, the provision of social services must be supported by the modernization of social welfare facilities establishment of infrastructure.

In the institutional settlement phase, social security integration will be completed and settled into the unified system. In contrast to the institutional integration phase, when the social security system is applied with flexibility, a unified system must be in place to ensure stability. South Korean social security measures for the elderly, in the form in which they were first introduced, will be implemented in North Korea. The interim measures for policyholders who have only been covered for a short period, such as special old-age pension and early old-age pension, must be gradually cut back. Contributions and benefit levels of health insurance must be uniform in both areas. The same goes for accident insurance and unemployment insurance. In the case of social assistance, the South Korean system must be adopted. However, measures that set different poverty lines in North and South Korea should necessarily be maintained, if unified Korea is to achieve poverty alleviation at the same time. Further, considering that social services by nature tend to possess features such as individuality and subsidiarity, the consistent support of facilities and finance will be required to meet local needs.

Table 8.9. Suggestions for the integration of the social security system in a unified Korea

	Emergency transitional phase	Institutional integration phase	Institutional settlement phase
Concept	Transitional emergency measures	Integration of two systems	Settlement of integrated system
Basic Plan	• Ensuring basic security rights after unification • Basic security through existing schemes • Basic security through benefits in kind (food, clothing, etc.) and maintaining former benefit levels	• Integration of social security systems based on market economy • Interim measures in case of large gap between existing system and new system	• Homogeneous and unified social security system

Table 8.9. Continued

	Emergency transitional phase	Institutional integration phase	Institutional settlement phase
Pension	• Provision of basic pension to North Korean pensioners • Basic security for pensioners through benefits in kind (food, clothing, etc.)	• Implementation of South Korea's earnings-related pension scheme • Provisional acknowledgement of mandatory enrollment status of North Korean policyholders, and guarantee of basic pension for North Korean citizens	• Implementation of dualistic system of basic security and earnings-related pension as a unified pension system
Health Insurance	• Application of NHS to all medical institutions in North Korea (maintain NHS) • Transfer to medical institutions of South Korea if necessary	• Interim measures to maintain North Korean state-run system by eliminating co-payment in primary and secondary medical institutions • Application of NHI & LTC • Establishment of private medical institutions and partial application of cost sharing	• Uniform contribution regulations and benefit levels of health insurance in both areas
Accident Insurance	• Basic security under the existing system, especially provision of basic healthcare and basic disability benefits	• Application of South Korea's accident insurance scheme to the North • Provisional acknowledgement of mandatory enrollment status of North Korean policyholders, and guarantee of basic security for industrial accident victims as interim measures	• Settlement of a unified system nationwide, through expansion of existing system • Emphasis on prevention of industrial accidents as well as passive remedies for industrial accidents
Unemploy-ment Insurance	• Emergency relief for the unemployed	• Implementation of unemployment insurance in the North • Connection to active labor market policy	• Stable settlement of unemployment insurance • Promotion of human resource exchanges and social integration

Table 8.9. Continued

	Emergency transitional phase	Institutional integration phase	Institutional settlement phase
Social Assistance	• Provision of primary social safety net against large-scale poverty • Basic security through cash benefits and benefits in kind • Emergency employment policies, such as job creation projects	• Extend South Korea's social assistance scheme to the North • Provisional setting of different poverty lines in North and South Korea	• Uniform application and actualization of benefit levels
Social Services	• Expansion of government support for existing social welfare facilities • Full support for social welfare activities by private organizations • Provision of counseling services for residents suffering from radical change	• Complementary measures for existing social welfare facilities and vocational training for facility workers • Institutional care for a large number of homeless in the aftermath of social turmoil • Provision of counseling and rehabilitation services for those suffering from changes in social environment • Placement of social welfare professionals in the North • Support for social welfare activities by private organizations	• Provision of professional social welfare services • Installation of welfare offices nationwide for support of North Korean people's social integration • Consistent support for the social welfare activities of the private sector

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Cost and Financing of Unification: Implications of the German Experiences for Korea

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1. Overview

This study analyzes the cost and financing of Germany's reunification, with a view to delineating implications for Korea. The German reunification may be an all too familiar topic, but this study is unique in that, instead of offering yet another generic explanation of how much Germany spent and how it financed its reunification process, it focuses on Germany-specific systems, financing policies as well as the economic conditions faced by the nation at the time, which all affected the cost and financing. It is by comparing these to Korea's own systems, financing modes under discussion and economic conditions today that this study derives pertinent implications.

The debate on the cost of reunification in Germany is mostly centered on the public transfer (public sector payments) to eastern Germany. The debate on financing is similarly focused on the public—that is, fiscal—part of the financial resources that were involved in reunification. Such consistency helps keep the related debates focused.

The reason the German reunification turned out to be such a costly busi-

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ness has to do with the economic slump of eastern Germany, and the task of incorporating East Germany into West Germany's social security system and federal financial equalization system (FFES).[18] Similarly, extending South Korea's social security system and Local Finance Equalization Scheme (LFES) to North Korea in the event of unification or integration will exert a decisive influence on the cost of Korean reunification. Matters regarding the social security system will be discussed in another chapter. The FFES is explained somewhat in detail in this study. The "German Unity Fund" and the Solidarity Pact, often mentioned in the literature, should be understood in the context of this system.

German reunification turned out to be far costlier than expected, but financing it went relatively smoothly. Berlin financed the unification costs through a combination of measures, by raising taxes and social security contributions, cutting spending, and increasing government indebtedness. Borrowing is estimated to have been the major source of financing. Berlin was able to use debt-raising measures without difficulty, for it maintained the highest credit rating and its exchange and interest rates remained stable, thanks to the international community's trust in the German economy, and the sizable amount of external assets Germany held at the time. Theo Waigel, the finance minister at the time of reunification, thus stressed in his address at a 25th-anniversary celebration of the German "Monetary, Economic and Social Union" in July 2015, that "fiscal soundness and a satisfactory economic situation are the key preconditions to the successful financing of national reunification, and both were met in 1990."[19]

18) The FFES is explored in depth in this study. The main causes of the huge amount of transfer included the significant gap in the income level of the two German areas, the steep rises in the wage level after reunification, the collapse of the Eastern Bloc markets, and the following escalation of unemployment. Much of the transfer from the West to the East took place via the West German social security and federal financial equalization systems.

19) Waigel appeared as a keynote speaker at an event held by the Deutsche Bundesbank in Leipzig, formerly of East Germany (Waigel, 2015). He served as Federal Minister of

Earlier research results, including Korean and German, and a variety of statistics were widely used in this study. In the following, we shall examine the German experience in detail and find implications for the current debate in Korea on the possible cost and financing of the Korean reunification process, with the goal of determining how we should prepare for reunification.

2. Cost and financing of the German reunification

2.1 Cost of reunification

"Public transfers" is the term normally used when Germans refer to the cost of reunification. The concept includes both fiscal transfers and pay-

Table 9.1. Net transfer payments to eastern Germany: Comparison of calculations (in DM 1 billion)

	Economic Advisory Committee	Federal Ministry of Finance (BMF) / Deutsche Bundesbank	Cologne Institute for Economic Research	Halle Institute for Economic Research	Kiel Institute for the World Economy
1991	105	106	131	129	129
1992	123	115	148	152	253
1993	132	129	169	175	198
1994	123	125	162	169	165
1995	124	140	152	154	143
Total	607	615	762	779	888

Source: Bundesbank (1996), p. 26.

Finance of Germany in the Cabinet of Chancellor Helmut Kohl from 1989 to 1998, and as Chairman of the Christian Social Union in Bavaria (sister party of the Christian Democratic Union) from 1989 to 1999. He signed the State Treaty leading the 'Monetary, Economic and Social Union' in May 1990. He is known as one of the major players in introducing the euro.

ments through social security systems.[20] The concept allows us to assess the cost and financing of the German reunification from a fiscal perspective.[21]

Estimates on public transfers during reunification are available in reports from the German government,[22] the Deutsche Bundesbank (Buba),[23] and other major economic research institutes. As the table 9.1 shows, however, estimates vary significantly from source to source. This is because some reports include the amount deficit incurred by the Treuhandanstalt (privatization agency), the amount of tax exemptions provided on investment in East Germany, and the equalization claims provided for financial institutions,[24] while others do not. For instance, the Germany's Federal Ministry of Finance estimates the cumulative total of public transfers to amount to DM 615 billion,[25] while Kiel Institute estimates it to be DM 880 billion.

