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Marcus Noland

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INSTITUTE FOR INTERNATIONAL ECONOMICS
11 Dupont Circle, NW, Washington, DC 20036-1207
(202) 328-9000 Fax: (202) 328-0900

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C. FRED BERGSTEN
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INTRODUCTION

Nineteen ninety-five was not a good year for North Korea. Longtime leader Kim Il-sung's death the previous year created a political vacuum. His reclusive biological and political heir Kim Jong-il did not assume his departed father's offices, the North Korean Supreme People's Assembly did not meet and the terms of the sitting parliamentarians expired, the annual state budget was not announced, and the state appeared to be operating on a kind of extra-constitutional autopilot. In foreign policy, the embryonic rapprochement with the South which had begun before the elder Kim's death stalled, and instead a confrontation with foreign powers over the North's nuclear weapons program ensued. The *annus horribilis* was capped by massive flooding that left self-reliant North Korea begging its ideological rival South Korea and its former colonial master Japan for aid. *Euromoney* ranked North Korea as the riskiest investment locale on earth.

Even under the best of circumstances predicting the trajectory of North Korea is fraught with uncertainty. What is arguably the predominant view sees the North Korean state as relatively resilient. In a recent survey of scholars a majority did not envision Korean unification coming any time soon: 22 percent of those polled expected

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an extended period of peaceful co-existence without unification, and another 38 percent of the respondents predicted that the Korean peninsula would be unified through a gradual process lasting a decade or more (Lee 1995a). Scalapino (1992 and 1995), for example, has predicted an evolution in the North towards "authoritarian pluralism", while D. Lee (1995) has predicted the adoption of a gradual economic reform program. A substantial literature exists detailing decades long unification programs.[1]

However, in the same survey, 38 percent of the respondents predicted that unification would come through a North Korean collapse within ten years.[2] Both Foster-Carter (1992, 1994a, and 1994b) and Eberstadt (1995) have argued forcefully that the existence of a prosperous democratic South Korea effectively forecloses the option of a viable non-Kim Il-sungist North Korean state--why be an authoritarian pluralist if you can be a South Korean--leaving North Korea in a kind of Catch-22: if there is no reform there will be economic collapse, if there is economic reform the legitimacy of the political regime is undermined (Chung 1993).

Clearly, there is no professional consensus on the future of North Korea. Surely though the events of the past year must increase the likelihood of instability in North Korea and decrease the likelihood of either gradual economic or political reform. While the gradual peaceful unification of the Korean peninsula as a liberal democracy may be a laudable goal, it would be irresponsible for policymakers to plan only for this possibility. This paper takes the collapse scenario as its starting point and asks what lessons can be learned from the German experience.[3] The paper first

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[1] See, for example, Chung (1993), S.M. Lee (1993), Chun (1993), and W.G. Kim (1995).

[2] None of the survey respondents predicted that the Korean peninsula would be unified through war, and a majority indicated that the cause of unification would be advanced by South Korean disarmament. The survey also found that most respondents regarded the US as the only major power supportive of unification.

[3] In taking collapse as given, this paper sidesteps the difficult issue of whether cooperation moderates the behavior of communist states like North Korea. Economists typically focus on the economic costs of unification (which are directly related to the extent of economic decline in the partner country) so that economic cooperation which reduces these costs is desirable and recommended (e.g., Yeon 1993; Cheong and Lee

reviews the German experience, and then compares and contrasts Germany prior to unification with the situation today on the Korean peninsula. The final section attempts to draw some lessons from the German experience for prospective developments in Korea.

THE GERMAN EXPERIENCE

The remarkable thing about German unification is how rapidly it occurred. Rumors of a Soviet deal on Germany initially surfaced in May 1987 but were generally discounted. Two years later though, the rumors were widely circulating in the press, and in May 1989 Hungary began allowing East Germans to transit to the West, thereby releasing a wave of emigration.[4] Mass demonstrations against the East German regime began in September of that year, and by November the Berlin Wall had come down and the borders had opened.[5] Shortly thereafter the communist regime began to implode, and West German Chancellor Helmut Kohl made a series of decisive overtures to the East. What proved to be a transitional elected government under East German Christian Democrat leader Lothar de Maiziere took office in April 1990, a currency reform took place in July 1990, and by October 1990, less than a year after the Wall came down, East Germany had ceased to exist. No one predicted it (though a theory of unanticipated revolutions does exist, see Kuran 1989 and 1991).

Economic logic pushes centrally planned economies toward dictatorship: the maintenance of internal prices far at variance with the rest of the world's necessitates a massive police apparatus to prevent people from exploiting the latent gains from trade. This point could be seen most clearly in East Germany which had only to look west to see the alternative. Sinn and Sinn (1992) argue that the Marxist emphasis of

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1995; Choi 1995). Others tend to take a more nuanced ambivalent view, examining the impact on cooperation of behavior (e.g., Eberstadt 1994a; Mo 1994).

[4] In the 18 months between January 1989 and June 1990, East Germany lost 7 percent of its working population, with the losses concentrated among the young and skilled (Flassbeck 1994).

[5] If the USSR and Hungary effectively pulled the plug on the East German regime, China could presumably do the same to North Korea if so inclined.

materialism was ultimately the East German regime's undoing: once it was clear to all that capitalism would generate greater material prosperity than socialism, the raison d'etre of the socialist state evaporated. Indeed, they attribute the bloodless collapses of the communist regimes throughout Central Europe to the communist authorities' respect for the iron laws of history: once the masses were in opposition, resistance was pointless. Ironically, the sudden reversal of fortune recalls Lenin's remark to Trotsky on the Winter Palace balcony: "*Es schwindelt*!"

Economic Policies

Confronted with a collapsing East Germany, West German economic policy had a number of (possibly conflicting) goals.[6] Among these were to stem the feared flood of immigrants and to protect West German wages. Another was to achieve restitution for property owners whose assets had been seized by the communist regime.[7]

The standard prescription for economies in transition from central planning to the market is macroeconomic stabilization, liberalization of domestic trade and prices, current account convertability, privatization, creation of a social safety net and the creation of a legal framework commercial transactions. Through monetary union and absorption into West Germany, most of these goals were achieved in a decisive fashion. The outstanding issues for East Germany were the terms of the monetary union and the method of privatization.

Monetary union occurred July 1990. The goals of the monetary union were threefold: to establish a competitive wage; to give the new economy the right amount

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[6] For useful economic surveys of German unification see Lipshitz and McDonald (1990), Sinn and Sinn (1992), and Dornbusch and Wolf (1994).

