Chapter Title: Korea's Rapid Growth

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mid-1960s to the mid-1970s? Why have there been periodic drops in saving rates, and what has determined the rates of investment? These questions are important because each of the three debt crises was precipitated by a large drop in domestic savings relative to investment and because most of Korea's external debt has been used to finance the savings/investment gap.

A third puzzle is why Korea was able to combine a real depreciation with improved competitiveness and an increase in real wages. Policymakers elsewhere often resist devaluation precisely because they expect it to reduce real wages and the standard of living. We shall argue that one of the most interesting and important aspects of Korean development has been the interrelationship between exchange rates, wages, and labor productivity.

In addition to these three puzzles about macroeconomic performance, our study will consider the distribution of income to Korea. And finally, we will look at the role of domestic policy. How did exchange rate, trade, and industrial policies influence growth and external balance? How did monetary and fiscal policies contribute to economic performance and to the accumulation of external debt? One view is that "Korea's experience following the second wave of oil price increases is an excellent example of how orthodox stabilization policies, effectively implemented, can help a country adjust to external shocks" (Aghevli and Marquez-Ruarte 1985, 1). An alternative view is that "domestic stabilization measures were at best a way of muddling through, and contributed little to improving the current account during 1982–83 (Y. C. Park 1985c, 308).

Part 2 is composed of six remaining chapters. In chapter 7 we examine the sources of growth. Chapter 8 is an analysis of the rapid rise in Korean savings and looks at the role of investment and the series of five-year plans. In chapter 9 we discuss exchange rate, trade, and industrial policies. The important link between wages, productivity, and international competitiveness are explored in chapter 10. In chapter 11 we examine monetary and fiscal policies, and then discuss income distribution in chapter 12. In part 3 (ch. 13) we will provide a synthesis and discuss the lessons from Korea's experience.

7   Korea's Rapid Growth

One of the most notable features of Korea's experience has been its consistently high rates of growth. Growth rates for Korea and a number of other countries are given in table 7.1. The sample includes developed as well as developing countries, Asian as well as Latin American countries, and

Table 7.1   **Economic Growth Rates (GDP)**

Country	1963–72	1972–81	1981–84
Korea	9.84	7.89	7.36
Argentina	3.90	1.24	0.38
Brazil	8.51	6.51	0.71
Mexico	7.90	6.59	−0.85
Indonesia	4.88	7.63	3.17
Philippines	4.70	6.09	−0.75
Turkey	6.30	4.89	3.88
Singapore	9.84	8.05	7.20
Hong Kong	—	8.68$_a$	5.69
Japan	9.95	4.30	3.73
U.S.	3.93	2.70	2.31
France	5.41	2.68	1.13
Germany	4.40	2.27	0.89
U.K.	2.71	1.39	1.39

Source: IMF. *International Financial Statistics,* for all countries except Hong Kong. Data for Hong Kong is from the Korean Economic Planning Board.

[a]1973–81

debtor as well as nondebtor countries. Three facts stand out from these figures. First, all countries exhibit some slowdown in growth between 1972–81 and 1981–84. Second, Asian countries (with the exception of the Philippines) have maintained relatively high growth rates. The Asian developing countries have grown more quickly on average than developing countries in Latin America, while Japan has maintained rapid growth relative to other OECD countries. Finally, even though Japan and a number of developing countries grew rapidly during the 1960s, only Singapore and Korea maintained growth rates in excess of 7 percent through 1984.

How Korea achieved its rapid growth is one of the keys to understanding Korean adjustment. The rapid growth, particularly of exports, has enabled Korea to continue to service its large debt with less disruption than has occurred elsewhere. Large increases in labor productivity have contributed to the country's ability to depreciate while raising real wages. In addition, one of the most striking aspects of Korea's recovery from the 1979–80 crisis has been the ability to improve the trade balance, not from a recession-induced cut in imports, but with growth.

In this chapter we examine Korea's growth rates in more detail. We begin with an analysis of the role of external debt in contributing to growth through financing investment. We then turn to decomposition of the sources of growth by sectoral origin and by type of expenditure. In the next section we discuss the results from an accounting decomposition of the role of factor inputs and productivity gains. The recent current account improvement with growth is discussed in a final section.

7.1   Growth Effects of External Debt

We begin with a simple exercise to estimate the role of foreign borrowing in Korean growth. Our decomposition has two steps. In the first, the growth of GNP is equal to the incremental capital output ratio (ICOR) multiplied by the increase in the capital stock (investment). The ICOR gives the additional capital required to generate an additional unit of output. It changes over time as the stock of capital and other inputs changes and as a result of positive or negative shocks to the output supply function. For example, technological improvements would tend to lower the ICOR, while a jump in oil prices would tend to raise it. In the second step, total investment is financed by a combination of domestic and foreign savings. With no external borrowing, investment would be constrained by domestic savings resulting in a smaller output expansion.