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20) The terms vary slightly, from öffentliche Finanztransfer für Ostdeutschland (public financial transfer for eastern Germany) in the German government's Jahresbericht (1997, pp. 43-48), to öffentliche Transfer (public transfer) in the Deutsche Bundesbank's report (Oct. 1996), and to Transferleistung (transfer payment) in the Economic Advisory Committee's report (Sachverständigenrat (2004/05), Jahresgutachten, p. 644).

21) Mun and Choi (2012) have pointed out that keeping research on reunification cost projections and financing separate leads researchers to posit different parties to bear the cost and financing burden (entire national economy vs. South Korean government), making it difficult to determine the total amount of financing that the South Korean government is to assume.

22) The German Government has been publishing the 'Jahresbericht der Bundesregierung zum Stand der Deutschen Einheit' every year since 1997 as a report to the national assembly (English versions, titled *Annual Reports of the Federal Government on the Status of Germany Unity*, are available with respect to recent years.) Estimates on public transfer spending, however, are included in reports up to 1998 only.

23) The Buba provided analyses of public transfers until 1996 (Deutsche Bundesbank, 1995 and Oct. 1996).

24) As different conversion rates were applied to savings deposits and loans at financial institutions when the two German currencies were integrated, Berlin provided equalization claims to the differences in asset and liability values and distressed debts resulting from such different conversion rates.

25) When the euro was introduced in 1999, the exchange rate was DM 1.95583 to EUR 1.

As for its analysis of the public transfers in Germany, this study used the estimates from the Halle Institute for Economic Research (IWH), which have a relatively longer time series and show distributions of the transfers by budget and economic type.[26] In Korea, the focus is mainly on an economic type analysis, while in Germany transfers by budget concentrated on reflecting the characteristics of "a federal state."

The federal government by far took up the greatest share of the public transfers, while state (Länder) governments and local authorities, the German Unity Fund (which remained in operation until 1995), social security funds and EU funds also played roles. The federal government's support went toward social expenditures (labor-market-related spending), infrastructure development, investment subsidization, and the FFES.[27] The FFES, stipulated in the constitution, allows state governments[28], irrespective of their original fiscal capacities, to have a fiscal capacity per capita almost on par with the all-states average by distributing fiscal revenues between the federal and state governments, and again among state governments, through a multi-phase structure. State and local authorities' transfers are based on the FFES. Distribution by this system is criticized sometimes for its utilization and effects, but such transfers *per se* are accepted as taken for granted in Germany.[29]

Such a federal structure may not be directly comparable to Korea's sit-

26) Estimates are available on the subsequent period (see Economic Advisory Committee [Sachverständigenrat 2004) and Halle Institute [IWH 2009)). Yet these estimates do not show the distribution of spending by item and source. Moreover, statistics from the 1990s bear more direct relations to the historic event of German reunification.

27) Länderfinanzausgleich. The Federal Ministry of Finance (BMF) translates this as "Federal Financial Equalization System," while the Bundesbank translates it as "Financial Federal equalization."

28) Here, the term state is "Länder" in Germany. It refers to each state (like Bavaria, Hesse) and each independent city, such as Berlin, Hamburg, and Bremen.

29) Teltschik argues that German taxpayers raised almost no objection to such transfers of money into East Germany through the FFES. The system successfully established itself in East Germany as well (Teltschik, Asian Leadership Conference, Seoul, May 19, 2015).

uation, but the South Korean government also provides the Local Finance Equalization Scheme (LFES), through which it provides fiscal support for local governments.30) In this sense, it would be helpful to understand the system itself and how it was applied to the unified Germany.

Table 9.2. Public transfers to eastern Germany

	Public transfers to eastern Germany: by budget (in DM 1 billion)									
	1991	1992	1993	1994	1995	1996	1997	1998	1999	1991-99
Total transfer spending (A)	142.2	171.8	191.6	194.0	188.5	188.3	184.3	182.3	195.6	1,636.5
Federal government	74.4	89.4	114.9	114.9	135.8	139.1	131.1	132.1	141.3	1,073.4
State/local authorities in West	5.0	5.4	10.7	14.5	10.5	11.2	11.4	11.3	11.3	91.4
German Unity Fund	31.0	24.0	15.0	5.0	0.0	0.0	0.0	0.0	0.0	75.0
Social security funds (net)	18.7	34.2	23.0	29.8	33.3	30.9	34.7	31.9	36.0	272.5
EU	4.0	5.0	5.0	6.0	7.0	7.0	7.0	7.0	7.0	55.0
Treuhandanstalt	8.8	13.7	23.0	23.8						69.3
Revenue (federal government) (B)	33.0	39.1	41.1	45.2	46.8	48.2	47.8	48.6	50.6	400.8
Net transfer spending (NTS) (A-B)	109.2	132.7	150.2	148.8	139.6	140.0	136.4	133.7	145.0	1,235.7
〈NTS / E. Germany's GDP〉, %	53.2	50.0	46.5	40.7	35.5	34.1	32.4	31.2	32.8	
〈NTS / W. Germany's GDP〉, %	4.1	4.7	5.3	5.0	4.6	4.5	4.3	4.0	4.4	

Source: Ragnitz, *et al.* (2000), p. 14.

The German Unity Fund was also created in this context. The Fund was originally created to support the postponed inclusion of the states of eastern

30) This system bears particular importance for item-by-item spending, to be discussed in the following section.

Germany, for including the eastern states into the FFES would have largely reduced the amount of revenue available for the western German states, forcing the latter to support the former in equalization among the states. The Fund was thus introduced a day before the proclamation of the Monetary, Economic, Economic and Social Union,[31] and was retained until the end of 1994, financed by the federal and western German state governments (including local authorities). More specifically, of the DM 160.7 billion making up the fund, DM 95 billion was obtained by issuing public bonds, which were to be redeemed in equal parts by the federal government and the western German state governments and local authorities.[32] Another DM 66 billion was assumed by the federal government (75 percent) and state governments (25 percent). Then Solidarity Pacts I and II went into effect starting in 1995, which reintroduced the solidarity surcharge,[33] raised the state governments' share of value-added-tax revenue (37 percent to 44 percent) and introduced the federal government's special subsidies for the eastern German states, now that East Germany was included in the FFES.[34]

Transfers through social security funds consisted of the social security contributions paid by West German citizens that went toward supporting social

31) Gesetz uber die Errichtung eines Fonds "Deutsche Einheit."

32) The table above shows the German Reunification Fund to have amounted to DM 75 billion in total. But this does not include the DM 20 billion the Fund provided in 1990. The remaining DM 49.6 billion was included in the federal government's expenses, while another DM 16.1 billion was included in the states' (Jahresbericht 1997, pp. 43-44).

33) Solidarity surcharge, generally called 'unification tax,' was firstly introduced as a temporary tax from July 1991 to June 1992 (Deutscher Bundestag, 1991). It charges 7.5 percent against income and corporate tax. It was reintroduced in Jan. 1995. The rate was 7.5 percent until 1997 and 5.5 percent since then up until present. All Germans pay this tax, irrespective of western or eastern origins.

34) Reflecting the still weak financial capabilities of the eastern state governments, additional subsidies were introduced and provided DM 20.6 billion each year for the subsequent 10 years under Solidarity Pact I (effective until 2004). Solidarity Pact II featured the federal government's additional support of DM 156.5 billion for eastern German states until 2019.

security spending in eastern Germany. Because the social security schemes were in the purview of the federal government, such reallocation of resources was necessary now that East Germany had become part of Germany's social security system. The EU also provided part of the finance needed through its Structural Fund, which was a fund created to support economically weak regions in the EU. Germany had been the largest contributor to the EU budget, with its net contribution increasing from DM 13.2 billion in 1989 before unification to DM 17.5 billion by 1991 (shortly after the reunification), and again to DM 19.3 billion. The Structural Fund financing was therefore far from a simple boon to the German reunification process.[35)]

The table 9.3 shows the distribution of public transfers by purpose or by economic type. Social security claimed almost a half of the total transfer payments due to the rapid integration of the two Germanys' social security systems and the post-reunification economic recession in the East. Not only had western Germany provided quite generous amounts of social security benefits to begin with, but Berlin now almost single-handedly had to handle the rising unemployment rate in eastern Germany by providing jobs with short working hours, providing unemployment benefits, and supporting early retirement schemes for eastern Germans. This implies that the pace and method of social security system integration between the two Koreas and the economic conditions of North Korea after reunification will exert a decisive impact on the total amount of the reunification cost South Korea ought to bear.[36)]

"Payments for unspecified purposes" also take up a significant portion. It mainly refers to spending through the FFES. Bundesbank has justified the significant amounts of public transfers to eastern Germany via social security systems and the FFES as required by the constitutional framework of Germany, and that eastern German states are not the only beneficiaries of

35) Based on estimates from money-go-round.eu.