[7] The then West German Foreign Minister and leader of the junior government coalition partner Free Democrats Hans-Dietrich Genscher spearheaded the push for restitution. The transitional East German government of Lothar de Maiziere supported compensation but opposed restitution, seeking to preserve East German resident's effective control of assets in East Germany. Revelations of connections between de Maiziere and the Staasi secret police weakened his government which in the end was forced to accept the principle of restitution. In hindsight, the pursuit of restitution was undoubtedly one of the blunders of German unification.

of liquidity; and to give East German residents sufficient capital for their participation in the unified economy. Under the terms of the agreement an exchange rate of 1:1 between East and West German marks was adopted for wages, and government transfers and savings accounts up to certain limits. An exchange rate of 2:1 was adopted for remaining household savings, enterprize and government deposits, debts of the state, enterprises, and individuals, and 3:1 for accounts outside East Germany. Pensions were based on East German wages but calculated according to West German formulas.

Most observers thought that the 1:1 exchange rate was probably too high and would generate uncompetitive costs in the East and a bout of consumption led inflation (cf. Cline 1990; Sinn and Sinn 1992; Yeon 1993). In reality inflation did not come about, though a peacetime depression in East Germany unparalleled in modern history did.

Product Market Adjustment

In East Germany GDP fell by 30 percent, industrial output by 67 percent, and the unemployment rate rose to 30 percent (Sinn and Sinn 1992; Dornbusch and Wolf 1994). This was worse economically than the Great Depression.

Why did output collapse so precipitously? There were several contributing factors. The East German economy was in bad shape at the time of the currency union. The flood of immigration had taken away many of the best and brightest, and both the government and the enterprises were having trouble functioning prior to the currency union because of skilled labor shortages. In addition, the Treuhandanstalt closed some uncompetitive enterprises, contributing to the decline of output and the rise of unemployment.[8]

These direct impacts, though non-negligible, were not the fundamental reasons for the depression, however. More fundamentally, the centrally planned East German economy was not ready to compete in the market. Incentives were not conducive to

[8] The Treuhandanstalt was a trust agency created in March 1990 to oversee all state-owned firms in East Germany. It was dissolved at the end of 1994.

success in competitive markets, the structure of enterprises (in terms of horizontal and vertical integration) was not appropriate, and the enterprises were engaged in a variety of social welfare activities that typically would be handled by other institutions in a market economy.

Moreover, the technical aspects of production (techniques of production, input mix, output mix) were sub-optimal for a market economy facing world prices. Sources cited in Sinn and Sinn estimated that anywhere from 50-67 percent of the East German capital stock was obsolete. In addition, the state guarantee of employment led to disguised unemployment. (To cite but one example, in East Germany 260,000 workers worked 14,000 kilometers of rail lines; in West Germany 230,000 workers operated 27,000 kilometers of track (Yeon 1993). Given the putty-clay nature of technology, resources could not be reallocated instantly or costlessly, even under the best of circumstances.

To compound these problems the economy was hit with a series of macroeconomic shocks. Two were on the demand side. First, the economy suffered from the declines in trade with its former partners in the CMEA. (Though given the relatively low reliance of East Germany on COMECON trade, this trade shock was actually smaller than what hit the other Central European transitional economies.)

Second, and more important, was a temporary autonomous fall in the domestic demand for home goods. East German consumers began buying Western-made goods which had been previously unavailable, but were known to East Germans via the West German media (table 1). Dornbusch and Wolf note that this shift away from home goods was greater in East Germany than the other Central European transitional economies which they ascribe to the greater familiarity of East German consumers with Western products as well as the relatively powerful marketing and distribution push in the East German market undertaken by large West German consumer products firms.

On the supply side, the East German economy was hit by both relative price shocks, and a massive real exchange rate appreciation engendered by the 1:1 exchange rate and the subsequent high wage policy. The conventional wisdom at the time of the monetary union held that the 1:1 exchange rate priced East German producers out of the market and was a fundamental mistake of unification policy, a view that still holds

popular currency. With the advantage of hindsight, the situation looks more complicated.

A number of studies summarized in Sinn and Sinn convincingly demonstrate that the purchasing power exchange rate at the time of unification was probably something on the order of 1:1. (The much higher black market rate at the time of unification reflected not only the usual black market premium, but had been rising steadily as speculators bet against the East German currency.) The problem was that the relative prices existing in Germany at the time not only reflected the lower relative prices of nontradables typically found in low income countries, but an additional distortion imposed by the central planners (table 2). The shadow price of foreign exchange (which appears to have varied significantly across exporters) was on the order of 4:1 (Sinn and Sinn 1992; Dornbusch and Wolf 1994; Flassbeck 1994). As a consequence, when the currencies were unified at 1:1, the traded goods sector suffered a massive cost shock, *and* suddenly had to compete against foreign producers who could in effect provide an infinite supply of goods at the going prices.

The price shock was compounded by the subsequent wage policies. (Indeed, both Sinn and Sinn, and Dornbusch and Wolf, argue that the wage policies would have been sufficient to price East German producers out of the market regardless of the monetary union conversion formula.)[9] West German unions pressed for a high wage policy in the East to prevent a eastward migration of jobs. At the same time, wage negotiations in the East were subject to a particularly pernicious principal-agent problem: since no one was negotiating for the future (privatized) managements of East German enterprises, the incumbent lame duck managers simply gave in to demands for higher wages.[10] The Treuhand, which might have acted to halt this, did not participate

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[9] Dornbusch and Wolf write "the one to one conversion had no lasting effect on relative wages: since the conversion relative wages in the East have increased steadily, and outright parity is the avowed objective of the unions on both sides" (p.159). This does not mean, however, that the conversion rate is irrelevant in all circumstances, and under a different set of wages policies (such as those that might obtain in Korea) it being quite important.

[10] Sinn and Sinn argue that either there should not have been a monetary union (thereby preserving the exchange rate as an adjustment mechanism), or that the wage increases should have been legally prohibited.

in wage negotiations because it saw itself as representing the state, and not capital, and the state was not supposed to participate in private wage negotiations under German law. Moreover, under German law the dominant parent company in a group is responsible for the debts accrued by insolvent subsidiaries, and the Treuhand wanted to ensure that it was not regarded as the parent of its holdings and held liable for these enterprises' debts (Scheremet and Zweiner 1994).

