

WPS 0554

Policy, Research, and External Affairs

WORKING PAPERS

Studies and Training Design

Economic Development Institute  
The World Bank  
December 1990  
WPS 554

# Korea's Labor Markets Under Structural Adjustment

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Korea's ability to keep the economy from going off the rails has been as remarkable as its achievement of high long-run growth rates. The key to the success of Korea's labor policy — state guidelines limited the wage increases under structural adjustment — was the high rate of total factor productivity growth.

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This paper — a product of the Studies and Training Design Division, Economic Development Institute — is part of a larger effort in PRE to understand the behavior of labor markets in the process of structural adjustment of the economy. The paper is one of the country studies prepared for the project on “Labor Markets in An Era of Structural Adjustment. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Marshall Schreier, room M4-023, extension 36432 (55 pages, including figures and tables).

Korea is an interesting case study in long-term and short-term adjustment. Korea’s rate of economic growth after 1965 was high at a time of rapid, fundamental economic restructuring. Korea’s open, export-oriented economy — dependent on imports of oil and intermediate inputs — was exposed to oil price shocks and interest rate hikes.

To keep up the rate of investment, Korea borrowed heavily in the world market — and appeared to be highly vulnerable. And it had a history of walking a tightrope between inflationary pressures and balance of payments deficits.

Korea’s ability to keep the economy from derailing has been as remarkable as its achievement of high long-term growth rates.

Mazumdar concludes that wage behavior in the formal sector played a significant role in adjustment, but not because there was an elastic supply of labor at a stagnant wage during expansion. On the contrary, real wages rose impressively throughout the period of growth. But real wage increases lagged behind the growth rate of labor productivity (except during the “big push” of the late 1970s). And during the years after the oil shock real wages stagnated or even declined somewhat despite a spurt in productivity.

The wage-setting mechanism seems to have been strongly influenced by state guidelines, which encouraged wage increases as incentive payments but kept them within the limits of productivity increases — subject to the necessity of dealing with short-run shocks.

The key to the success of Korea’s labor policies was the high rate of total factor productivity growth. This also allowed for continued nominal devaluation of the *won* without triggering secondary pressures on domestic costs or damaging external competitiveness.

The above points pertain to the behavior of the large-scale “formal” sector of the economy. But wage employment in small firms and the self-employed constitute a sizeable part of the labor market. How did labor earnings in these sectors perform relative to the wage gains in the formal sector? For lack of data Mazumdar focused on farm workers, wage earners in small firms, and also a section of the workforce whose relative earnings have been low throughout — that is, female workers.

Women and workers in the farm sector and small firms shared to some extent in wage increases, but the long-term record for these groups is not entirely satisfactory.

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## I. Cycles in the Korean Economy

Recent economic history of Korea can be broken down into the following four phases: The period (1965-73) was a period of sustained growth rate in the GDP, which although varying from year to year was at a generally high level (Figure 1).<sup>1</sup> Difficulties emerged after the first oil shock. It led to a period in which government economic policy leaned towards one of fostering development in heavy industry so as to make the economy less dependent on the vagaries of the world economy. This policy led to a faster build up of foreign debt, so that when the second oil price hike and interest rate hike struck, the economy went into a depression in the early 80s—the first time when the average rate of growth of real GDP actually fell below zero. The depression however, was extremely short-lived. As in other Southeast Asian countries (other than the Philippines) the economy was able to adjust very quickly to the external shocks (which were indeed aggravated by internal shocks), and the recovery since 1982 has been rapid and sustained.

### *Phase I: The period of export-led growth (1965-1973)*

This was the period of export led growth in Korea. As can be seen from Figure 2, the barter terms of trade either increased or were constant (except for one year, 1969), while the income terms of trade increased at a very high rate from year to year. In fact, throughout the period the lowest **annual** rate of growth of the income terms of trade was 30 percent, and in most years it was well above this. This was the period when the outward looking strategy of Korea was getting established in a spectacular way.

The current account was, however, in deficit throughout this period (Figure 1), and until 1971 the annual percentage rate of growth of the deficit accelerated. It also went up sharply as a percentage of GNP from -3.7 percent in 1966-67 to -8.9 percent in 1971.