36) For more on Germany's social security system, see the relevant chapters.

such transfer payments. The revenue sharing system did benefit other struggling states of western Germany as well (Buba, 1996, p. 27). Ragnitz (2004) has thus argued that, aside from the benefits for all German states under the new revenue sharing scheme, “special transfers” for East Germany only, such as the federal government’s special subsidies and grants for investment and research and development, amounted to only 13 percent of the total amount of public transfers.

The main cause of the criticism against public transfers is that less than 20 percent of it has been spent on infrastructure and economic development. Here we should recognize the role of the Kreditanstalt für Wiederaufbau (KfW: Credit Institute for Reconstruction), a public development financial institute. KfW provided a large amount of favorable loans for improving housing conditions, supporting small and medium businesses (SMBs), and developing local government infrastructure in eastern Germany,[37] although this was not calculated as transfer payments. From 1990 to 1999, KfW provided DM 159 billion in low-interest loans (KfW, 2000, contract basis). This amounts to 13 percent of the gross public transfer payments. The federal government compensated KfW for the interest margin, which is reflected in the public transfer amount. Korea may also consider utilizing special banks specializing in development financing to lighten its fiscal burden.

The FFES refers to the scheme via which the federal and state governments in Germany share and distribute their tax revenue as required by the German constitution, measured in terms of tax revenue per capita.[38] The system requires the federal and state governments to share the income, corporate and value-added taxes in the first phase. The total amount of tax revenue set aside for state governments is then distributed among state govern-

37) The federal government and states hold 80 percent and 20 percent of this corporation’he federal government and states hold 80 percent and 20 percent of this See Kfw (2000), KfW (2005) and KfW (2013).

38) Articles of the German Constitution require the “reasonable equalization of the disparate financial capacities of the states.”

Table 9.3. Public transfer payments to eastern Germany by economic type

	Public transfer payments to eastern Germany by economic type									(%)
	1991	1992	1993	1994	1995	1996	1997	1998	1999	1991–99
Infrastructure development	12.3	9.9	8.6	10.0	13.1	13.1	13.1	12.8	12.5	11.7
Economic development	2.5	4.8	7.6	7.5	8.0	6.9	6.3	6.3	5.8	6.3
Social security system	45.5	54.0	54.0	53.8	49.4	50.3	50.0	49.4	51.7	51.1
Unspecified purposes	28.1	22.4	20.1	19.5	23.8	24.3	24.8	25.6	24.4	23.5
Other	11.7	9.0	9.6	9.0	5.7	5.4	5.8	5.8	5.6	7.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Ragnitz, *et al.* (2000), p. 14.

Table 9.4. Germany's Federal Financial Equalization System <N.B.> Germany's Federal Financial Equalization System

Four phases of the FFES	
Phase 1: Vertical distribution	The entire tax revenue is distributed among the federal and state governments and local authorities.
Phase 2: Horizontal distribution	The tax revenue belonging to the states as a whole is distributed among individual states.
Phase 3: Financial equalization among the states	Poor states receive adjustment payments funded by the wealthy states.
Phase 4: Supplementary federal grants	Federal government provides supplementary federal grants to poor states.

Source: BMF, *The federal financial equalization system in Germany.*

ments in the second phase. In the third phase, some adjustments are made between wealthy and poor states. In the fourth and last phase, the federal government provides supplementary grants to poor states.

As Germany is a federation of states, the revenue from joint taxes, such as income, corporate, and value-added taxes, is distributed according to a predefined ratio among governments of all levels. The federal, state and local taxes are returned to the government(s) at each level. Then the amount of tax revenue belonging to the states as a whole is allocated to individual state governments, principally according to the amount of taxes paid by each state's residents, but additional portions of VATs are allocated to poor states.

Table 9.5. Tax revenue distribution: vertical (%)

Tax		Federal	State	Local	Total
Joint taxes	Income taxes	42.5	42.5	15	100
	Corporate taxes	50	50	-	100
	VATs	53	45	2	100
Federal taxes*	Energy, tobacco, insurance	100	-	-	100
State taxes	-	-	Inheritance, real estate transactions	-	100
Local	-	Partial	Partial	Local consumption, property, etc.	100

Note: The solidarity surcharges, 5.5 percent of income and corporate taxes, are attributed entirely to the federal government.
Source: BMF, *The federal financial system in Germany*.

Then the amounts of tax revenue allocated to state governments are readjusted, with wealthier states transferring part of their tax revenue to poor states. This revenue sharing policy is unique to Germany, and has not been without criticism. As the table 9.6 shows, states such as Bavaria, Baden-Wurttemberg, and Hesse with relatively greater tax revenue per capita transfer part of their tax revenue to poorer states, thus significantly reducing the per-capita financial capacity gap among states. For example, Bavaria, with its state capital in Munich, has a per-capita tax revenue of 115.6 percent, far higher than the all-states average. After the interstate readjustments, however, Bavaria's rate drops to 105.5 percent, while the state of Saxony's rate rises from 88.3 percent to 95.6 percent. The following figure also shows that, as eastern

German states became part of the FFES in 1995, the amounts provided and received have been increasing dramatically since 1995.

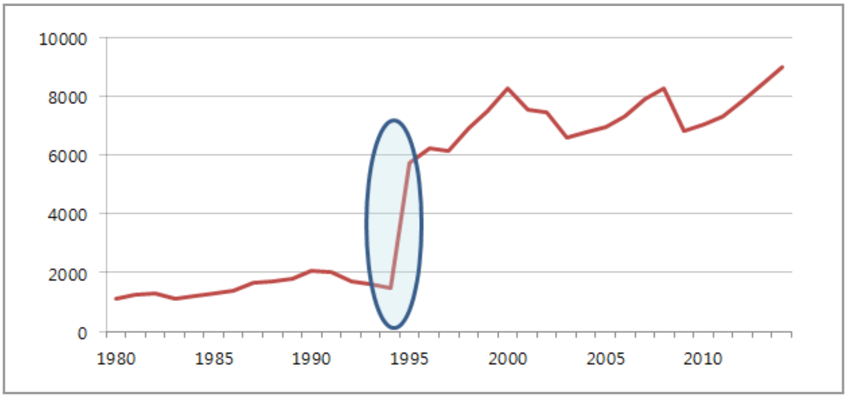
After the inter-state readjustments, the federal government also provides additional subsidies so that the per-capita financial capacities of eastern states can ultimately rise as high as 99 percent.

Table 9.6. Per-capita tax revenue by state after inter-state readjustments (2010, ratio to all-states average)

	West German states			East German states					
	Bavaria	Baden-Württemberg	Hesse	Saxony	Saxony-Anhalt	Thuringia	Brandenburg	M-Vorpommern	Berlin
Pre-Phase 3	115.6	109.5	116.0	88.3	88.0	88.0	90.6	86.5	68.1
Post-Phase 3	105.5	103.8	105.7	95.6	95.5	95.5	96.3	95.1	90.5
Phase 4	105.5	103.8	105.7	98.6	98.6	98.6	98.8	98.5	97.0

Source: BMF (2014).

Figure 9.1. Amounts provided and received according to phase 3 (± million euros)



Source: BMF (2014).

2.2 Modes of financing

Germans initially did not expect the cost of reunification to amount to much. Nor did they expect such raises in tax rates or the dramatic increase of public debt. The growing amount of public transfer payments, however, has necessarily entailed dramatic increases in debt, rises in tax and social security premium rates, and a reduction of public expenditures. Waigel (2015) explains that there was a wide consensus on the need to develop a “financing mix,” since it was impossible and infeasible for the German government to rely on only one tool of financing or another—spending cuts, debt increases, tax/premium rises, etc.—for doing so would have exerted serious repercussions on the economy and future generations. In the meantime, privatization, originally expected to be of great help, turned out to play an enormous role.

Although it is impossible to measure the ratio of each financing source with exactitude, the consensus is that debts were used as a primary source.