Privatization

This problem was compounded by delays in privatization. As Sinn and Sinn argue, privatization was key: "without privatization there is no incentive for capital formation and without capital formation there can be no upswing." Restitution claims were part of the reason for the slow pace of privatization.[11] Other contributing factors was the Treuhand's preference for selling firms to single buyers and normally requiring payment in cash.[12] The Treuhand in effect tried to sell the entire East German economy to individual bidders for cash. Not surprisingly, it did not find too many takers. (And, even if it had, the process of putting so many assets on the market at once would have surely pushed prices down to firesale levels for the benefit of the largely West German investors.)

Indeed, one class of potential buyers was effectively frozen out of this process: residents of East Germany. The paucity of financial instruments in East Germany prior to unification meant that East German household portfolios were extremely concentrated in cash and demand deposits. East German households had very few financial claims on state or enterprize assets. Sinn and Sinn estimate that the limits on the 1:1 convertibility of bank accounts wiped out almost one third of household financial wealth. Indeed, Sinn and Sinn estimate that about half of this loss, (or one

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[11] In 1991 the German Constitutional Court separated in principle the issue of claims of dispossessed previous owners from the issue of compensation. Other countries, such as Hungary, have either rejected the restitution principle, or narrowed its application.

[12] See Sinn and Sinn (1992) and Carlin and Mayer (1994) for extensive reviews of Treuhand practices.

sixth of East German household financial wealth) ended up in the coffers of the Bundesbank, which actually made money off of the currency unification. Given their lack of financial resources (and consequent inability to borrow), and the Treuhand's preference for single buyers, through 1991 only 6 percent of industrial properties had been sold to East German buyers (Carlin and Mayer 1994, table 14.4).[13] This was truly unfortunate since the East Germans were likely to be among the most interested, informed, and motivated potential buyers.[14] Foreigners only accounted for another 2 percent of sales. A vast majority of the industrial assets in East Germany were sold to residents of West Germany.

The Treuhand also took responsibility for restructuring enterprises and breaking up the giant *Kombinaten*, lengthening the time to market and creating more enterprises to be privatized. The consensus (by no means unanimous) among economists is that this policy was mistaken. Given that speed was of the essence, it would probably be better to allow markets to value and restructure these assets.[15] (Parenthetically, this would have given the East German managers an advantage since they probably understood both the enterprises and the local environment better than outsiders.)

Lastly, the pace of privatization was slowed by concerns about anti-competitive effects. There was an understandable tendency for West German firms to attempt to purchase potential rivals in the East, either to operate them, or more likely, shut them down or turn them into sales offices. Potential sales of this sort were disallowed by the Cartel Office. (Given the extreme degree of concentration in the

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[13] This is in contrast to other transitional economies where "spontaneous privatizations" by the nomenklatura are closer to the norm.

[14] The potential parallels to the North Korean case, where financial assets are even more likely to be concentrated in cash is obvious.

[15] Again, another principal-agent problem potentially, arises, this time between the government selling authority (the Treuhand) and the dispossessed property owner. The seller recognizes a social cost associated with the existence on non-privatized enterprises and as a consequence has a higher rate of time discount than the dispossessed owner interested in compensation. In other words, the seller is going to want to sell the property, while the dispossessed owner would prefer to hold out for a higher price.

South Korean economy unification might present a good opportunity to increase competition in some sectors. It is hard to imagine the Korean Fair Trade Commission blocking enterprize sales, though.)

The economic environment in East Germany created a final disincentive for potential buyers. A survey of potential investors found that poor infrastructure, especially transportation and telecommunications infrastructure, was a major disincentive for investment (Sinn and Sinn 1992). This disincentive is particularly acute if production is characterized by close horizontal and vertical networking of firms. Networks create economies of agglomeration, which are likely to work against "pioneers" in relatively inaccessible environs.[16]

Labor Market Adjustment

The result of fundamental lack of competitiveness, macro shocks, and slow privatization was a dramatic decline in output and employment. East German employment was 9.8 million in 1989. More than 3.5 million jobs in East Germany were subsequently lost, though only about one third of these turned up on the unemployment rolls. Approximately one third found jobs in West Germany either as commuters or migrants, and about one third either entered training programs, took early retirement, or simply left the labor force.[17] Survey data reported in Dornbusch

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[16] In part this can be overcome by strengthening links between the core and the border region of the periphery. The relevance of this for the Korean case is obvious: the North Korean infrastructure is abysmal and provides a disincentive to investors. However, strengthened links between North and South Korea would enhance the attractiveness of both North and South as locations for production. (The South would no longer effectively be an island if one could transport goods via rail directly to Western Europe.)

[17] In this regard it is notable that a large share of those exiting the labor force were women. It is impossible to determine to what extent this was an expression of underlying personal preference and what extent this reflected social pressure or coercion, and by extension, whether women were better off after unification or not.

There is no natural rate of employment independent of incentives. Relative to West Germany, East Germany prior to unification tied more social benefits to employment, while providing things such as child care which would facilitate women's participation in the labor force. It is not surprising then, that East Germany exhibited

and Wolf indicates that willingness to migrate was driven first by fears of unemployment, second by environmental concerns, and only third by wage differentials. Ironically, the high wage policy which narrowed income differentials, but at the cost of unemployment, probably increased migration.[18] Given the proximity of Seoul to the border it is hard to imagine that Korean unification would be accompanied by insufficient southward migration.

Despite these problems, by 1991 production was expanding even in some tradable sectors such as nonmetallic minerals, parts of iron and steel, printing, plastics processing, and some processed foods. These were typically sectors which had been engaged in exporting prior to unification. They were less dependent on collapsing domestic demand, and presumably knew something about international markets and competition. While East German growth has continued to be concentrated in nontradables, some tradable sectors have continued to expand.

Criticisms of German Policy

Contrary to popular belief, most economists to do not cite the 1:1 monetary conversion as a mistake (let alone the major mistake) of German unification policy. Rather, three policies come in for substantial criticism.

First, there is a consensus that the policy of pushing wages way beyond productivity pursued by the unions and acquiesced to by the government was a mistake. The relative weakness of unions in North and South Korea suggest that this may not be a major problem in the Korean case.

Second, there is a unanimous conclusion that acceptance of the principle of

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high women's labor force participation. Under the West German system benefits were not tied to employment and the facilitating devices were absent, so it is not surprising that fewer women chose to work. Under which regime their welfare is higher is impossible to tell.