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<sup>1</sup> The basic time-series in which the graphs are based is given in Annex Table A1. The income terms of trade shows the real value of exports in terms of importable capacity. It is the index of the value of exports divided by the index of import prices.

Figure 1  
REAL GDP GROWTH AND CURRENT ACCOUNT/GNP (Korea, 1963-88)

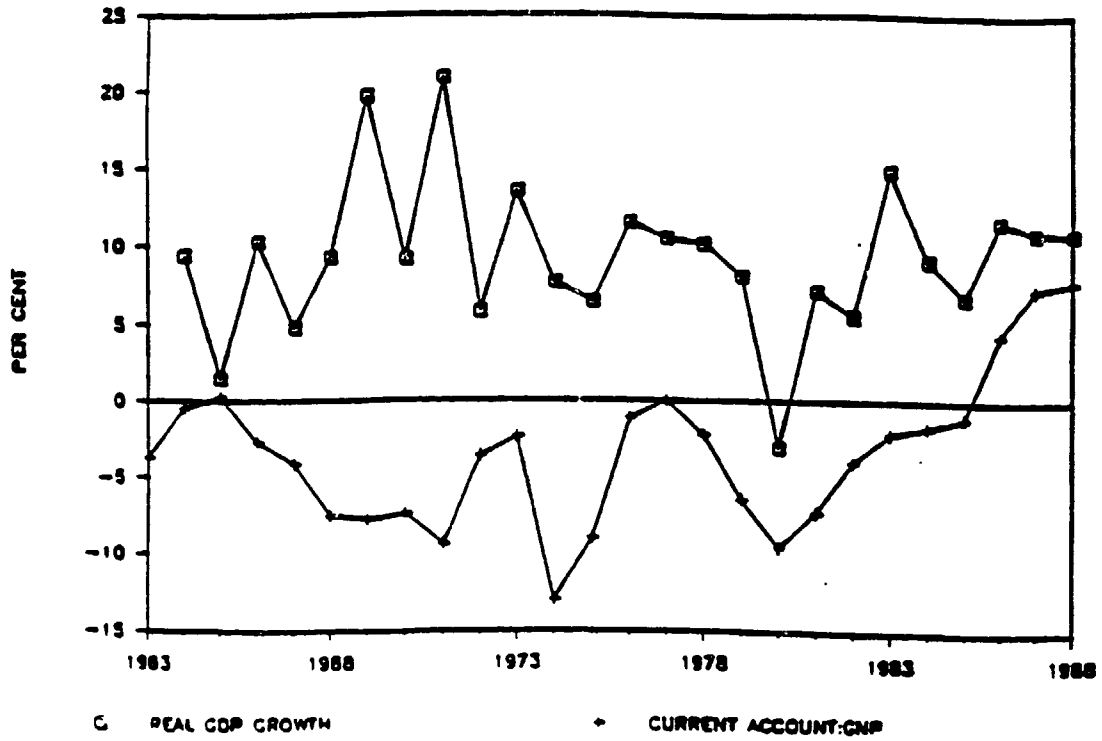
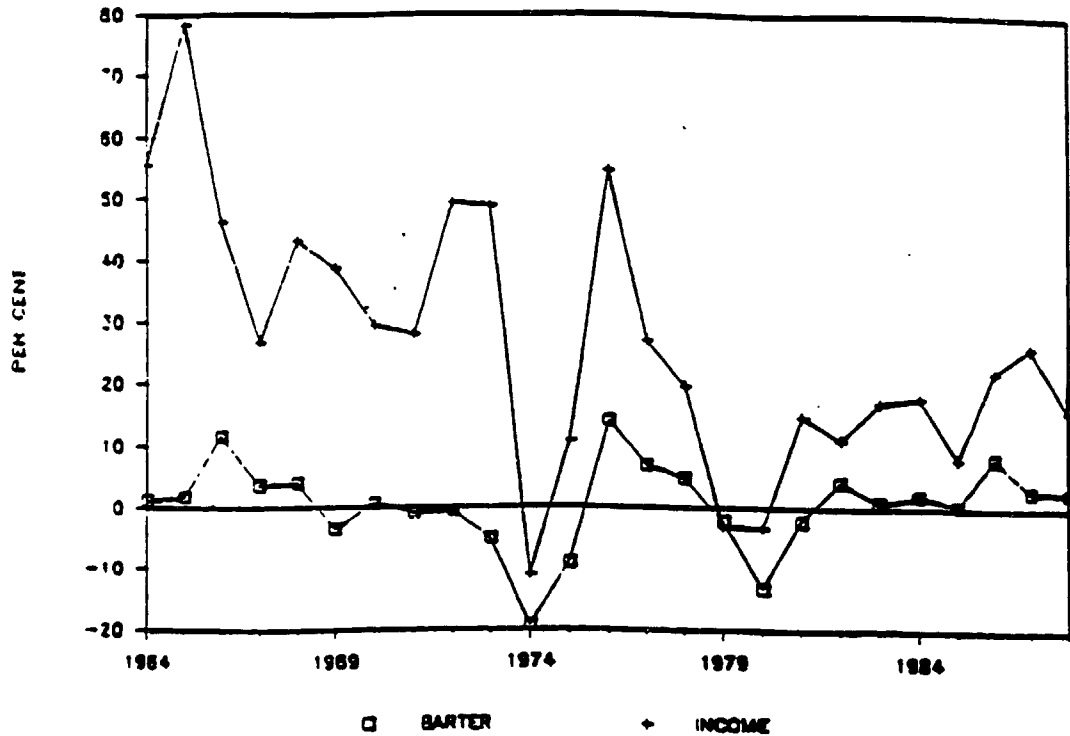
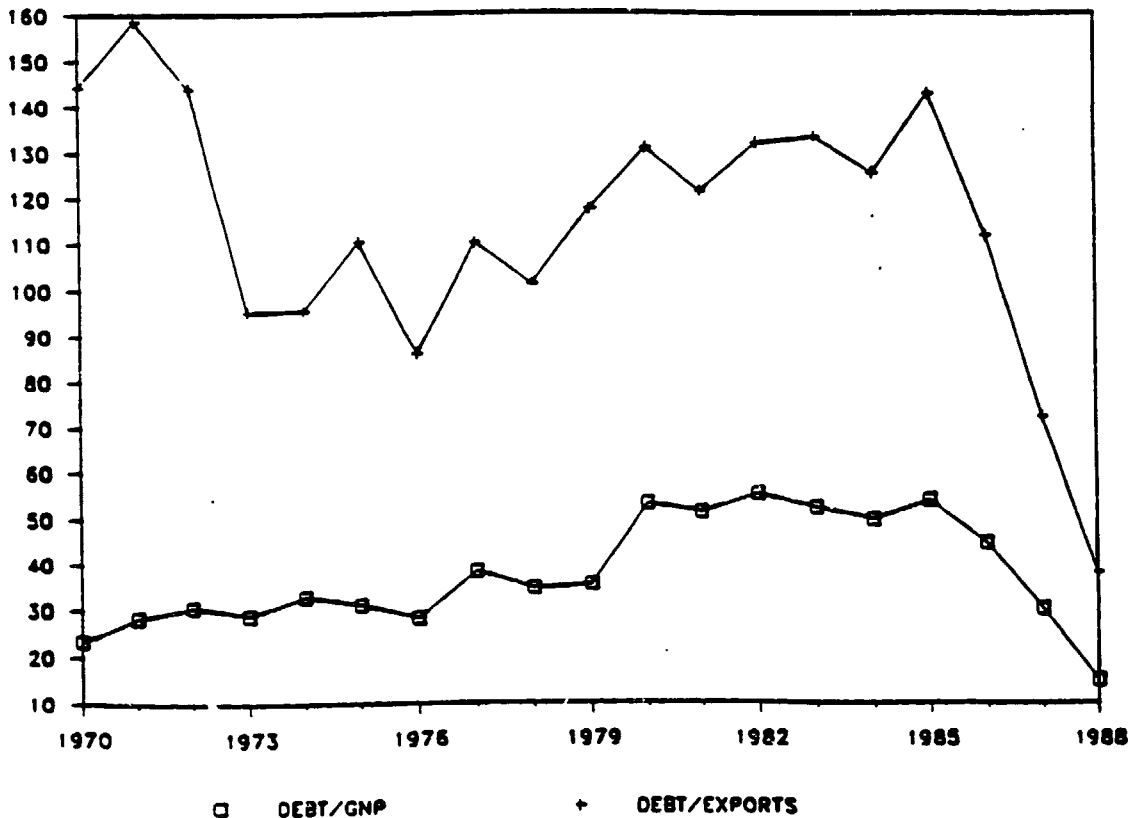