The German federal government explains that “significant increases in public debts were inevitable after 1990, despite spending reduction and rises in tax and social security premium rates.”[39] Buba also points out that “although part of the expenditure incurred in integrating the new Länder (states) was financed by raising taxes and social security contributions and by cutting spending, substantial recourse was had to borrowing.”[40] Czada (1995) explains that either raising taxes or reducing spending involved much risk of political backfire, which is why the German government had to rely mostly on raising social security contributions and taking new public debts. Sinn (1996) pointed out that most part of the expenditure was financed by debt increase, because of Kohl’s promise that there would be no tax raise incurred by the reunification. Siebert (2005) also explains that a vast portion of

39) Jahresbericht (1997), p. 47.

40) Deutsche Bundesbank (1997), p. 17.

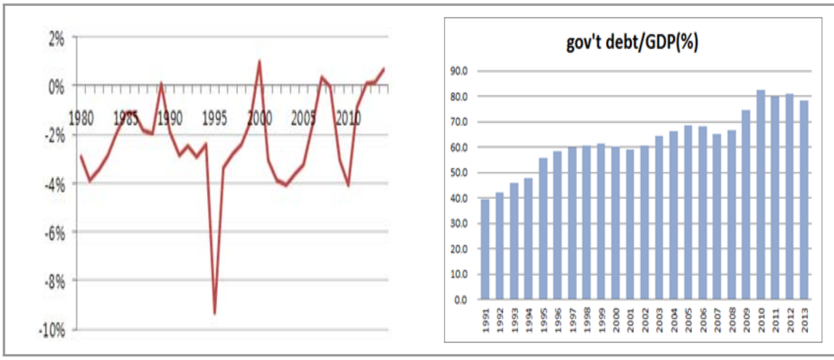
the reunification cost was financed through borrowings, and a significant part of the remaining cost was met by raising social security contributions. Heilemann (2000), on the other hand, estimates that, from 1991 to 1995, 43 percent of the public transfer payments to eastern Germany came from tax and social security contribution raises, another 42 percent from increased debts, and 15 percent from spending cuts. He also argued that, over the years, dependency on debt declined, while dependency on taxes and social security contribution increased.[41] Kim (2014) estimates that, until 2009, 65.4 percent of the net public transfer payments came from debts, while the remaining 35.5 percent was financed by raising taxes and reducing spending programs and tax benefits.

Shortly after the reunification, the German government's fiscal balance turned to deficits and its debts began to multiply at a rapid pace. It was not until 2007 that the fiscal balance again returned to surplus.[42] The government debt-to-GDP ratio similarly soared from 40 percent in 1991 to 60 percent by 1997.

41) Heilemann argues that the German reunification financing structure in 1995 provided a "textbook financing case," as the German government's dependency on debts, which amounted to 60 percent of all financing in 1991, plummeted to two percent by 1995, while the respective ratios of spending cuts and tax rate increases rose from five to 20 percent and from 13 to 35 percent, while the ratio of social security premiums remained steady at 15 percent. These figures, when added up, however, fall short of 100 percent. Heilemann's graph also shows that debt increases still accounted for 20 percent of the reunification cost financing, notwithstanding the abrupt drops in dependency on debts (Heilemann, 2000). Waigel quoted Heilemann's "textbook" assessment in his address (2015).

42) Seliger (2008) stresses that Korea ought to pay attention to the fact that the turn of Germany's structural fiscal balance to surplus in 2007 reflects not only the recovery of the German economy, but also the restructuring efforts the German government had been making since 2003 under Agenda 2010. The sizable deficits Germany showed in 1995 reflect the deficits scored by the Treuhandanstalt. The surpluses noted in 2000 reflected the exceptional event of selling frequency bands for mobile phones.

Figure 9.2. Fiscal balance/GDP (%), government debt/GDP (%)



Helmut Kohl's promise that reunification would not impose any tax burden on Germans and the optimistic forecasts about the costs and benefits of reunification blinded the German public and policymakers to the inevitability of raising taxes. One year after reunification, however, the German government began to introduce new taxes and raised rates on existing taxes and social security premiums to finance the reunification costs and also the first Gulf War.[43] It was around this time that the solidarity surcharge was introduced, along with rising VAT, gasoline, insurance, and tobacco tax rates as well as increasing unemployment and pension insurance premium rates.

The German government then set out to reduce fiscal spending under the Savings, Consolidation and Growth Program (Spar-, Konsolideriugns- und Wachstumsprogrmm) in 1993, thus bringing down the fiscal spending rate by 1.4 percent by 1995. The drastic reduction in spending reflects the abrupt

43) The draft for the tax rate raise legislation, introduced by the governing coalition of the day, stressed the new role that the federal government faced due to political changes in the Middle East, the Eastern Bloc and East Germany, and envisioned increasing the federal government's revenue so as to finance these new and additional roles. The draft thus proposed raising car fuel, insurance and tobacco tax rates, and also charging the solidarity surcharge (Solidaritätszuschlag) for one year."

increases in interests on debts[44] and the fiscal soundness requirements (keeping the fiscal deficit-to-GDP and government debt-to-GDP ratios at three and 60 percent, respectively) under the "Stability and Growth Pact" of the Maastricht Treaty (signed in 1992).

2.3 Financing conditions

A significant part of the reunification cost was financed by increasing public debts. Bundesbank assesses that the large credit needs of the German governments were met without any real difficulties because foreign investors bought relatively heavily in the German capital market. At the end of 1989, foreign investors held a little more than 20 percent of Germany's government bonds. From 1990 to 1996, however, the acquisition of German public sector debt certificates by creditors abroad came to just over 40 percent of the net borrowing.[45]

This trend was facilitated only by the predominantly favorable exchange rate expectations regarding the DM and also by the fact that, from 1990, German paper for a long time carried an interest rate advantage over comparable investment vehicles in the United States.[46] Bundesbank also explains that funds invested abroad by German savers for tax reasons were reinvested in the German financial system in the form of "foreign" purchases

44) The interest burden on the federal German government rose from 11 percent of its budget in 1989 to 16.5 percent by 1996 (Deutsche Bundesbank, 1997, p. 26).

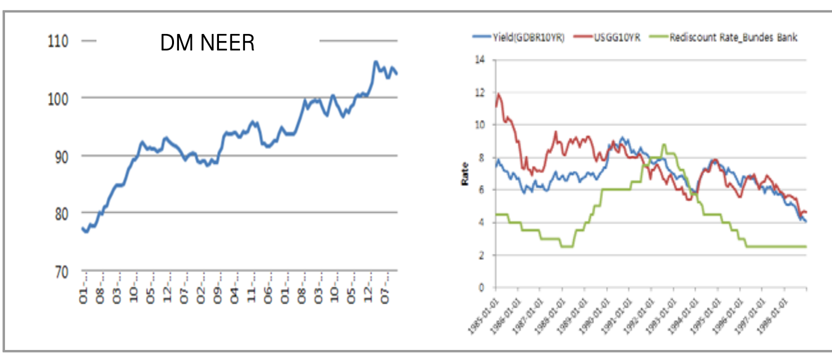
45) Of course, the most important investor group was still that of domestic banks, which together bought slightly less than 50 percent of the government bonds from 1990 to 1996 (Deutsche Bundesbank, 1997).

46) Blum (2014) explains the appreciation of the DM as a result of the Deutsche Bundesbank's decision to raise the interest rate in anticipation of the rising inflation pressure attendant upon economic recovery after the reunification, which increased the demand for German government bonds, notwithstanding the fiscal deficits.

of securities. Bundesbank, in turn, raised the policy interest rate against the post-reunification economic boom, which lasted until mid-1992.[47] The return government bond yields kept rising as well, with the long- and short-term rates being reversed at one point, but hovering above yields on the US treasury bonds until early 1994. The nominal and effective DM exchange rate and exchange rate against USD also show that the German currency retained its relative stability in steady appreciation.[48]

The fact that Germany was able to incur so much debt with a little yield gap and stable exchange rate reflects the strength of the German economy and international investors' trust in Germany at the time. In the years leading

Figure 9.3. Bundesbank's rediscount rate, yields, US and German government bonds (10 Years)



47) Some argue that the Bundesbank raised the interest rate in order to find more resources to finance the reunification process. However, Buba bases its interest rate decisions on price stability above all else. The bank had been raising the interest rates since 1989 in anticipation of Germany's rising growth and inflation rates. Czach (1995) analyzes that the Buba needed high interest rates not only to fend off inflation and wage increases, but also to bring back the massive amounts of capital outflow into Germany after the reunification.