Again, the potential parallels to the Korean case, where North Korean women exhibit extremely high labor force participation rates, is clear.

[18] To be clear, this does not mean that the elasticity of migration with respect to wages was zero. Even so, Sinn and Sinn argue that generous transfers created a stay put premium with the result that the amount of westward migration was sub-optimal.

restitution was a disaster.[19] Third, most observers criticize the decision not to write-off or otherwise reduce East German enterprize debt. The argument is that these debts reflected transactions based on the arbitrary internal prices and fundamentally irrational practices of East Germany's central planning system, and left enterprises that otherwise might have been viable hobbled by financial liabilities which in turn made them very difficult to privatize. Blanchard et al. (1991), and Dornbusch and Wolf (1994) all recommend simply wiping out East German enterprize debt, while Sinn and Sinn (1992) presented a proposal for reducing these debts. The Treuhand eventually adopted a procedure of constructing "confirmed" balance sheets which involved writing off approximately three-quarters of enterprises' debts (Carlin and Mayer 1994).

Beyond this there is less consensus on how privatization should be carried out. Dornbusch and Wolf, and Nolling (1994), argue for a maximum speed transformation, shutting down non-viable enterprises while extending unemployment benefits to individual workers as the only way free up resources for viable enterprises and the necessary resource shifts.[20] They note that while outside observers put the share of non-viable enterprises at around 30 percent, the Treuhand only shut 10 percent of the enterprises down. They recognize that due to the extreme industrial concentration of centrally planned economies, shutting down some enterprises would be tantamount to shutting down a town or a region, and that this may lead to a divergence between private and social costs, a point emphasized by Carlin and Mayer (1994). This

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[19] In a bizarre twist, it was reported that former Nazis were using the procedure to re-acquire assets that they themselves had stolen from Jews during the Third Reich (*Financial Times*, 4 May 1994).

[20] In comments on an earlier version of this paper, John Williamson offered a dissent, arguing that maximum speed privatization "is a platitude that does not stand up to scrutiny," as the fastest growing Central European economy, Poland, has been the slowest in undertaking privatization of large enterprises. Rather than privatize, simply forcing enterprize managers to face a hard budget constraint prior to privatization creates the proper incentives and minimizes the principal agent problem. The drawback, as Williamson admits, is that this is not a steady-state equilibrium solution. Indeed, as the preprivatization period lengthens, the enterprises are likely to look increasingly unattractive to potential buyers as their capital stocks are run down due to lack of investment.

problem may be particularly acute in the case of North Korea where anecdotal evidence suggests industrial concentration on a mind-boggling scale (cf. H.S. Lee 1994).

Sinn and Sinn present a proposal for participatory privatization which would allow agents which did not possess enough cash to purchase an enterprize outright to take partial ownership by bringing some new asset (such as proprietary technology) to the table. The Czech system of voucher privatization is another alternative which has both benefitted the mass of Czech citizens, and made its architect, Vaclav Klaus, Prime Minister. A final option wold be to simply turn assets over to the user, formalizing the "spontaneous privatizations" which have occurred in other transitional economies.

All in all, the experience in Germany has proved more protracted and costly than analysts anticipated at the time of unification.[21] Although macroeconomic variables are moving in the right direction (the economy of the former East Germany grew nearly 10 percent in 1994, the fastest rate in Europe), the economy remains plagued by high unemployment. Transfers have been larger (net of taxes they account for 40 percent of East German income) and have gone on longer than expected. And even with this largesse, East Germany has gone through a truly wrenching transformation: Eberstadt (1994b) reports very sobering demographic data which indicates that the immediate effect of unification and the depression that ensued was a collapse in the birth rate and a rise in the mortality rate completely unprecedented in German history (including the inter-war years and the period of military defeat) and comparable only to disasters such as China's Great Leap Forward. And though some of the declines in marriages and births presumably represent time-shifting, and not permanent reduction, the same cannot be said for the increases in mortality rates. While the replacement of the socialist centrally planned society with a democratic

[21] The Treuhand was provided with DM70 billion of start-up capital in 1990 and a DM10 billion supplement in 1991. In 1992, 1993, and 1994, the agency was granted a credit line of DM38 billion annually. All of these resources have been consumed. The agency has also issued DM210 billion in long-term debt. The German government has made provisions for another DM45 billion in financial liabilities. According to the Bundesbank, the Treuhand's legacy will be a "pro rata burden of DM17 billion per annum on the federal budget" (*Financial Times*, 4 May 1994).

capitalist one will undoubtedly benefit East Germans in the long-run, after reviewing the demographic data, one cannot help but come away with the impression that the transition has been extraordinarily costly in human terms.

RELEVANCE TO KOREA

Any attempt to draw lessons for Korea from the German case must start with a comparison of the two pairings. In some ways the Korean case presents a gloomier picture than the German case: North Korea is larger and poorer relative to South Korea than East Germany was in comparison to West Germany; North Korea's economy is probably more distorted than East Germany's was, and South Korea is not as rich as West Germany. On the other hand, demographically the combined Korea is younger than the combined Germany, and North Korea has a younger demographic profile than East Germany.

Size

At the time of unification, East Germany's population was roughly one quarter that of West Germany's. Today, North Korea's population is about half that of South Korea. Moreover, under current demographic trends, the ratio of South Korean to North Korean population would fall from 2:1 to 1.7:1 by 2010 (Chun 1994).

Per capita income comparisons are quite hazardous, mainly due to the fundamental problem of comparing output baskets of widely differing composition and quality in market and centrally planned economies, as well as differences in national accounting conventions between the two systems.[22] Estimates from Germany indicate that per capita income prior to unification was perhaps one-half to one-third that of West Germany, though this cannot be determined with any real precision.

Comparisons for North and South Korea are even more speculative due to the paucity of reliable statistical information about the North. The Bank of (South) Korea produces US dollar estimates of North Korean per capita income, indicating the ratio

[22] See Noland (1996a) for a discussion of these issues in the Korean context.

of South Korean to North Korean per capita incomes was 8.3:1 in 1994. As argued in Noland (1996a), however, these are likely to systematically overestimate the true gap in per capita incomes between the North and South. Noland presents an estimate (bounded by wide confidence intervals) of 3.6:1 for the 1990 ratio of South Korean to North Korean purchasing power adjusted per capita incomes. Given that South Korean per capita income has risen by 37 percent since 1990, and charitably assuming that North Korea's has not fallen, the ratio now would be between 4:1 and 5:1, and growing larger by the day.