Thus, it is possible to use the ICOR, investment rates, and the share of investment which was financed from abroad to decompose GNP growth into two parts—growth exclusive of foreign borrowing and growth attributable to external debt. The major shortcoming of this approach is that it assumes that the ICOR would have been the same if there had been no external borrowing and if investment had been smaller. For this reason, the results should be interpreted as indicative only.

Table 7.2 provides the relevant data for five periods between 1962 and 1982. It shows that the ratio of investment and domestic savings to GNP both rose steadily until 1982. Foreign savings increased during 1962–71 and has since fallen relative to GNP and to national savings.

The ICOR has risen continually since 1962, with a large jump in 1982. (Using the 1982 figure one is likely to overestimate the appropriate figure for 1983–85.) The marginal product of capital would be expected to fall as the capital stock increased. However, this tendency would be dampened by increases in other inputs (in particular, employment and human capital) and

Table 7.2	Growth Effect of External Debt					
	1962–66	1967–71	1972–76	1977–81	1982	1962–82
GNP growth rate, % (A)	7.9	9.7	10.2	5.7	5.3	8.2
Investment ratio	16.3	25.4	29.0	31.0	27.0	
National saving ratio	8.0	15.1	20.4	25.5	22.4	
Foreign saving ratio	8.6	10.0	6.7	5.6	4.5	
Marginal total capital coefficient[a]	2.3	3.1	3.4	4.8	6.2	3.4
GNP growth rate without foreign savings, % (B)	3.8	4.9	6.9	4.1	4.1	4.9
Growth effect of external debt, % (A − B)	4.1	4.8	2.3	1.5	1.2	3.3

Note: GNP calculated at 1975 constant prices.

[a]Total capital includes domestic gross fixed formation, increases in inventories, and statistical discrepancy.

by positive shifts (improved know-how, economies of scale). The data imply that the combination of increased capital and unfavorable developments (oil shocks and perhaps resource misallocations) have had the larger impact.

The last rows of the table decompose GNP growth into a domestic and an external part. Approximately half of the growth during 1962–71 is attributable to external borrowing. If investment had been financed only by domestic savings, GNP would have grown by 3.8 percent in 1962–66 and 4.9 percent in 1967–71. In comparison, the actual growth rates were 7.9 and 9.7 percent, respectively.

The contribution of debt to growth declined somewhat in 1972–76 and declined significantly during 1977–82. Without borrowing, growth would have been 6.9 percent (compared to the actual 10.2 percent) during 1972–76 and 4.1 percent (compared to 5.5 percent) during 1977–82.

Foreign-financed investment has clearly played an important part in Korea's remarkable growth performance. Overall, about 3.3 percent a year, or 40 percent of total actual growth, is attributable to external borrowing. The importance of borrowing diminished over time, but still accounted for over 20 percent of growth during 1977–81.

7.2 Decompositions of Growth

In this section we consider some simple growth accounting. Contributions to growth by industrial sector are examined in table 7.3, and in table 7.4 we decompose GNP growth by type of expenditure. In each case, the contribution of an individual component to total GNP growth is computed as that component's growth rate multiplied by its share in total output. The growth rates are given for five time periods, beginning with the 1971–73 recovery from the first period of rapid debt accumulation and including the second and third debt accumulation periods and the subsequent recoveries.

The tables show the high growth rates of GNP during the early 1970s, the slowdown following the first oil shock, the strong rebound during 1976–78,

Table 7.3   **Contributions to Growth by Sectoral Origin (in percentages)**

	1971–73	1974–75	1976–78	1979–82	1983–85
GNP	9.46	7.65	11.71	3.57	8.58
Agriculture, forestry, and fishing	1.15	1.42	0.33	0.42	0.62
Mining and quarrying	0.10	0.18	0.11	0.01	0.12
Manufacturing	3.44	2.94	4.98	1.57	3.17
Construction	0.39	0.72	1.08	0.33	0.88
Electricity, gas, and water	0.17	0.19	0.30	0.18	0.59
Transportation	0.78	0.49	1.10	0.58	0.66
Other	3.42	1.71	3.40	0.48	2.53

Source: EPB. *Major Statistics of Korean Economy*, 1987.

Table 7.4   **Contributions to Growth by Expenditure**

	1971–73	1974–75	1976–78	1979–82	1983–85
GNP	9.46	7.65	11.74	3.57	8.58
Private consumption	5.83	6.76	4.24	2.64	3.88
Government consumption	0.60	1.57	0.88	0.38	0.42
Fixed investment	1.87	2.47	6.89	0.44	3.43
Exports	5.39	1.89	6.77	2.59	3.54
Imports	−4.54	−2.87	−7.97	−1.31	−2.61
Other[a]	0.30	−2.11	1.37	−1.15	−0.08

Source: EPB, *Major Statistics of Korean Economy,* 1987.