Figure 2  
Growth of the Terms of Trade (Korea 1963-1988)



The reason for this deficit was the high rate of investment sustained at a level higher than the domestic rate of savings. Foreign borrowing was used to bridge the gap, as well as to take care of the diminishing role of foreign aid. "Firms (specially exporters) were given strong incentives to borrow abroad. A system of loan guarantees substantially reduced the risks and the real cost of borrowing was negative." (Collins, p. 6). External debt as a percentage of GNP reached a level over 30 percent by the end of the period. But because of the increase in the export-GNP ratio, the ratio of debt to exports—which ultimately determined Korea's ability to finance the debt—fell significantly towards the end of the period (Figure 3).

Figure 3  
KOREAN DEBT RATIOS (1970-1988)



The role of the public sector in maintaining the high rate of investment was limited. This, together with the fact that tax revenue as a percentage of GNP nearly doubled over this period (Dornbusch and Park, Figure 2, p. 408), held the budget deficit at a relatively modest level. Except for 1972 when the deficit was 4.6 percent of GNP, the ratio was generally 2 percent or less.

*Phase 2. Period of directed heavy industrialization and the shadow of crisis (1973-79)*

Korea's difficulties in the 70s started with the slowdown in the world economy following the increase in the price of oil. As an oil importer, Korea was hurt by the price hike itself. The reduction in the volume of exports aggravated the situation. As can be seen from Figure 2, the percentage change in the income terms of trade was negative for the first time in 1974, and even when it recovered to positive levels it was—with the exception of 1975—well below the levels reached in the earlier period. The government, however, decided to counter the economic slowdown with a “big push” in the investment program in the heavy and chemical industries. In spite of the fall in the domestic savings ratio in the aftermath of the slowdown, Korea elected to “borrow through the crisis” to keep up its planned investment rate. In 1974 and 1975 the debt/GDP ratio together with the budget deficit/GNP ratio reached their highest levels (although neither was excessive by, say, Latin American standards). Government intervention in the form of greater direction of investment decisions increased, as did the chief instruments of control—import restriction and credit rationing. In addition, the exchange rate which had been allowed to drift downwards throughout the previous period was fixed in the period 1975-79, and the real exchange rate was allowed to appreciate. While it helped importers of intermediate goods and materials, it clearly corroded Korea's international competitiveness.

This phase of economic policy in Korea has been the subject of controversy. It has been justified on the grounds that it laid the basis for long-run diversification of the Korean economy (and its external trade) away from light industry. Although it might have been costly in terms of immediate reallocation, the policy has been commended for wisely anticipating long-run changes in comparative advantage.

In any event, the Korean economy recovered to some extent following the recovery of the world economy in 1975 and 1976. It also benefited from the export of skilled labor to the Middle East and the subsequent flow of remittances. But the shadow