Demographics

While North Korea is bigger and poorer than East Germany, it has the advantage of being younger. Today the median age in the combined Korea would be around 26 years old while in Germany at unification it was around 38 years old. The share of the North Korean population under 15 is around 29 percent, while in East Germany it was around 20 percent (Chun 1994).

This latter point is quite important since in the case of East Germany, it has been estimated that 80 percent of workers will have to undergo retraining (Eberstadt 1995). The younger population of North Korea would make it possible to handle more of this through the conventional educational system, minimizing both economic costs and personal dislocation.

At the other end of the life cycle, the combined Korea would be carrying fewer retirees than the combined Germany. Eberstadt (1992) reports that the ratio of workers to retirees is 5:1 in Germany and 15:1 in Korea. There would be more workers in Korea available to finance the costs of unification.

Economic Dislocation

As noted earlier, a combination of fundamental competitiveness problems, macro economic shocks, and poor policy choices initially caused an enormous fall in output and employment in East Germany. Obviously one cannot predict what would happen in North Korea. Nevertheless, one can point to some comparisons.

With respect to competitiveness, the North Korean economy is probably even more distorted than the East German economy was. Its exposure to international trade, which might be taken as a proxy for competitiveness is lower than East Germany's was. The shifts in relative prices in response to liberalization obtained in a simulation exercise reported in Noland (1996b) are on the same order of magnitude as the shifts actually experienced by East Germany. Moreover, the degree of industrial concentration may well be even greater than East Germany's was.

North Korea exhibits the same extremely high rates of labor force participation that East Germany did prior to unification, which probably reflects disguised unemployment. The infrastructure is in poor condition. Yeon (1994) reports that the length of paved road in the North is only 4 percent that of the South, and harbor capacity is only 18 percent as much. The main road between Pyongyang and Nampo is a bumpy single lane; old diesel, and even steam, engines ply single track railways. A report by the Korean Transport Institute concluded that it would cost $30.6 billion to refurbish the North Korean transportation infrastructure and integrate it with the South's in the event of unification. It is not difficult to imagine North Korean dinosaur-like enterprises, subject to massive relative price shocks, exposed for the first time to international competition, burdened with excess labor, and working with decrepit infrastructure, failing.[23]

In addition, North Korea is probably the most militarized society on Earth, with 1.25 million men under arms, fully one fifth of men of working age (Eberstadt and Bannister 1992). (This figure may be a bit misleading, however, as the North Korean military engages in many non-military activities that would be performed in the civilian sector in other countries.) Nonetheless, it would not be to much of a stretch to say that unification accompanied by demobilization would probably generate a substantial number of new entrants to the labor market.[24]

Three obvious channels of labor market adjustment exist. First, as argued in

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[23] Indeed, Bazhanova (1992) cites a disconcerting number of instances in which shoddy North Korean products were not accepted by even other centrally planned economies!

[24] At the same time, demobilization could yield a substantial peace dividend as argued below.

Noland (1996a and 1996b) the production of labor-absorbing light manufactures would grow in a liberalized North Korean economy. Second, as in the case of Germany, there might well be a reduction of labor force participation, especially of women. The final channel for labor market absorption would be migration.

Both the relatively young structure of the North Korean population and the proximity of Seoul to the border would appear to encourage migration, though some have suggested that the demilitarized zone could be maintained as a barrier (cf. Foster-Carter 1992; Koh 1994). An alternative to migration would be commuting, which could be encouraged by strengthening the transport links between North and South Korea thereby facilitating commuting from North Korea to jobs in the South, and the relocation of production from the South to the North.

Home ownership is robustly negatively correlated with willingness to move. Prior to unification, more than half of East German farmland and nearly half of the housing stock was privately owned (Yeon 1993). In contrast private ownership in North Korea is practically nonexistent. Yeon (1994) suggests giving North Koreans title to their housing as a disincentive to migration. Rosen (1995) makes a more sophisticated suggestion along similar lines, tying property rights to housing (and other assets) to some specified period of post-unification residence or employment.

The eventual equilibrium distribution of population across the two regions is contingent on the policies applied. As a point of reference though, Chun (1994) observes that the per capita income of the poorest region of South Korea is only 60 percent of the richest area, and the simple average provincial income is only 76 percent that of the richest. Within West Germany, wage differentials of 70 percent exist without inducing large scale migration. In the United States, the poorest state has income per capita only around half as great as the richest. Presumably a united Korea could exist with substantial per capita income differences without undue social strain.

Imponderables

Finally there are a whole series of points of comparison that are difficult analyze but could have a major impact on final outcomes. The most obvious qualitative difference between the German and Korean cases is the much greater degree of isolation of

North Korea. East Germans were in the middle of Central Europe with the capital of Berlin serving as a point of contact between the East and West. Many East German residents could receive West German radio and television broadcasts, and had a fairly good idea of conditions in their neighbor to the west. Table 3 reports some data on inter-German personal contacts prior to unification and inter-Korean contacts today. In comparison to the German figures, the numbers for Korea are vastly smaller.

How this greater relative isolation will play out is hard to predict. Analyzing the path to unification, Foster-Carter (1992, 1994a, and 1994b), for example, makes much of the lack of political passivity that North Koreans may display when the truth of their relative deprivation becomes clear. Knowledge is a necessary precondition for this to come about however, and there is no reason to believe that the average North Korea is particularly well-informed.[25]

Similarly, knowledge of the West surely contributed to the surge of migration that occurred when the borders were initially opened in Germany. Those migrants were not sailing off into the unknown: they had a pretty good idea of their destination. Indeed, Dornbusch and Wolf argue that East German residents' pre-unification familiarity with West German products contributed to the temporary demand shock that the East German economy suffered at the time of monetary union. North Koreans are undoubtedly more ignorant of conditions in the South than East Germans were of conditions in West Germany. As a consequence, their expectations may be lower. This potentially means less migratory responsiveness and less of a shift away from home goods.[26] South Korean policy could affect both of these developments.

In this context it is interesting to ponder Sinn and Sinn's observation about

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[25] The author cannot help but recall conversations with middle class Japanese housewives in the late 1980s who betrayed a shocking degree of ignorance about comparative standards of living in Japan, Western Europe, and the US.