[a] Includes inventories, net factor payments from abroad, and any rounding errors.

the real stagnation during 1979–82, and the recent recovery. A few general observations are useful. First, on average, private consumption has grown more slowly then income, declining from 77 percent of GNP in 1966 to 61 percent in 1985. The notable exception to this trend came during the 1979–82 crisis.

Second, government consumption has declined, both as a share of GNP and in terms of its contribution to growth. It is interesting that government consumption is often countercyclical. For example, the growth rate of government consumption dropped during the 1973 real growth spurt and increased sharply as GNP growth slowed during 1974. (Fiscal policy will be examined in more detail in ch. 11.)

Gross fixed investment has risen steadily as a share of GNP, from 18 percent in 1966 to 30–33 percent during 1978–85. The dramatic increase in capital accumulation during the late 1970s was reversed during the 1979–82 crisis. Since 1982 investment growth rates have returned to their early 1970s average. Stocks have been quite variable. On average, inventories accumulated from 1971–75 and have decumulated since 1976, with especially rapid declines during 1979–82.

Table 7.4 also shows the well-documented rise in exports. From only 7.3 percent of GNP in 1966, they had grown to 22.4 percent by 1973 and have remained at 38–39 percent since 1982. Imports also rose rapidly, from 16 percent of GNP in 1966 to 43 percent by 1980, declining to 38 percent by 1985.

There are significant differences in the sources of GNP growth across the five time periods. During 1971–73, the rapid growth was attributable almost equally to private consumption and to exports, with fixed investment considerably less important. Net exports contributed almost 1 percentage point to growth, on average. Table 7.3 shows that manufacturing and services contributed 3.4 percent each, while agriculture contributed 1.1 percent.

The slowdown in growth in the second period occurred as export growth dropped sharply. This was only partially offset by a decline in import growth and increases in private and government consumption.

Exports and fixed investment were the two major sources of growth during the 1976–78 boom, contributing 6.8 and 6.9 percent, respectively. However, there was also a large jump in imports, so that the contribution of net exports to growth remained negative. On the industrial side, there was a rebound in both manufacturing and other services.

The sources of stagnant real growth during the last crisis period differ considerably from the 1974–75 slowdown. As a result of very poor harvests, agriculture contributed −3.6 percent to growth in 1980. However, this decline is offset by an unusually large contribution during 1981. (See table 7.3.)

Unlike the earlier period in which the contribution of total investment actually rose (from 1.9 percent in 1971–73 to 2.5 percent in 1974–75), investment declined precipitously from 6.9 percent during 1976–78 to 0.4 percent in 1979–82. Export growth also fell, but to 2.6 percent as compared to 1.9 percent during 1974–75. Furthermore, import growth slowed even more dramatically so that the contribution of net exports to GNP growth turned positive. There was also a very large decline in private consumption growth.

Again, the sources of the 1983–85 rebound are quite different from the sources of earlier recoveries. In particular, growth rates for fixed investment, exports, and private consumption increase only moderately, with the contribution of private consumption to growth exceeding the contributions of the other two components. Government consumption does not play a role in the improved performance. A key factor is the surprisingly small increase in import growth—the contribution of net exports remains positive.

We summarize our discussion by making four points. The first is that the well-documented role of exports as a source of growth is especially relevant in the early period. Second, investment has played a critical role, often rivaling exports in making the largest contribution to growth. Gross fixed investment contributes to capacity and is a critical determinant of future growth potential. The figures reported in table 7.4 strongly suggest an investment-led growth for Korea in which current investment stimulates future net exports, both through a rise in export production capacity and through a reduction in required manufactured imports. The high investment during the 1976–78 period helps to explain the reversal in the contribution of net exports to growth, from a negative one during 1974–78 to a positive one during 1979–85. Third, there has been a recent shift in the sources of growth. Moderate import expansion has permitted strong GNP performance despite the slowdown in growth rates of exports, investment, and private consumption. Finally, government consumption has played a small role throughout in explaining the performance.

7.3   The Role of Imports: Further Analysis

The majority of imports are capital goods and raw materials. Final consumption goods constitute less than 5 percent of imports. Increases in investment and exports lead to direct increases in imports. This linkage implies that the figures in table 7.4 overestimate the contributions of these components to growth because they do not correct for the associated import growth.