48) The rise in the German interest rate exerted a depreciating pressure on the British pound (GBP), rendering it vulnerable to hedge fund attacks. In 1992, the United Kingdom backed out of the European Exchange Rate Mechanism (ERM), and the exchange rates of other member states fluctuated dramatically.

up to the reunification, West Germany's economy performed well in terms of the growth rate, inflation, current balance, and fiscal balance, which some dubbed as a "small economic miracle"(Weimar, 1998).[49] Accordingly, Germany was able to maintain the highest sovereign credit rating even during the hard times following reunification.

Table 9.7. Germany's sovereign credit ratings

	Moody's	S&P	Fitch
Rating	Aaa	AAA	AAA
Last updated	Apr. 29, 1993	Negative forecasts revoked (Jan. 13, 2012). Negative forecasts made (May 12, 2011). *Current rating since Aug. 17, 1983.	Oct. 8, 1994
Forecast	Stable	Stable	Stable

The reunification did turn Germany's current account balance to a deficit, but West Germany scored immense surpluses, amounting to four percent of its GDP in the late 1980s. Accordingly, its net international investment position (IIP) amounted to 20 percent of the GDP before reunification.[50] The deutsche mark, along with the US dollar and the Japanese yen, was a major international currency, making up 17 percent of all foreign reserves worldwide as of 1988 (Weimar, 1998, p. 354).

Germany was taunted as the "sick man of Europe," when it was experiencing an economic slump and a high unemployment rate in the aftermath of unification. However, entering the 2000s, the current account returned to surplus, the economy recovered and the unemployment rate fell. This trend reflected the outcome of reforms initiated by Chancellor Schröder's Agenda

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49) Germans refer to the postwar economic revitalization of West Germany as the "economic miracle" (Wirtscahftswunder). The word "small economic miracle" is a play on this word. See Weimar (1998), pp. 351-364.

50) The Net IIP had declined near to zero after the reunification but has risen back up to 42 percent against GDP in 2014, thanks to Germany's strong current account surplus (Deutsche Bundesbank, 2015).

Figure 9.4. Germany's current account balance to GDP (%)

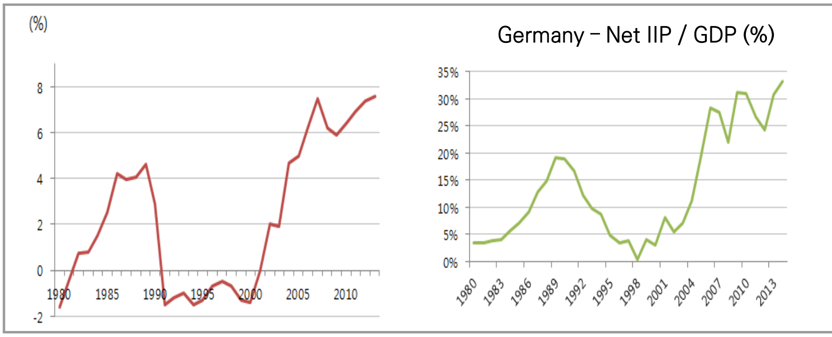


Table 9.8. Major studies on the reunification cost

Methods	Author (year)	Components	Estimates	Bearer	Notes
Adding up components (bottom-up)	Park (KDI) (1997)	Risk management/ Investment	7.5–11.3% of S. Korean GNP (yearly avg. of 10 years)	Government	
	Kim Y. C. (2010)	Risk management/ Investment	2,257 tn KRW (total amount of 20 years)	Government	
	Korean association of public finance (2011)	" and system integration	10 years after unification 1.3–44%, 1.7–6.6%, 1.4–5.5% by timing of unification	Mainly government	
	National Assembly Budget Office (2014)	Social security, education, administration. Investment, etc.	4.2% r 4.8% '»2.8% (yearly avg. 3.9%) of GDP	Government	
Model (top-down)	Noland *et al.* (1997)	Total investment	319bn– 1.72 tn USD	National economy	CGE model
	Shin *et al.* (1998)	Total investment	88.7–280.8 bn USD	National economy	CGE model
	Wolf and Akramov (2005)	Total investment	50 – 667 bn USD (4–5 yrs after unification)	National economy	Investment–growth model
	Ahn and Mun (2007)	Risk management/ Investment	410.7–724 bn USD	Government	4

Source: NABO (2014); others recited from Mun and Choi (2012).

2010. In 2007, the structural fiscal balance recorded a symbolic surplus. Overcoming the global financial crisis and the fiscal crisis in Europe, Germany once again emerged as the powerhouse of Europe.

3. Implications for Korea

3.1 Cost of reunification

There has been a wide range of research on the reunification cost expected to be borne by Korea since Germany achieved its reunification. The cost estimates, however, vary widely, depending on the pace of reunification assumed (step by step or radical), assumptions on the availability of private-sector capital, the choice of a bottom-up (item-by-item addition) or top-down (using econometric models targeting certain goals) method, and the length of the analysis period.

Whether we estimate Korea's reunification cost in absolute terms or as relative ratios to the GDP of the reunified or South Korea, or as the gross cost or net cost, there is a consensus that the cost will be immense. There is thus a growing body of literature on how to reduce the reunification cost and emphasize unification benefits.

Since we are examining the fiscal implications of the reunification cost and financing, studies that add up the items of the reunification cost to be borne by the Korean government are useful. Recent studies converge on the assumption that social security will occupy the greatest proportion of the reunification cost. The National Assembly Budget Office (NABO, 2014) estimates that 47.7 percent of the overall cost will concern social security, while the Korean Association of Public Finance (KAPF, 2011), also agrees that basic livelihood security and social security will claim the greatest cost, although the amount may vary depending on whether we introduce our social security system into North Korea partially or completely. These conclusions indicate the central importance of modifying South Korea's social security system and previewing North Korea's post-unification merger with the system beforehand. Detailed discussions of these matters will be found in other chapters.

The German FFES also carries significant implications for Korea's LFES.[51] The LFES allows the central government to transfer fiscal resources to local governments. The three main sources of funding for the program include the grants for local governments, the subsidies from the national treasury, and the Special Account on Balanced National Development (SABND). The local government grants draw upon local subsidies and the local education subsidies (LESs).[52]

According to the LFES, 20 percent each of the domestically levied taxes in Korea are allocated to local governments in the forms of local subsidies[53] and LEGs, respectively.[54] Subsidies are also provided from the national

51) Refer to MOSF, The Budget System of Korea, pp. 7-9.

52) Local subsidies refer to the amounts of money the central government provides for local governments to help the latter overcome financial shortfalls (for unspecified purposes) so as to ensure fiscal equality throughout Korea. The LEGs refer to the money the central government provides to support local governments' budgets on education. The Treasury subsidies refer to the earmarked (purpose-specific) amounts of grants that the central government provides to cover part of the administrative expenses associated with local government projects/programs (Yun, 2012). See Statistics Korea's e-Nara Indices ("Central Government's Transfers of Fiscal Revenue to Local Governments") for specific statistics on these items.

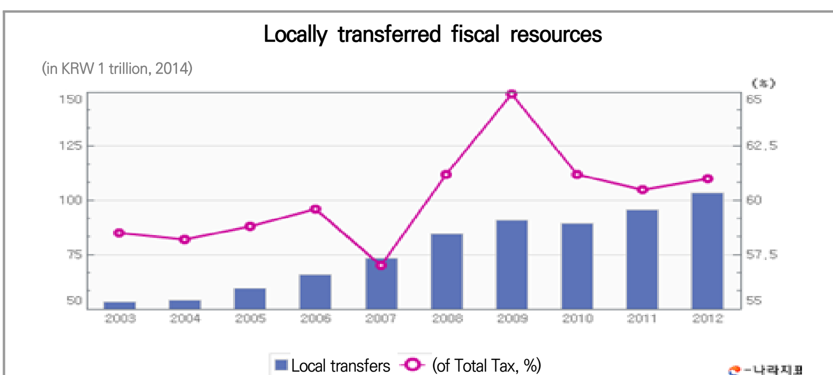
53) The Korean government today provides 19.24 percent of domestic taxes, and 20 percent of the general real property and excise (tobacco) taxes, as local subsidies for unspecified purposes under the Local Subsidy Act (Ministry of the Interior [MOI), 2015). In other words, certain proportions of the national tax revenue will always be local subsidies, which local governments can count as their own fixed financial resources. Local subsidies, in other words, are indirect local taxes that the central government levies on behalf of local governments and reallocates to local governments (MGAHA, 2015, p. 4).