[26] Unlike the East German case, North Korean consumers presumably are not especially familiar with Western consumer goods. However, like the German case (and in contrast to the situation in countries such as Poland, the Czech Republic, and Hungary) the South Korean *chaebol* are probably in a good position in make a marketing push into North Korea in the event of unification. If maintaining production in the North is a high priority, the South Korean government might want to discourage this.

East Germany: "It is possible that the problem engendered by the difference in living standards might have been less severe if the communist government had been able to indoctrinate the people with a self-denying idealism that would have made them resistant to the lure of material prosperity" (p.7). In the case of North Korea, it has been argued that the *juche* ideology of Kim Il-sung replaces the Marxist emphasis on materialism with an emphasis on purity of spirit. (Indeed, some have likened *juche* to a religion.) Perhaps North Korea will prove ideologically more resilient, and North Koreans less enticed by the creature comforts of the South.

The issue of expectations raises the final imponderables: politics, attitudes, and spirit in Germany and Korea. Germany and Korea differ considerably in history and political culture; German unification was shaped by specific characteristics of the German situation, Korean unification will shaped by its unique circumstances as well.

Several characteristics strongly shaped German decision making about unification. First, Germany is a democracy, and West German Chancellor Helmut Kohl saw the East Germans as potential voters. (Indeed, he was criticized by his predecessor Helmut Schmidt in 1990 for promising unification without tax increases to West German voters, and not making a "blood, toil, and tears" appeal for sacrifice.) Second, Hans-Dietrich Genscher and the Free Democrats were a important focal point for restitution demands. Third, the West German unions are an important interest group in German politics and were successful in pursuing their own interests. Lastly, and intriguingly, Sinn and Sinn argue that Germans approached the task of reunification with a lack of patriotism:

> the wave of patriotism that could have triggered a vigorous policy of rebuilding was nowhere to be seen. Some people reacted skeptically to the poor Eastern relatives, responding to the appeal of the outstretched hands by nervously protecting their wallets. Others, conveniently forgetting the fortunate circumstances of their own success, arrogantly and wrongly attributed the poverty of their Eastern relatives to differences in mentality rather than to differences in systems. Most people, however, acted as if the whole thing was no business of theirs and deceived themselves into thinking that German unification would in no way disturb the even tenor of their ways. (p.xii)

Certain prospective similarities and differences exist in the Korean case.

Unlike Germany, the unions in Korea are relatively weak and South Korean citizens' have been unable to restrict the government's right of eminent domain, suggesting that the politics of South Korea are such that it might be able to avoid the twin pitfalls of the high wage policy and the principle of restitution which bedeviled German unification policy (Mo 1994).

Mo argues further that Helmut Kohl (the most powerful German Chancellor since Bismarck) acted too hastily because his domestic political position was insecure, while in contrast "a South Korean leader will have a secure domestic power base..and if the German experience is any indication, North Koreans will vote for the ruling South Korean party" (p. 61-2). Foster-Carter (1992, 1994a, and 1994b) similarly claims that North Korean voters will be a conservative force in Korean politics.

An alternative interpretation of the German experience would be that in a democracy an incumbent leader facing a potential third or more of the electorate (which is what the North Koreans will be) will be relatively responsive to their interests, and at least initially, will be rewarded. Beyond this, the recent electoral trends in Central Europe suggest that the newly enfranchised voters will remain conservative free-marketeers until shortly after the subsidies run out.

The closer relationship between business and government in South Korea should allow the South Korea government to guide South Korean firms activities to a greater extent than the West German government was able. It is not difficult to imagine *chaebol* being encouraged to rehabilitate failing North Korean enterprises, for example.

Unfortunately, the malaise with which Sinn and Sinn claim the average German greeted unification appears to have gripped South Korea as well. Lim (1996) writes the "unification fever" of 1989 "has all but evaporated and disillusionment has begun to set in" (p.1). Indeed a review of the literature on the costs of unification suggests that the lesson that Korean economists have taken away from the German experience is that it was a costly failure.[27]

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[27] Yeon (1993) is typical: "It is difficult to identify economic gains that rapid unification and elimination of the border could entail for the South Korean people. When free flows of commodity and production factor including labor are allowed, the economic gain could only be the consequence of eased labor migration. Thus if in the

The Costs of Unification

Table 4 summarizes five studies by South Korean economists on the costs of unification. (Chun 1994 contains a summary of earlier studies--the results are similar.) Two basic methodologies are employed. The "target income" approach posits a target per capita income for North Korea (typically 60 percent of South Korean per capita income). The "cost of unification" is the amount of capital that would have to be transferred to North Korea to raise North Korean per capita incomes to the target level conditional on some incremental capital-output ratio. The other approach takes actual German unification expenditures and constructs an estimate for the Korean case usually by simple extrapolation adjusted for differences in population size etc. As can be seen in table 4 both methods yield results that are generally in the same ballpark: several hundreds of billions of dollars over a period of years.

Several of the authors of these studies recognize that these notions of cost do not adequately take into account the total economic impact of unification on the South Korean economy. For one thing, some of the capital moving North in the "target income" calculations will be private capital and will earn returns for its Southern owners. Indeed there is no particular reason that the capital should come solely from South Korea: as argued in Noland (1996a), foreign private capital, foreign public capital (especially though organizations such as the World Bank and Asian Development Bank) should be available.[28] To cite but one example, the World Bank maintains a special program for peace and sustainable development in the Occupied Territories in the Middle East. A similar program, scaled to the much larger North Korean population would imply World Bank investments of $4.4 billion annually.[29] Also, North Korea and Japan have yet to settle post-colonial claims. Taking the 1965

South significant labor shortage, especially for unskilled labor prevails. Otherwise, an important influx of labor will simply raise severe social problems" (p.29).

[28] Lee and Morrison (1995) even raise the possibility of asking APEC for money.

[29] It has been argued, however, that an independent and poor North Korea would receive better treatment from the international lending agencies than a unified middle income Korea.

settlement between South Korea and Japan as a base, and adjusting for changes in the price level, differences in population, accrued interest etc. one obtains a figure on the order of $12 billion. South Korean taxpayers will not have to shoulder this burden alone.[30]

Three points additional points are particularly worth noting. First is the peace dividend. As noted by S.M. Lee (1993) and Bae (1996), the Korean peninsula is extraordinarily militarized, and political unification would certainly be accompanied by a partial demobilization of the combined militaries. Bae calculates on the basis of current expenditures that the savings from elimination of duplicative intelligence and diplomatic organizations, and military demobilization would be more than $3 billion annually.