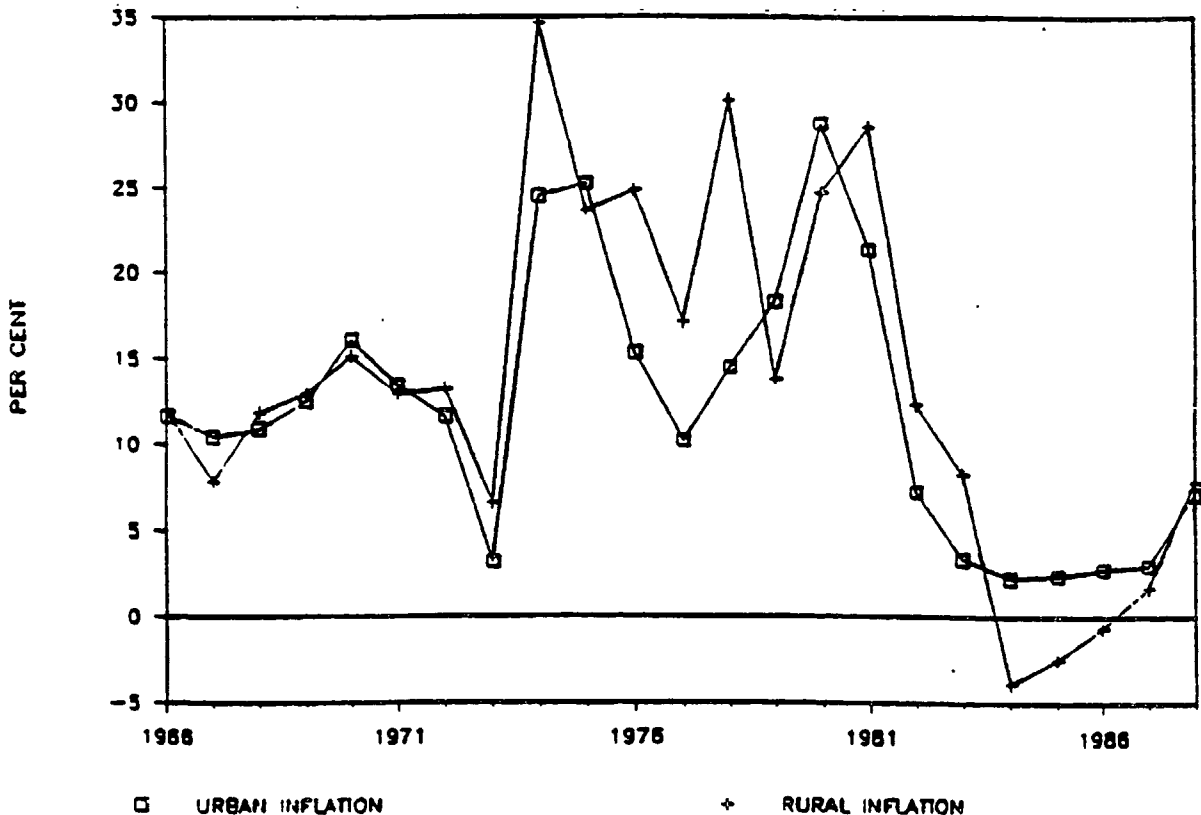
of a crisis which the events of this period generated lingered, leading to the major depression at the end of the decade.

*Phase 3. The Crisis and Adjustment (1979-82)*

As in 1974, the second oil price hike triggered the depression with the barter terms of trade registering negative percentage changes in 1979, 1980 and 1981. The annual rate of change of the income terms of trade was also negative in 1979 and 1980 (figure 2). GDP growth rate fell and for the first time was negative in 1980. As domestic savings plunged, current account deficits mushroomed. External borrowing was resorted to on a large scale. This was the period of the most rapid accumulation of foreign debt in Korean history. The debt/GNP ratio climbed from 32 to 53 percent during these years—equalling the level of some Latin American borrowers, e.g. Brazil. Internal balance was also disrupted severely, inflation rates reaching levels well above those seen in the 60s and 70s (with the exception of the years of the previous crisis, 1974-75) (Figure 4).

Figure 4

RATE OF URBAN AND RURAL INFLATION (Korea, 1966-88)





As we shall see in more detail in the next section, even while Korea stepped up its external borrowing levels to record levels in response to the crisis following the second oil shock, it had already started to take steps to increase Korea's competitiveness, particularly through wage and exchange rate policies. At the same time, further steps in adjustment were taken in fiscal, monetary and industrial policies. The package of policies had immediate effect in restoring internal and external balance. By the end of 1982, the rate of inflation and the current account deficit had been reduced drastically.

#### *Phase 4. Recovery and Growth (1982-to date)*

The rate of growth of GDP was negative only in 1980, but it was still low by Korean standards in 1981 and 1982. The economic measures taken in these years, however, prepared Korea for a strong positive response when world trade rebounded in 1983-84. As can be seen from Figure 1, the growth rate of the economy increased substantially. This also produced an increase in domestic savings, which helped to reduce the deficit in the current account of the balance of payments. When a slowdown in the world economy threatened to produce another dip in the growth rate in 1985, Korea countered by substantial real depreciations of the exchange rate. But an important point to note is that devaluation did not add fuel to the inflationary spiral as it seems to have done in 1979-80. On the contrary, the achievement of internal balance sustained the low rate of inflation attained at the end of 1982.