54) The Local Education Subsidy Act (LESA, effective as of January 1, 2015), divides the central government's grants for local governments between general subsidies and special ones. These subsidies claim 20.27 percent of the domestic tax revenue (except special-purpose and general real property taxes, excise taxes on tobacco, and other taxes for special accounts pursuant to other legislations) and the entirety of the education taxes levied under

treasury for specific purposes. The South Korean central government, in other words, transfers a significant and increasing portion of its tax revenue to local governments, which hovers above 60 percent today. Of the financial resources at the disposal of local governments in South Korea (local taxes plus locally transferred revenue), transfers from the central government amount to 67.8 percent, while local subsidies alone account for 45.8 percent.

As tax sharing is institutionalized, and local governments' financial dependency on the central government is high, bringing the North Korean provinces under the current system will significantly reduce the amount of fiscal resources available for the South Korean provinces, thus adding to the latter's financial struggles. If Korea raises the local subsidy rate to maintain the transfer payments, this in turn will put strong pressure on the overall fiscal balance. It is therefore important for policymakers to review and decide, in advance, whether to bring North Korea under this program immediately after reunification or delay such an inclusion and set up a special measure, akin to Germany's German Unity Fund, for the time being.[55] Or we could refer to the solidarity

Figure 9.5. Locally transferred fiscal resources



the Education Tax Act in each given year. The general subsidies claim 96 percent of these resources, and the special ones claim the remaining four percent.

55) See Yoon (2012, pp. 258-259) and NABO (2014, pp. 212-216).

pact, which realigned the VAT sharing scheme and introduced supplementary grants. At the same time, just as western German states funded part of the public transfer payments for eastern Germany, local governments in South Korea should bear similar responsibilities, according to a well thought-out plan.

Table 9.9. Local transfers (in KRW 1 trillion, 2014)

Local Transfers (in KRW 1 trillion, 2014)	
Local transfers (A)	114.9
– Local subsidies	77.7
– Subsidies from the national treasury	31.3
– SABND	5.9
Financial resources at disposal of local governments	169.4
A/total tax revenue (%)	62.5(%)

Source: Statistics Korea (e-Nara Indices).

3.2 Modes of financing

There is also a growing body of literature in Korea on the possible ways to finance the Korean reunification. As the table 9.10 shows, the range of financing sources and options these studies discuss is wide and diverse. While the public sector will play a central role, the utilization of private capital and international financial institutes' aid could reduce the government's burden.

Fiscal sources of reunification financing can be found by raising tax and social security contributions, increasing public debt, and reducing public spending. Privatization and the Reunification Lottery Tickets (RLTs) are also sometimes proposed as possible alternatives. Support from international financial institutions and the role of special-purpose banks are also required to minimize the fiscal burden of the Korean reunification.

Table 9.10. Korean literature on reunification financing

〈Appendix 2〉

Study	Private sector		Public sector							External sources	
	Savings	Private capital	Special-purpose taxes	Raising tax rates	Raising insurance premiums	Issuing national bonds	Privatizing public assets	Non-tax revenue	Reducing spending	IFI loans and grants	Foreign investment
MoU-commissioned report (2011)	KRW 0.5 to 2 tn. from private capital market a year.	Institutional improvements needed.	Estimates based on national burden estimates until 2070 and OECD's average national burden (1-3% of GDP).					RLT sales to grow up to 0.4% of GDP (OECD average) by 2030.	1% of GDP.	International support (EBRD), Japan's reparations	
Hwang Sanghyun (2010) KERI			National defense tax	VAT, excise tax and cumulative graduated corporate tax.		For ease of financing.	Of both South and North Korea.	*RLTs may be "pain-less" way to financing.		Akin to Iraq Reconstruction Fund, Iraq Trust Fund.	
KIPF (2012)			Reviewing pros and cons for special-purpose taxes and general ones.			Issuing national bonds.				Borrowing from international organizations.	
Choi Junwook (2011) KIPF		Privatization process and voluntary donations.	Raising VAT rate applied to North Korea.		Depends on how social security in North Korea will be reformed.		Proceeds from selling public assets.		Reducing national defense cost.	Concessional grants from abroad.	

Table 9.10. Continued

Study	Private sector		Public sector							External sources	
	Savings	Private capital	Special-purpose taxes	Raising tax rates	Raising insurance premiums	Issuing national bonds	Privatizing public assets	Non-tax revenue	Reducing spending	IFI loans and grants	Foreign investment
Park Jongsu (2012) KLRI			Surtax	VAT rate				Fiscal transfer burdens out of special-purpose burdens.			
Koh Youngsun (2012) KDI		Encouraging private sector's participation.		Income tax and VAT rates.					Re-allocating existing resources.		Issuing bonds abroad.
Son Hyunjin (2012) KLRI			Introducing reunification tax and raising VAT rate.			Bringing in short-term capital and raising real interest rate.	Selling inefficient and North Korean assets.	Issuing Reunification Cards and RLTs, raising utility tariffs.		Optimistic plan.	
	NABO (2011)		Illegible increases in tax rates, VAT rate increases, national bonds, fiscal reforms.								

Source: NABO (2014), p. 198.

As with Germany, Korea will not be able to finance the entire reunification cost using a single source or measure, and will have to find an optimal mix of tax increases, spending cuts, and debts.[56)] Korean policymakers will need to consider the feasible amount of financing from each source, the impact of each source on the economy, the burden-on-the-beneficiary principle, and intergenerational justice.[57)]

Raising taxes

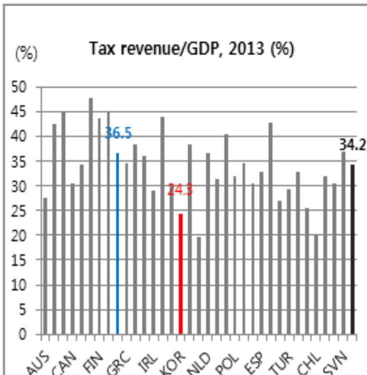
Considering the current level of tax burdens on the Korean public today, there appears, at least in theory, to be room for increasing taxes to finance reunification. As the following figure shows, taxes and social security premiums together made up 24.3 percent of the GDP in South Korea in 2013, significantly below the Organization for Economic Cooperation and Development (OECD) average. As for financing reunification through taxes, researchers discuss whether to introduce temporary or permanent taxes, general or special-purpose taxes, and increase the VAT rate or levy surcharges. In comparison to the OECD average, Korea imposes significantly less excise and consumption (value-added) taxes. The standard VAT rate in South Korea is 10 percent, far below the upwards-of-20-percent of the EU member states as well as the OECD average of 19.2 percent as of 2014. Choi (2011) thus suggests that, given the status of tax bases in Korea,

56) See Choi (2011), KAPF (2011), Kim (2014), and NABO (2014).

57) NABO (2014) argues that the best possible mix is to be found somewhere between increasing taxes and issuing more national bonds, in the interest of the beneficiary-burden principle, intergenerational justice, and efficiency. As the entire Korean public will be the beneficiary of reunification, it may need to bear tax burdens. The remaining financial needs may be met by issuing government bonds. Current spending, such as welfare programs, should be met with tax revenues. Investment spending, however, will benefit future generations and is therefore to be funded by issuing more government bonds. KAPF (2011), on the other hand, argues that both the present and future generations of Koreans will be the beneficiaries of reunification, and therefore an optimal mix is to be found by issuing more bonds (thus increasing burdens on the future generation) and reducing public spending.

raising the VAT rate will be the best option, and raising income and corporate tax rates should also be considered. Some also propose the introduction of a temporary special-purpose tax akin to Germany's solidarity surcharge (Kim, 2014). NABO suggested introducing a unification surcharge and raising the VAT rate. Raising tax rates may help decrease dependency on debts,[58] but the feasibility and range of tax rate increases depend on the public's acceptance and policymakers' political ability.

Figure 9.6. General tax revenue (including social security contributions)



(% of GDP, 2013)

	Korea	Germany	OECD
Personal income tax	3.7	9.5	8.8
Corporate tax	3.4	L8	2.9
Social security premiums	6.4	13.9	9.1
Tax on payroll	0.1	0.0	0.4
Property tax	2.5	0.9	1.9
Consumption tax	7.5	10.2	11.0
Total	24.3	36.5	34.2

Source: OECD, *Consumption tax trends 2014*.