This is surely an underestimate of the true peace dividend. Both North and South Korea conscript young men into the military who are undoubtedly paid less than their opportunity costs. Put simply, the state forces young men into the military and pays them low wages. If released from military service they could be employed in other activities in which their wages (and productivity) would be higher. So current budgetary expenditure is an underestimate of the true economic value of Korean demilitarization.

The second point is that estimates of the costs of unification based on the German experience implicitly assume that a united Korea would have the same social welfare policies as pre-unification West Germany had. Again, this surely serves to overestimate the costs, as South Korea has nothing like the social safety net that West Germany had. (It does suggest, however, that in designing its social welfare policies South Korea may want to consider their prospective extension to the North.)

Third, all of these studies focus exclusively on the cost side. There will be benefits as well. In simplest terms, there will be enhanced gains from trade. Some activities (especially the production of labor-intensive manufactures) will shift from

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[30] Yeon (1994), for example, writes "The financial cost of Korean reconstruction and restructuring could amount to $230-250 billion over a ten year period . . . North Korea is in no position to finance any portion of the costs of rapid unification. This means that the financial burden associated with Korean, economic, monetary, and social integration would have to fall almost entirely on South Korea" (p.395).

South to North Korea, freeing up resources in South Korea for higher productivity activities. The larger domestic market will permit greater scale economies, and make possible the production of more varieties of differentiated products. It is also possible that unification will enhance competition by in effect creating new entrants with access to the South Korean market, and hence disciplining anti-competitive tendencies in the South.

These benefits will not be shared equally, however. Some sectors such as light manufactures will be put under competitive pressure, while suppliers of capital goods needed for retooling the North should benefit. More generally low-skill South Korean workers may experience downward pressure on their wages due to both shifts in production from South to North, as well as migration of labor from North to South. On the other hand, high-skill workers should benefit.

Another cleavage may run between the traded and nontraded goods sectors. If the German case is any indication, the unification process will tend to push up domestic interest rates and the real exchange rate putting competitive pressure on the traded goods sector. At the same time, the nontraded goods sector, especially construction, could experience a boom.

Finally, increased government expenditures will have to be financed either through taxes or bonds. In the case of taxes, the costs may not be born equally, depending on tax incidence. In the case of bond finance, there will be a redistribution from taxpayers to bondholders. Presumably the median taxpayer will be poorer than the median bondholder. More generally, a rise in real interest rates would benefit savers to the detriment of borrowers.

Thus unification will have an impact on the income distribution through a variety of channels. The bottomline is that if one is a low-skill worker in South Korea, unification could have some negative implications. If, on the other hand, one is a South Korean construction company executive with money to invest in unification bonds, unification could be very, very good for you. Presumably these differences in perspective will be reflected in Korean politics.

LESSONS OF GERMAN UNIFICATION

The lessons of the German unification experience are of two sorts: first is the identification of mistakes to avoid, and second what kinds of changes can be made in policy in anticipation of unification.

The first set of lessons is relatively straightforward. The consensus among economists is that the 1:1 exchange rate was not the primary cause of the depression in East Germany (the wage policy was). Indeed, the increase in the money supply was greater than what would have been justified on the grounds of proving liquidity to the East German economy, yet inflation did not materialize. The lesson for Korea (if there is one) is that the competitiveness problems are likely to be so severe that a little extra liquidity may not be a bad thing. One thing that might help would be to dollarize North-South trade to try and start getting an idea of the North Korean real exchange rate and the North Korean shadow price of foreign exchange.

Rather than the exchange rate, the Germans made two obvious mistakes. The first was the policy of driving East German wages beyond productivity. This had the effect of depressing output in Germany (and probably encouraging westward migration). This should be avoided. One way it was allowed to occur was through union pressure. The other was through compliant managements of pre-privatized enterprises. This simply reinforces the point that when it comes to privatization that speed is of the essence.

In this regard, the other obvious mistake was to accept the principle of restitution of property claims for dispossessed owners. This slowed the process of assigning property rights and thereby depressed investment. Compensation is acceptable, but restitution is to be avoided.

Beyond this the German case offers relatively few positive lessons for privatization. One wants to move quickly and one probably wants to avoid the cash in advance model since it severely restricts potential buyers. One probably also wants to avoid trying to restructure these enterprises before privatization. That is better left to the market. Interfirm debts are a legacy of irrational policies under the centrally planned regime and should be written off. Debt-equity swaps could be used to pay off external debt and at the same time creating South Korean or foreign firms with a stake in the viability of North Korean enterprises.

Given these considerations there would appear to be one institution in South

Korea ideally suited for the task making North Korea competitive: the *chaebol*. Unfortunately, one policy goal (to get the North Korean economy functioning as rapidly as possible) and another policy goal (to clean-up business-government relations in South Korea) will conflict. It goes without saying which one will receive the greater weight. The *chaebol* are probably ideally suited for refurbishing the North Korean economy. But saddling them with unproductive North Korean enterprises will have an economic price (in terms of reducing *chaebol* competitiveness internationally and possible anti-competitive effects domestically) as well as a political one (in the form of the *quid pro quos* the *chaebol* could be expected to extract).

The other important actors whose roles will have to be defined will be the North Koreans themselves. Presumably a unified Korean government will want to avoid the policies that the German government undertook through its monetary and privatization policies which effectively froze East Germans out of the privatization. If not addressed, the same problem could arise in an even more severe way in the Korean case, given the in greater divergence in income levels, and the probably even smaller outstanding claims on productive assets that North Korean residents will have at the time of unification.

At the same time it would be desirable to create new businesses in North Korea. There could be a role for fiscal incentives here. As Cheong and Lee (1995) point out, South Korean firms are already relocating labor-intensive activities abroad. However, investment in the North may be associated with a positive externality since it would presumably reduce unification costs. Hence there is a divergence between the private and social rate of return on South Korean foreign direct investment, and scope for government intervention.[31] Indeed, given the South Korean government's

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[31] A similar argument for tax breaks could be made prior to unification. Prior to unification the advisability of investment insurance is less clear. Tax incentives only apply if a South Korean firm is owning and operating a facility in the North, and does not expose the government to expropriation risk (that is born by the firm). Insurance guarantees could create South Korean government exposure to North Korean expropriation and generate some serious moral hazard problems.