Korean input-output tables from the Bank of Korea provide "import requirement coefficients" by sector for selected years. Table 7.5 shows the actual coefficients for consumption, investment, and exports for four years: 1970, 1975, 1980, and 1983. The numbers imply that a one-unit rise in consumption would have increased imports by 0.13 units in 1970 and by 0.23 units in 1980. The import coefficients for investment jump from 0.39 in 1970 to 0.48 in 1975, declining to 0.38 by 1983.[1] The coefficients for exports jumped from 0.26 in 1970 to 0.36 in 1975, and have remained in that range through 1983. Using these data, the annual import coefficients for each sector can be approximated by interpolation.

The next step is to decompose imports. There are seven components of demand (Y): private and government consumption, C and G; fixed investment, IF; inventory investment, Inv; exports, X; imports, M; and nonfactor income, NF. Imports are attributed to consumption, investment, exports, and a residual, ϵ. The import coefficient for consumption, g, is assumed to be equally relevant for private and government consumption. The coefficient for investment, γ_c, is assumed to apply only to fixed investment, and not to changes in inventories.

$$(1) \qquad Y = C + G + IF + Inv + X - M + NF$$

$$(2) \qquad M = \gamma_c(C+G) + \gamma_i IF + \gamma_x X + \epsilon$$

$$(3) \quad Y = (1-\gamma_c)C + (1-\gamma_c)G + (1-\gamma_i)IF + Inv + (1-\gamma_x)X - \epsilon + NF$$

Table 7.6 uses the adjusted expenditure components to decompose the sources of GNP growth for the five subperiods. The same general trends emerge here as in table 7.4. However, the revised figures show that the simple decomposition overstates the contribution to Korean output coming

Table 7.5   **Import Requirement Coefficients for Korea (per unit final output)**

Year	Consumption	Investment	Exports
1970	0.13	0.39	0.26
1975	0.18	0.48	0.36
1980	0.23	0.42	0.35
1983	0.22	0.38	0.36

Source: BOK, input-output tables.

Table 7.6   Contributions to Growth by Expenditure (revised for import dependence)

	1971–73	1974–75	1976–78	1979–82	1983–85
GNP	9.46	7.65	11.74	3.57	8.58
Private consumption	4.93	5.50	3.35	2.05	3.03
Government consumption	0.51	1.29	0.70	0.29	0.33
Fixed investment	1.05	1.31	3.40	0.21	2.18
Exports	3.73	1.21	3.82	1.19	2.26
Imports (residual)	−1.07	0.50	−0.46	0.97	0.86
Other[a]	0.30	−2.11	1.37	−1.15	−0.08

Source: EPB, *Major Statistics of Korean Economy*, 1987.

[a]Includes inventories, net factor payments from abroad, and any rounding errors.

from growth of exports and fixed investment, particularly during the Big Push with its heavily import-dependent investments.

7.4   Supply-Side Sources of Korean Growth

This section reviews the economic sources of Korean growth during 1963–72 and 1972–82. The discussion is based on work by Kim and Park (1985), who have used the Denison growth accounting framework to analyze Korea.[2] The data in all of the tables reported below come from their study.

Estimates of the sources of growth for the whole Korean economy are given in table 7.7. Beginning with the experience over the entire period, we point out three characteristics. First, as discussed above, Korea maintained very high rates of growth. Second, about two-thirds of its performance is attributable to increased factor inputs, with two-thirds of that increase arising from labor inputs and only one-third from additions to the capital stock. We shall see that the absolute and relative importance of factor inputs are distinguishing characteristics of Korea's experience. Finally, the most important contributions to Korean growth have been a result of increased employment, additions to nonresidential structures and equipment, and economies of scale.

While these three characteristics provide a general picture of the sources of Korean growth, they do not capture the shifts in these sources over time or highlight those aspects which differentiate Korea's experience from that of other countries. After a brief discussion of the differences between the sources of growth during 1963–72 and 1972–82, we will compare Korean growth sources with those in other countries.

As shown, the average growth rates of national income fell slightly from 8.22 percent during 1963–72 to 7.05 percent during 1972–82. In the earlier period, approximately equal parts of the growth were attributable to increased factor inputs and to increased output per unit input.[3] In the later period, however, actor inputs account for nearly 80 percent of the growth, with a corresponding decline in the contribution of productivity increases.