Spending cuts

If South Korea were to support the North, the former should accept spending cuts to some extent. The central and local governments alike should therefore identify and review relative priorities, reallocation arrangements and wastes before reunification.[59] As the Korean society is becoming

58) KAPF (2011) estimates the amount of additional financial resources the Korean government could secure by raising tax and social security premium rates to amount to one to three percent of GDP. NABO (2014) predicts that raising tax rates could significantly affect the dependency on public debt after reunification.

59) Koh and Blum (2014).

an increasingly aged society, it will be crucial to take these matters into account before reunification if we are to reduce the tax and debt burdens of reunification to the utmost extent. Failure to readjust rigid spending, based on a thoroughgoing review, will likely end up reducing investment in the face of impending decisions.

KAPF (2011) predicts that the amount of financial resources that the Korean government could procure by reducing government spending will be less than one percent of Korea's GDP. Aside from the national defense and economic development budgets, the Korean government spends less on other items of public spending than its comparable counterparts worldwide. The aging population, moreover, will likely exert a growing pressure on public spending in the future.

Table 9.11. Government spending by item (2010)

(%, against GDP)

	Korea	Germany	OECD
General administration	5.4	6.3	6.3
National defense	2.5	1.1	2.5
Public order and security	1.3	1.5	2.0
Economic development	5.3	3.3	4.3
Environmental protection	0.8	0.6	0.5
Housing	1.0	0.4	1.00.7
Health	3.8	7.0	9.0
Recreation, culture, religions	0.7	0.8	0.7
Education	5.2	4.3	5.7
Social security	5.9	18.8	14.7
Total	31.8	44.1	45.3

Note: Calculated using total expenditure, ratio by item. OECD figures are unweighted average.
Source: OECD (2015), Structure of general government expenditure.

Increasing debts

Despite all the possible increases in tax and social security contributions and decreases in public spending, this will not be enough to finance the Korean reunification in its entirety, given the immense amount of the cost involved as well as the need to ensure macroeconomic stability and intergenerational justice. Kim (2014) argues that financing reunification with taxes alone may contract the activities of economic actors, and that sound pre-reunification fiscal resources and increasing debts upon reunification should be the key solution.

As in Germany's case, the Korean government should consider the participation of not only Korean investors, but also international investors when issuing bonds. KAPF (2011) fears that the yields on national bonds may rise abruptly, or that they could fail to be fully absorbed in the market at the time of reunification. To prevent this, it is crucial to maintain and enhance the soundness of Korea's fiscal position; it is especially vital to provide generous conditions for private financing.

One way to reduce the fiscal burden on South Korea and encourage private-sector investment is to enable North Korea to receive support from existing or new international financial institutions, such as the International Monetary Fund (IMF), the World Bank, the Asian Development Bank (ADB), and the Asian Infrastructure Investment Bank (AIIB), and/or rely on public-private partnerships (PPPs) of investment before reunification.[60) Special-purpose banks of Korea, comparable to KfW of Germany, may help support infrastructure development and enterprises in North Korea. Such international support, however, will not be forthcoming unless North Korea eliminates its nuclear weapons and improves its investment environment.

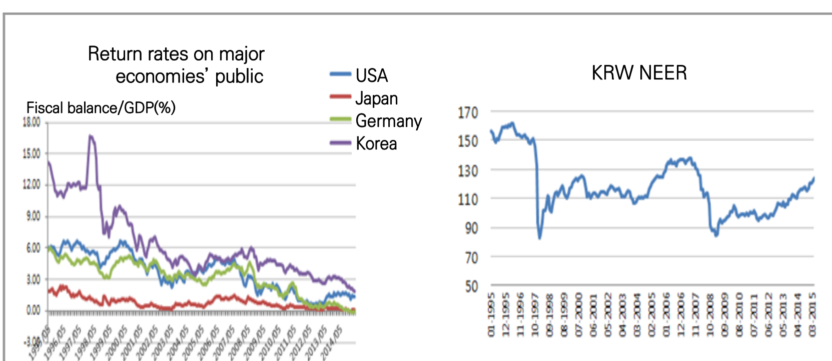
60) See Zang (2014).

3.3 Financing conditions

As the former German finance minister Waigel mentions, an indispensable prerequisite for smooth financing is undoubtedly fiscal soundness and a strong economy. Vivid economic growth provides tax revenue increases, and a sound fiscal status leaves room for countermeasures in the case of exceptional situations. And as we expect a substantial part of financing to be raised through debt increases, it is essential to maintain a high sovereign credit rating. When S&P raised Korea's credit rating last September, it mentioned a "favorable policy environment, sound fiscal position, and net external creditor position." This clearly indicates what we need to safeguard favorable financing conditions.

The yields on South Korea's government bonds remain close to those of other advanced economies, and the Korean exchange rate has also remained stable as of late. The nominal effective exchange rate and USD/KRW exchange rate have also been generally stable since the latest global financial crisis.

Figure 9.7. Return rates on the public of major economies and KRW NEER



These reflect the relatively low government debt ratio, the largess of the current account surplus, net financial asset and the positive shift in the net IIP, and the high credit rating of Korea. South Korea's government debt-to-GDP ratio was 35.9 percent in 2014, far lower than the OECD average of 118 percent in 2013. The OECD thus holds that Korea does not need to reduce its fiscal spending, although the nation operated a relatively expansionary stance while overcoming the financial crises.[61)]

South Korea has been maintaining a current account surplus, which has been growing in recent years, since the Asian Financial Crisis of the late 1990s. In 2014, the country scored a surplus of USD 89.2 billion (8.3 percent of its GDP) in 2014, which is expected to rise to USD 110 billion (eight percent of GDP) by 2015.[62)] The amount of Korea's foreign reserves has also increased dramatically to USD 369.6 billion by the end of October 2015. The ongoing current account surplus has turned Korea into a net international creditor since 2000, with the country's net IIP balance returning to the plus side as of the third quarter of 2014.[63)] These could function as a buffer to withstand the shock of reunification, as in the case of Germany.

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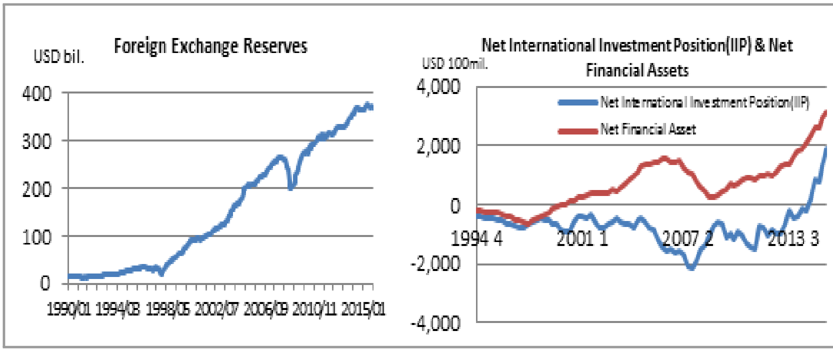
61) Ministry of Strategy and Finance (MOSF), "OECD Rates Korea as among Fiscally Most Sound Member States in *Fiscal Situation Report 2015*," press release, November 8, 2015.

62) The Bank of Korea (BOK), *Economic Outlook 2015-2016* (October 15, 2015).

63) The IIP refers to a series of statistics that show the balance of the financial assets (i.e., external investments) that the residents of a given country hold against the financial liabilities (i.e., foreign investments) held by non-residents. External asset and debt statistics on the IIP include the confirmed amounts of the financial assets (external investments) and financial liabilities (foreign investments) of a given nation, except the amounts of direct (equity) investments and investments in stocks and financial derivatives. The confirmed financial assets and liabilities include loans, borrowings, credits and trade credits with definite maturity dates and interest rates (BOK, *Preliminary IIP as of June 2015*, September 1, 2015).

Figure 9.8. Foreign exchange reserves and net international investment position (IIP) & net financial assets



Korea has retained a relatively high sovereign credit rating, and S&P raised it further as of September 15, 2015, as mentioned above.