Since 1986, Korea has been experiencing a remarkable economic boom, with a growth rate of 12 percent in each of these years 1986-88. As in earlier periods, the boom has been fueled by a remarkable rate of growth of exports—which could, in its turn, be traced to a variety of external factors, including the low and stable price of oil, the appreciation of the yen, and continued strong growth in the OECD economies. The concern of the foreign debt which had loomed large in the early 80s has disappeared as the current account surpluses generated by the export boom have been used to prepay part of the liabilities.

Inflation had been kept under control until 1988, when it showed signs of accelerating. The threat of incipient inflation is the product of new developments particularly in the foreign exchange and labor markets. The liquidity influx from trade surplus—together with capital inflows—threaten appreciation of the won beyond levels which are considered "safe" from the point-of-view of external competitiveness. At the

same time, new developments in the labor market threatened to create wage inflation of a kind which had not been seen so far in Korean history. Much of this new set of problems and concerns are outside the scope of this paper since we are mainly concerned with Korea's success in adjustment policies after the shocks of 1973-74 and 1979-80. We will, however, refer to the labor market developments of the late 80s insofar as it helps a better understanding of Korean wage movements during the earlier periods of adjustment.

## II. The Characteristics of Korean Stabilization and Adjustment Policies

It is now well known that the myth that the Korean development process was fueled by unregulated free markets is a false one. The government both during the regime of Park (who was assassinated in 1979) and subsequently played a determined regulatory role. The package of policies involved both bringing about structural adjustments in the economy and pushing through stabilization measures when the economy threatened to go off the rails due to external and/or internal shocks. It is useful to review the salient features of this package before we turn to a more detailed discussion of labor markets.

The major strategy in the industrialization of Korea has been the promotion of exports. Exports as a percentage of GNP rose from less than 3 percent in the 1950s to 15 percent in 1969 and to 35 percent in the early 80s. This, however, did not mean that the domestic market was ignored—even for those industries, like textiles, which had heavy involvement in exports. Korea's tariff system was dualistic. Imported intermediate inputs could be duty-free, but industries targeted for development were granted tariff protection. When the export growth of textiles threatened to slow down, Korea embarked on the policy of "big-push" after the first oil crisis with a shift from light to heavy industry.

The major instruments of targeted industrial development were licensing and credit policy. The Economic Planning Board (EPB) which was responsible for targeting had control over licensing as well as credit. If a proposal originated from the private sector, the EPB had to approve it, and if it complemented the EPB's overall strategy, credit would be arranged by the Ministry of Finance. If, on the other hand, the government took the initiative, the EPB would typically find a private firm to undertake the project rather than set up a public enterprise.

Amsden points out: "Government control of credit differentiated Korean and Japanese development. The Japanese *zaibatsu* owned their own banks whereas the Korean *chaebol* did not... Direction of the economy was more centralized because power over the purse was more centralized."<sup>2</sup>

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<sup>2</sup> Amsden, p. 5.

The central role of the state in credit for industry was possible because of financial repression. Although Korea has a less centrally controlled non-bank financial sector as well as a curb market, the official banking sector has been dominant at least until the 1980s. Generally, deposit rates were kept low—and were even sometimes negative in real terms. The implicit tax on depositors helped to channel resources into investment in targeted areas, and to finance budget deficits in a non-inflationary way.<sup>3</sup>

Nowhere was control over financial flows more important than in the external capital account. The government maintained tight control over foreign borrowing. Both short and long-term borrowing required government approval. "But the repayments of interest and principal on loans (were) guaranteed by the banks owned or strictly controlled by the government or by the government itself."<sup>4</sup> The government used foreign borrowing for three purposes. First, it was used to bridge the gap between domestic savings and investment, and thus maintain a rate of investment higher than what would have been possible from strictly domestic savings. Secondly, it was used along with the control over domestic credit to support the priorities of restructuring the economy. Thirdly, and not the least important, use of borrowing was to tide over balance of payments difficulties originating from internal or external shocks.