Table 7.7   **Sources of Growth of the Korean Economy**

Source	1963–72	1972–82	1963–82
National income (growth rate)	8.22 (100.00)	7.05 (100.00)	7.61 (100.00)
Total factor input	4.19 (51.00)	5.58 (79.10)	4.89 (64.30)
Labor	3.05 (37.10)	3.48 (49.40)	3.31 (43.50)
Employment	2.36 (28.70)	2.03 (28.80)	2.18 (28.60)
Average hours	0.32 (3.90)	0.45 (6.40)	0.40 (5.30)
Age-sex composition	−0.01 (−0.10)	0.15 (2.10)	0.06 (0.80)
Education	0.31 (3.80)	0.44 (6.20)	0.39 (5.10)
Efficiency offset	0.01 (0.10)	0.05 (0.70)	0.03 (0.40)
Unallocated	0.06 (0.70)	0.36 (5.10)	0.25 (3.30)
Capital	1.14 (13.90)	2.10 (29.80)	1.58 (20.80)
Nonresidential structure and equipment	1.09 (13.30)	2.59 (36.70)	1.80 (23.70)
Inventories	0.20 (2.40)	0.31 (4.40)	0.26 (3.40)
International assets	−0.25 (−3.00)	−0.89 (−12.60)	−0.58 (−7.60)
Dwellings	0.10 (1.20)	0.09 (1.30)	0.10 (1.30)
Land	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Output per unit of input	4.03 (49.00)	1.47 (20.90)	2.72 (35.70)
Improved resource allocations	0.63 (7.70)	0.68 (9.60)	0.67 (8.70)
Contraction of agricultural inputs	0.53 (6.40)	0.64 (9.10)	0.60 (7.90)
Contraction of nonagricultural self-employment	0.10 (1.20)	0.03 (0.40)	0.06 (0.80)
Economies of scale	1.52 (18.50)	1.46 (20.70)	1.49 (19.60)
Measured in U.S. prices	0.87 (10.60)	0.85 (12.10)	0.86 (11.30)
Income elasticities	0.65 (7.90)	0.61 (8.70)	0.63 (8.30)
Irregular factors	−0.01 (−0.10)	−0.97 (−13.80)	−0.52 (−6.80)
Effect of weather on farming	0.03 (0.40)	0.01 (0.10)	0.01 (0.10)
Intensity of demand	−0.04 (−0.50)	−0.98 (−13.90)	−0.53 (−7.00)
Advances in knowledge and n.e.c.	1.89 (23.00)	0.30 (4.30)	1.09 (14.30)

Source: Kim and Park (1985) table 4.6.

Note: Growth rates and contributions to growth are in percentages. The share of total growth is given in parentheses. n.e.c. = not elsewhere classified.

The contribution of factor inputs to growth rose in absolute as well as relative terms. In the first period, the total contribution was 4.19 percent as compared to 5.58 percent in the second period. From 1963 to 1972, labor accounts for 73 percent of the increase due to factor inputs, with 88 percent of the labor increase explained by greater employment and a rise in average work hours. From 1972 to 1982, the importance of labor declined somewhat to 62 percent of the total factor input, 71 percent of which is explained by increased employment and average hours. In both periods, equal contributions to growth come from education and from increased work hours.

The importance of capital nearly doubles from the first to the second period. This increase is due almost exclusively to additions of nonresidential structure and equipment, reflecting the rapid investment buildup which was initiated in the 1970s. The total contribution of capital would have been even larger if not for the high negative contribution from international assets— Korea's net investment income from abroad has been negative since the mid-1960s.

During 1972–82, the contribution of output per unit input fell to barely one-third of its level during the previous period. This development is not explained by either resource allocation or economies of scale, which retained approximately the same contribution to growth during both periods. The large decline came from two "irregular factors"—the impact of poor weather on farming and unfavorable developments in what Kim and Park (1985) label the intensity of demand. There was also some decline in the residual, as discussed further below.

The above discussion highlights the importance of increased employment in explaining Korean growth. We find that it is also useful to examine the sources of growth per person employed. Table 7.8 shows that the average annual increase in labor productivity fell from 4.59 percent during 1963–72 to 3.88 percent during 1972–82. Again, this aggregate figure masks a dramatic change between periods. In the earlier period, only 13 percent of growth per person employed is attributable to capital (human and/or physical), shifts in sectoral allocation of workers, or changes in land, while 87 percent is attributable to increased productivity. After 1972, factor inputs account for 62 percent of growth per worker, with the increases in human and physical capital partially substituting for the substantial decline in productivity growth.