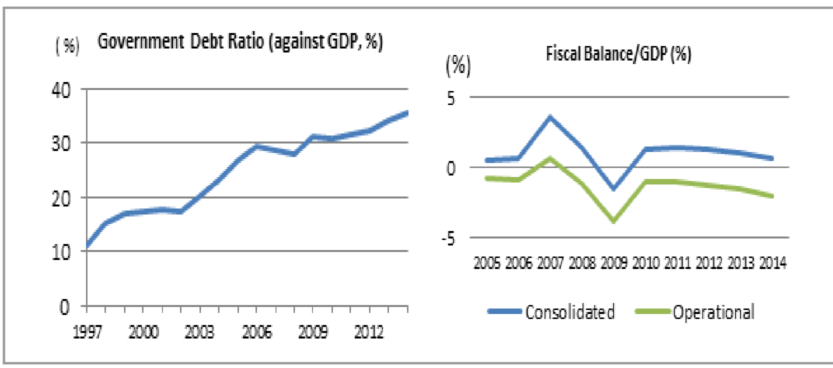
Figure 9.9. S&P credit rating (Korea)

While Korea does possess a relatively low and stable government debt-to-GDP ratio,[64] the ratio has been on a slow rise over the last few

64) It should be noted that the countries with higher government debt ratios than Korea's are mostly hard currency issuing countries and their debt ratios spiked in the aftermath of the global financial crisis of 2008.

years, while the country faces a slowdown in its economic growth and a rapidly aging population.[65] The consolidated fiscal balance remains a surplus, but it should be noted that the managed fiscal balance, after social security funds are removed, show deficits. The government warned recently that if we implement consolidation, the debt ratio could be controlled under 40 percent, but if not, it could rise up to 62 percent in 2060.[66]

Figure 9.10. Government debt ratio (against GDP, %) and fiscal balance/GDP (%)



Source: MSF (quoted in the e-Nara Indices).

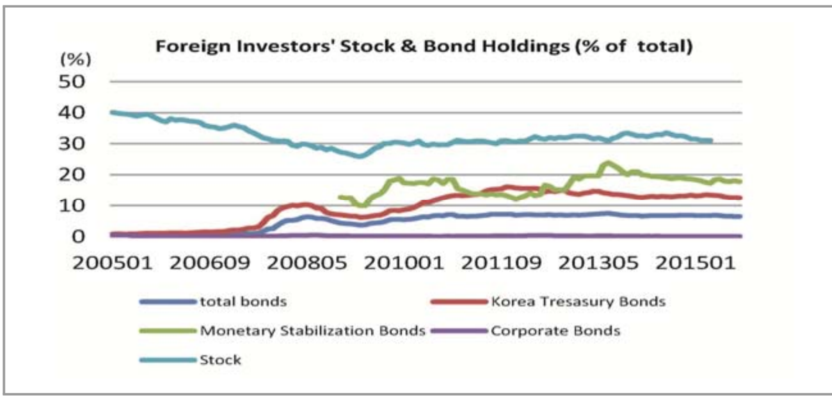
Furthermore, it remains unpredictable how the changes in the macroeconomic conditions, ushered in by national reunification, will affect the stability of Korea's financial and forex market. The increasing transfer payments onto, and increasing consumption and investment in, North Korea may deteriorate Korea's fiscal and current account balances. The fluctuation of foreign capital flows could render Korea's exchange and interest rates vulnerable. As the following graph shows, foreign investors' holding of stocks and bonds, and the Monetary Stabilization Bonds (MSBs) in South

65) MOSF, "Mid- to Long-term Tax Revenue Administration Policy," press release, September 11, 2015.

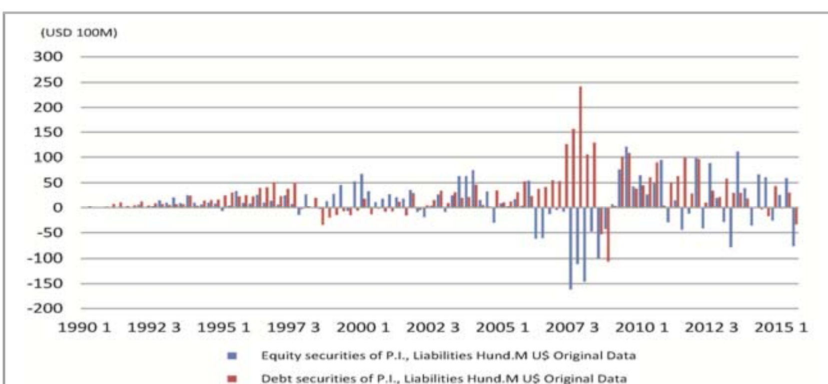
66) MOSF, "Government debt ratio in 2060", Dec. 4, 2015.

Korea fluctuated during global financial crises. This is why Korea not only needs to strengthen its economic basis, but also increase the amount of external assets it holds, enhance its fiscal and macroeconomic stability, and expand its global financial safety net (including currency swaps) in the event of predictable emergencies.[67)]

Figure 9.11. Foreign investors' stock and bond holdings (% of total)



Sources: MoSF; Bank of Korea ecos, Financial Supervisory Service.



67) Korea has swap contracts with China (around 56 USD bn), UAE (5.4), Malaysia (4.7), Australia (4.5), within CMI 38.4 USD bn, etc (BOK). MoSF and the BOK stressed the importance of the global financial safety net, including currency swaps. (MoSF, press release Oct. 9, 2015, Bank of Korea June 2015).

4. Conclusion

The German reunification experience illustrates that reunification costs can be reduced through thorough review and preparations. Most importantly, it is crucial to reduce the economic and income gap between the two Koreas, and to enhance North Korea's macroeconomic stability as much as possible in the course of reunification and integration. Providing social security benefits and local government subsidies for North Korea will also significantly affect the reunification cost, and should not be implemented without careful consideration —whether they should be provided, when and how—and a social consensus. Local governments in South Korea should also acknowledge that they bear responsibility for part of the reunification cost along with the central government.

In the meantime, Korean policymakers need to study and debate, and build a consensus on, the proper mix of measures to finance reunification, such as tax increases and spending cuts, while also preparing for inevitable increases in public debt. Reunification may deteriorate domestic and macroeconomic conditions for the time being, but Korea should do its best to strengthen its internal and external economic basis and fiscal position to maintain stable exchange and interest rates. In every policy formulated and implemented, unification must be reflected as an important variable.

Germany experienced hardships even though West Germany's economic conditions were largely favorable just before the German reunification. However, a strong economic basis, the nation's efforts for fiscal consolidation and the implementation of reforms allowed Germany to restore its current account surplus, fiscal balance and growth trajectory. Against this backdrop, Germany has transformed itself into Europe's economic leader in the face of the global financial crisis and fiscal crises in Europe.

A quarter century into reunification, Germany shows that reunification can be a boon for the Korean economy and society insofar as we are ready to make the necessary efforts and preparations.

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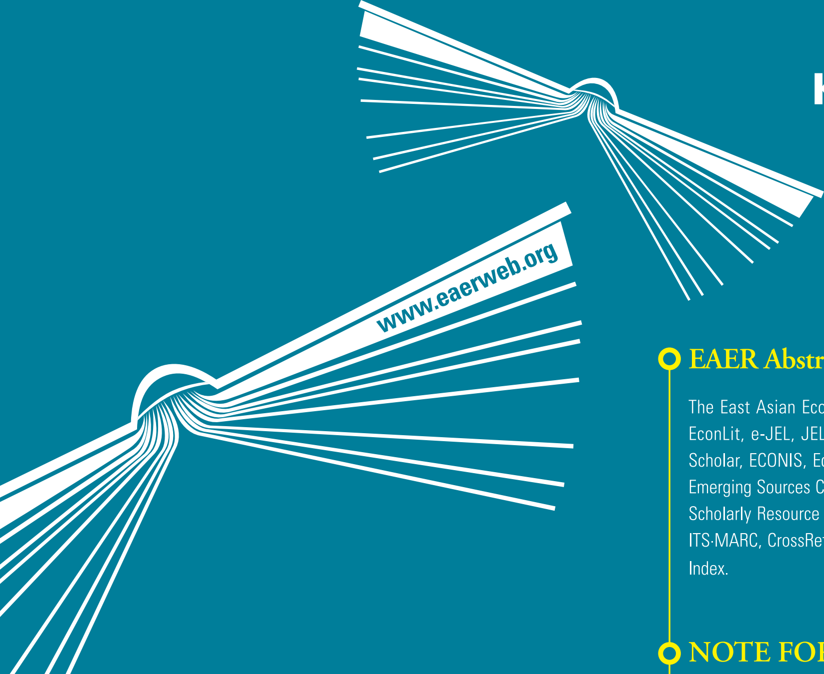

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