Agreements between the North and South governments on such things as avoidance of double taxation, dispute settlement, and standards harmonization would be appropriate, however.

interventionist bent, it would surprising if policies like this were *not* undertaken.[32]

The use of fiscal incentives raises the broader issue of financing. There are a couple of obvious points to be made. South Korea, though in the process of financial liberalization, still has relatively underdeveloped financial markets. Specifically it does not have a well-developed market for government bonds. In the event of unification there is absolutely no reason to finance the construction of infrastructure out of current tax receipts. Instead, the government will want to use both taxes and bonds to finance unification expenditures. This means the development of a robust bond market prior to unification should be a priority. Bae (1996) makes recommendations to improve tax collection and raises the possibility of privatizing South Korean government assets as a means to finance unification as well.

Private capital will also be needed to for reconstruction. Private foreign capital inflows would be facilitated by an open investment regime. Assuming that unified Korea would adopt South Korean laws and practices, unification considerations would reinforce the desirability of improving the South Korean's inward foreign investment regime.

With respect to trade, the unified Korea would presumably operate under South Korea's trade policies, including tariffs, quotas etc. which would mean substantial deprotection for North Korean enterprises (though prior to unification one could imagine a variety of halfway houses that would permit North Korean producers to operate under greater protection).

Noland (1996a) reports results which indicate that a liberalized North Korea would trade most intensively with South Korea (accounting for 35 percent of its trade) and Japan (an additional 30 percent). With unification this means that the single biggest share of trade (the 35 percent with South Korea) would be internal and not subject to WTO rules. Some have advocated the application of dumping rules

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[32] Yeon (1994) for example writes "The government could use a number of policy tools in order to encourage private sector decision-making in directions it considers desirable, including special tax treatment, low-interest loans, channeling public funds towards certain investment, and providing information and advice. Government intervention would also be needed in order to influence the rate of industrial and rural development, as well as to control speculative and rent-seeking behavior on the part of both the public and private sectors" (p.394).

internally to protect South Korean producers. This would be a mistake: the priority will undoubtedly be on maintaining production in the North.

The second largest share of trade would be with Japan, and this would be subject to WTO rules which constrain the use of safeguards. It would not be surprising, given the prevalence of discriminatory arrangements within Asia, and the unresolved issue of Japanese post-colonial claims, if some bilateral understanding was reached between the unified Korea and Japan on this issue.

Lastly, and perhaps most importantly, is the issue of labor market adjustment. Unification will create big incentives to migrate, especially if unification were accompanied as expected by demobilization of the huge North Korean army. Some advocate maintaining the DMZ as a form of influx control, but it is questionable how politically sustainable that would be. (Remember, North Koreans will make up about a third of the electorate.) If the German case holds any lessons for Korea, it is that the decision to migrate is strongly influenced by employment security. This simply underscores the need to move as quickly as possible with privatization and restructuring.

Migration could also be discouraged by policies that would award property rights to housing and productive assets to users conditional on their continued residence in the North. More generally, migration will be affected by social policies. Retraining is certainly an area for government involvement (optimally in conjunction with prospective private employers) and these programs can be located in the North.

A more difficult issue involves the social safety net. The government will have to face issues such as whether health care should be on the North Korean socialized basis, or on the South Korean private insurance model. There are good arguments for the private insurance model, but one must recognize that under this system the quality of health care is strongly related to income level. Adoption of the private approach, in the context of low North Korean incomes and the wrenching dislocation that would likely accompany unification, could mean demographic in North Korea shocks even more severe than observed in post-unification East Germany.

CONCLUSION

The unification of Korea as a democratic capitalist state is undoubtedly in the interests of both Koreans and the world at large. The German experience suggests that this transition when it comes about is likely to be difficult in the short-run, however.

Most of the decisions about, and responsibilities for, unification will be born by Koreans. The US, which in part bears responsibility for the division of the peninsula, and fought a war there to preserve the southern state, will have a role to play. Most obviously the US can work in a supporting fashion, especially in the international lending institutions where the US is still the single most influential voice.

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York: InterAction Council.

TABLE 1

WESTERN GOODS PENETRATION

Product	Western Product Share of East German Sales, Sept. 1990
Margarine	35
Cooking Oil	41
Detergent	53
Black Tea	66
Cooking Fat	76
Dishwashing Liquid	81
Fruit Yogurt	90
Canned Soup	94
Chocolate	96

Sources: Sinn and Sinn (1992), Dornbusch and Wolf (1994).

TABLE 2

EAST GERMAN RELATIVE PRICES

Product	Ratio of East German to West German Prices, May 1990
Tape recorder	600
Pineapple	550
Camera	530
Women's nylons	510
Calculator	490
Refrigerator	390
Coffee beans	390
Chocolate	310
Electricity	24
Housing	18
Coal (for heating)	17
Newspaper	17
Bread	16
Haircut	15
Streetcar fare	10
Kindergarten fees	5

Source: SPD-Bundestagfraktion, Wochentext, No. 10 (19 May 1990) cited in Lim (1996).

TABLE 3

INTER-GERMAN AND INTER-KOREAN EXCHANGE

Inter-German Exchange	1970	1980	1990
Trip (thousand)[a]	1,254	2,746	2,410
Migration (thousand)[b]	12.5	8.8	11.5
Two-way Trade (million DM)	4,411	10,873	14,014

Inter-Korean Exchange	1989	1990	1991	1992	1993	1994
Trips[c]	1	474	412	360	na	na
Two-way Trade (million $)	22.3	25.1	192.2	213.5	198.8	228.9

Sources: Yeon (1993b), Choi (1995).

Notes:
[a] Number of trips from West to East Germany.
[b] Migration from East to West Germany.
[c] Trips in both directions.

TABLE 4

PROSPECTIVE COSTS OF UNIFICATION

Source	Methodology	Definition of Cost	Unification Date	Results
Hwang	Income Target	Total investment (including private)	1990	$300 billion, over undefined period[a]
			1995	$700 biliion, over undefined period[a]
			2000	$1,200 billion, over undefined period[a]
S.M. Lee (1993)	German Comparison	Government Expenditure	2000	$200 billion over 10 years
Yeon (1993a)	Income Target	Government Expenditure	2000	$230-250 billion over 10 years
Y.S. Lee (1994)	Income Target	Government Expenditure	1990	PDV $330 billion over 40-50 years
		South Korean Income Foregone		PDV $841 billion over 40-50 years
Bae (1996)	German Comparison	Government Expenditure	1993	$488 billion over 5 years

[a]This figure can be doubled to include the cost of "socio-economic adjustment."