Again, a large share of the reduction in productivity growth shows up in the residual. It is possible to suggest some explanations for this. Kim and Park (1985, 174–75) mention four alternatives. The first is changes in the efficiency of resource allocation arising from shifts in Korea's industrialization strategy: "the initial positive momentum from opening-up to semi-free trade was largely spent by the early seventies. . . . Korea again emphasized

Table 7.8   Sources of Growth of the Korean Economy per Person Employed

Source	1963–72		1972–82		1963–82	
National income per person employed	4.59	(100.00)	3.88	(100.00)	4.23	(100.00)
Irregular factors	−0.01	(−0.20)	−0.97	(−25.00)	−0.50	(−11.80)
Factor inputs	0.56	(12.20)	2.41	(62.10)	1.51	(35.70)
Labor	0.69	(15.00)	1.45	(37.40)	1.13	(26.70)
Changes in hours	0.38	(8.30)	1.01	(26.00)	0.74	(17.50)
Increased education	0.31	(6.80)	0.44	(11.30)	0.39	(9.20)
More capital	0.32	(7.00)	1.42	(36.60)	0.80	(18.90)
Less land	−0.45	(−9.80)	−0.46	(−11.90)	−0.42	(−9.90)
Output/input	4.04	(88.00)	2.44	(62.90)	3.22	(76.10)
Less labor misallocation	0.63	(13.70)	0.68	(17.50)	0.66	(15.60)
Economies of scale	1.52	(33.10)	1.46	(37.60)	1.48	(35.00)
Advances in knowledge	1.89'	(41.20)	0.30	(7.70)	1.08	(25.50)

Source: Kim and Park (1985, table 8.2).

Note: Percentages in parentheses.

the import substitution of intermediate and capital goods during the seventies, in connection with the government promoted construction of heavy and chemical industries'' (173).

A second source of a decline in residual contributions to growth is increases in hours spent in required military and civil defense training. Since some of the implied absences from work are not counted in labor force statistics, the contribution of labor input to growth may have been overestimated, with the residual contribution underestimated (174). The third possibility arises from increased industrial concentration and, presumably, associated reductions in productive efficiency. The fourth possibility comes from the jump in oil prices after 1973.

7.5   International Comparisons of the Sources of Growth

Table 7.9 compares the sources of growth for Korea with the sources for Japan, the United States, Canada, and eight European countries over various time periods during 1950–73.[4] As shown, Japan and Korea had the highest growth rates, followed by West Germany. In absolute terms, Korea and the faster growing European countries saw comparable gains from increased productivity. However, in terms of the composition of the sources of growth, Korea has less in common with the other rapid growth countries than with the slower growing United States and Canada, where increased factor inputs also accounted for two-thirds of growth.

The rapid growth rates in Korea and Japan have frequently been compared. Although the aggregate growth levels are comparable, the sources are quite different. Korea had significantly higher growth of labor inputs (arising from increased employment and work hours) and fixed capital formation, but lower inventories[5] and substantial outflows of international capital which decreased the overall contribution of capital. In terms of output per unit input, Japan recorded larger contributions to growth across the board, achieving larger gains from productivity increases than any of the other countries. Thus, the Korea-Japan comparison is somewhat misleading, because it fails to highlight the overwhelming importance of increased factor inputs in explaining the rapid Korean growth.

In summary, the critical factor in Korea's high and sustained growth has been the increasingly large contribution of factor inputs. Korea was able to maintain high growth rates in the 1970s, despite negative shocks and declines in the contribution of productivity, by raising the contributions from both labor and capital inputs.

7.6   Current Account Improvement with Growth

One of the striking aspects of Korea's adjustment to the 1979–80 crisis was that a turnaround from negative to positive growth was combined with a

Table 7.9　　　　　**International Comparisons of Sources of Growth**

Country	Growth Rate (standardized)	Factor Inputs	Percentage of Growth			Output per Unit Input	Percentage of Growth			
			Total	Labor	Capital		Total	Resource Allocations	Economies of Scale	Other
Korea	8.13	4.89	0.60	0.41	0.19	3.24	0.40	0.08	0.18	0.13
Japan	8.81	3.95	0.45	0.21	0.24	4.86	0.55	0.11	0.22	0.22
U.S.	3.79	2.13	0.56	0.37	0.19	1.66	0.44	0.08	0.08	0.28
Canada	4.95	3.02	0.61	0.37	0.23	1.96	0.40	0.13	0.13	0.13
Belgium	3.03	1.17	0.39	0.25	0.14	1.86	0.61	0.17	0.17	0.17
Denmark	3.63	1.55	0.43	0.16	0.26	2.08	0.57	0.19	0.18	0.21
France	4.70	1.24	0.26	0.10	0.17	3.46	0.74	0.20	0.21	0.32
West Germany	6.27	2.78	0.44	0.22	0.22	3.49	0.56	0.16	0.26	0.14
Italy	5.60	1.66	0.30	0.17	0.13	3.94	0.70	0.25	0.22	0.23
Netherlands	4.07	1.91	0.47	0.21	0.26	2.16	0.53	0.15	0.19	0.18
Norway	3.43	1.04	0.30	0.04	0.26	2.39	0.70	0.27	0.17	0.26
U.K.	2.38	1.11	0.47	0.25	0.21	1.27	0.53	0.05	0.15	0.33

Source: Kim and Park (1985, 67–69, table 4.7).

Note: Data reported are for the period 1950–62 for all countries except the following: Korea, 1963–82;
Japan, 1953–71; U.S., 1948–73; and Canada, 1950–67.

substantial improvement in the current account. From a theoretical standpoint, there is nothing particularly surprising about this achievement. Strong export performance will stimulate output while reducing a trade deficit. However, an observer aware of only recent country experiences would be left with the impression that, at least in the short run of one to two years, countries improving their trade balance are most likely to do so by a domestic contraction which reduces imports.[6] The natural question becomes why was Korea able to avoid the typical scenario and are there lessons to be learned for others that would like to follow suit. We focus here on the experience through 1985. The 1986 current account surplus, which raises a number of other issues, is discussed in detail by Dornbusch and Park (1987).

Table 7.10 gives an overview of the Korean balance of payments. As shown, the current account worsened markedly from 2.1 percent of GNP in 1978 to an average of 7.5 percent of GNP during 1979–81. The deterioration is accounted for primarily by a jump in imports and in payments for invisibles (primarily transport and investment income).

Beginning in 1982, the current account deficit was steadily reduced, reaching 1 percent of GNP by 1985. In 1982 the improvement came in almost equal parts from the trade balance and from the balance on invisibles. There was essentially no growth in export receipts measured in U.S. dollars, so that the gains were due to a 3 percent decline in the value of imports. This decline is only partially explained by the 5 percent reduction in import prices. The unusual aspect is that imports rose by only 0.2 percent in physical terms even though real GNP grew by 5.4 percent. In 1983 the current account improvement was due primarily to strong export performance. In 1984 and 1985 the improvement continued, despite renewed deterioration of the invisibles account, because of a dramatic reduction in the trade deficit. Real output has grown strongly in each of these years, including the very rapid rates achieved during 1983 and 1984.

Table 7.10   Current Account and GNP, 1977–86 (in billions of U.S. dollars and percentages)

Year	Current Account	CA/GNP (%)	Trade Balance	Exports	Imports	Invisibles Account	Transfer Account	GNP Growth (%)
1977	0.012	0.0	−0.477	10.046	10.523	0.266	0.223	10.7
1978	−1.085	−2.1	−1.781	12.711	14.491	0.224	0.472	11.0
1979	−4.151	−6.8	−4.396	14.704	19.100	−0.195	0.439	7.0
1980	−5.321	−8.8	−4.384	17.214	21.598	−1.386	0.449	−4.8
1981	−4.646	−7.0	−3.628	20.671	24.299	−1.518	0.501	6.6
1982	−2.650	−3.8	−2.594	20.879	23.474	−0.554	0.499	5.4
1983	−1.606	−2.1	−1.764	23.204	24.967	−0.435	0.592	11.9
1984	−1.373	−1.7	−1.036	26.335	27.371	−0.878	0.541	8.4
1985	−0.887	−1.1	−0.019	26.442	26.460	−1.446	0.578	5.4
1986	4.617	4.9	4.206	33.913	29.707	−0.628	1.039	12.5

The real puzzle then is that imports did not rise more strongly with the recovery in growth. To examine import behavior more carefully, in table 7.11 we decompose imports by major commodity group, while in table 7.12 we show the annual growth rates for import values, import volumes, and unit import values for 1977–85.

As expected, the tables show the large rise in import prices in 1979–81 and the increase in imports of crude materials and mineral fuels. The Korean oil bill rose from 17.5 percent of total imports during 1976–78 to 27.3 percent during 1980–82, as the value of petroleum imports increased by 228.4 percent between the two periods. It is important to keep in mind that the OPEC revenue gains had favorable feedback effects for Korea. In particular, the value of overseas construction contracts to the Middle East were $14.2 billion larger during 1980–82 than during 1977–79, as compared with a $10.2 billion dollar rise in the value of imported petroleum and petroleum products between the same three-year periods.[7] However, there were also very large increases in imported foods and machinery and transport equipment, especially during 1981.

Imports declined in 1982. There was a substantial reduction in world prices of Korean imports. Furthermore, import volumes grew very slowly. The major reason was the large decline in food imports as the agricultural sector registered a banner harvest. Although normal import growth resumed in 1983, import price developments continued to be extremely favorable.

The question raised at the beginning of this section was how Korea managed to improve its trade balance while maintaining rapid real growth rates. Although export growth resumed by 1983, the initial improvements depended on the behavior of imports. The analysis above points to four factors. The first is the favorable price developments during 1982–85. The second is the role of weather conditions in creating an unusual sectoral composition of growth post-1979. A bad harvest leads to increased food imports. When domestic agriculture recovers, output and the trade balance are improved simultaneously. The fourth factor involves policy more directly. Korea has restricted consumer imports and thereby limits those imports which tend to have the highest income elasticities. Most imports in Korea are tied to industrial requirements for imported materials.

Are there lessons to be learned from this episode, in terms of policy advice to other countries? It is very difficult to argue that policy choices were a determining factor in Korea's ability to use growth to improve the current account. Other countries which followed the same policies, but had different shocks (e.g., external prices and harvests) should not expect the same outcome. Furthermore, there is no reason to expect that Korea, faced with a large trade deficit in the future, will be able to repeat this performance, unless the deficit is again linked to a temporary decline in agriculture and to a temporary deterioration in the terms of trade.

Table 7.11   **Imports by Major Commodity Group, 1976–84**

Year	Food, Etc.	Crude Materials	Mineral Fuels	Petroleum	Chemicals	Manufactures	Machinery & Transportation	Ships	Other	Total
Panel A (in millions of U.S. dollars)										
1976	720	1,565	1,747	1,658	866	1,479	2,387	397	10	8,774
1977	834	1,941	2,179	2,065	1,005	1,929	2,908	193	13	10,811
1978	1,087	2,395	2,453	2,312	1,298	2,782	4,947	402	11	14,972
1979	1,655	3,260	3,779	3,416	2,009	3,440	6,125	316	71	20,339
1980	1,993	3,634	6,638	6,164	1,836	3,122	4,977	472	93	22,292
1981	2,926	3,630	7,765	6,918	2,109	3,562	6,000	873	141	26,131
1982	1,708	3,370	7,593	6,740	2,084	3,394	6,009	1,119	93	24,251
1983	1,886	3,480	6,958	6,195	2,281	3,942	7,556	1,798	93	26,192
1984	1,864	3,951	7,274	6,414	2,762	4,881	9,797	2,704	102	30,631
Panel B (in percentage of total imports)										
1976	0.08	0.18	0.20	0.19	0.10	0.17	0.27	0.05	0.00	1.00
1977	0.08	0.18	0.20	0.19	0.09	0.18	0.27	0.02	0.00	1.00
1978	0.07	0.16	0.16	0.15	0.09	0.19	0.33	0.03	0.00	1.00
1979	0.08	0.16	0.19	0.17	0.10	0.17	0.30	0.02	0.00	1.00
1980	0.09	0.16	0.30	0.28	0.08	0.14	0.22	0.02	0.00	1.00
1981	0.11	0.14	0.30	0.26	0.08	0.14	0.23	0.03	0.01	1.00
1982	0.07	0.14	0.31	0.28	0.09	0.14	0.25	0.05	0.00	1.00
1983	0.07	0.13	0.27	0.24	0.09	0.15	0.29	0.07	0.00	1.00
1984	0.06	0.13	0.24	0.21	0.09	0.16	0.32	0.09	0.00	1.00

Table 7.12   Percentage Changes in Components of Import Growth, 1977–85

Year	Import Value	Import Volume	Unit Value	Real GNP
1977	23.2	20.5	2.2	10.7
1978	38.5	31.2	5.6	11.0
1979	35.8	11.1	22.2	7.0
1980	9.6	−8.9	20.3	−4.8
1981	17.2	11.2	5.4	6.6
1982	−7.2	2.2	−7.4	5.4
1983	8.0	13.3	−4.7	11.9
1984	16.9	15.4	1.3	8.5
1985	1.6	6.2	−4.2	5.4

8   Savings and Investment

During each of Korea's periods of rapid debt accumulation, virtually all of the additional foreign borrowing was used to finance current account deficits. Since domestic investment must be financed through some combination of domestic and foreign savings, foreign savings—or the deficit in the current account—is exactly equal to the imbalance between domestic savings and investment.

In this chapter we examine the behavior of the current account from the savings-investment perspective. The decomposition is especially interesting for Korea because its experience differs markedly from that of many other debtor countries. A frequently observed pattern is for the current account deficit to increase as government savings decline and then for a current account improvement to be attained, at least in the short run, through cuts in (public and private) investment and in government expenditure, thus raising government savings.[1] Relatively little of the adjustment tends to be achieved through private sector savings.

Korean experience contrasts with the "stylized" scenario with respect to the roles of investment, public savings, and private savings. First, fiscal deficits have played at most a minor role in current account deterioration. Instead, increases in fixed investment, associated with new economic development strategies, have outpaced rising private savings. This leaves the door open for a jump in required foreign financing to cover either unexpected surges in inventory accumulation or unexpected drops in private savings. The series of five-year economic and social plans have played a critical role through their impact on investment. Second, the reduction of the current account deficit during the recovery is achieved without a substantial decline