Along with many other economies, specially, in Latin America, Korea had a rising debt/GNP ratio throughout the period 1965-82, and also it increased strikingly in the years of crisis, 1974-75 and 1979-80. But Korea managed to avoid the development of the crises into prolonged difficulties which dampened long-run growth. In fact, in each of the two cases of external shocks which Korea experienced as an oil importer, it took no more than two or three years for the stabilization measures to be successful, the debt/GNP ratio to fall and sustained growth to be resumed.

The effective control over the external flow of funds clearly helped. Unlike many countries of Latin America, the crisis was not deepened by capital flight. The major

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<sup>3</sup> For more details, see Dornbusch and Park, pp. 417-19, and the references cited therein.

<sup>4</sup> Yung Chul Park in Wong and Krause, p. 226. Park makes the point that for practical purposes, "there is no point in distinguishing private borrowing from government indebtedness."

difference with Latin America, however, was the substantially lower level of debt-export ratio in Korea. In 1981 this was 76.6 while the major countries facing difficult problems in the 80s—Argentina, Brazil, Chile or Mexico—had debt-export ratios that were three to five times higher than Korea's. Thus in Korea, in the period 1980-83 debt servicing was below the level of exports, but in the Latin American countries it exceeded exports by anywhere between 30 and 100 percent<sup>5</sup>

The maintenance of export growth has thus been as important for Korea's long-term economic development as it has for successful response to the shocks. The factors affecting external competitiveness are thus of central importance in the analysis of Korean policies of adjustment and stabilization. The behavior of average wages, particularly in the export oriented manufacturing sector, together with other factors affecting unit labor costs, are the relevant issues to discuss in this connection. This is the subject of the next section.

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<sup>5</sup> See Sachs, p. 533, Table 4 and pp. 532-35 for further discussion on the Asia-Latin America difference.

### III. Determinants of Unit Labor Cost and Wage Behavior in Korean Manufacturing

The central statistic to look at for external competitiveness of an economy is the unit labor cost of the exporting country in the international market. Thus it has to be the unit labor cost expressed in, say, dollars.

We define

$$U_C = W/V \cdot 1/e \quad \dots (1)$$

where  $U_C$  = unit labor cost in dollars

$W$  = wages per worker

$V$  = value added per worker

$e$  = the exchange rate (wons per dollar)

The three elements in determining unit labor cost in world prices are (i) wage behavior, (ii) the changes in labor productivity, and (iii) the course of the exchange rate. To some extent these three factors are interconnected, but clearly all three need to be analyzed for our purposes.

Korea has always followed an active exchange rate policy, together with the control over external capital flows described above. As can be seen from Table III.1, the exchange rate depreciated continuously between 1968 and 1975. There were particularly large depreciations during the crisis periods of 1971-72 and 1975. The won was fixed to the dollar between 1976 and 1979. But the active devaluation of the currency was resumed following the second oil crisis. There was a maxi-devaluation in 1980 as after the first oil shock. We will be looking in greater detail below at these episodes of short-run adjustment.

The more or less continuous devaluation of the currency was necessary because inflation rates in Korea, as has been mentioned in Section I, has been persistently double digit (see Figure 4, p. 6) until the post-1982 period. There has been a correspondingly continuous pressure for the real exchange rate to increase which had to be countered by devaluation to maintain competitiveness.

Devaluation has, however, not been always a successful measure to prevent the real exchange rate from increasing in open economies like Korea which had to import a lot of its materials and intermediate goods, including oil. The higher unit cost of imports adds to the inflationary spiral. In the Korean case there is one additional route through which devaluation could enhance the rate of inflation. Korean food policy has the dual objective of supporting a high price for the farmer, and enabling consumers to buy at a lower price (although still higher than world prices). The difference between the buying and selling prices creates a deficit for the Grain Management Fund (GMF) which is used to administer the policy. Apart from domestic procurement, the government has had to import a substantial amount of rice and barley to hold down selling prices. Thus with devaluation, the deficit of the GMF increases. Although food prices are not directly affected, the inflationary impact of the devaluation through an increase in the fiscal deficit could be significant.

But as is apparent from the Figure 4, Korea, although walking on the inflationary tightrope had never been faced with the problems of spiraling inflation. Inflation rates jumped to rather high rates of 25-30 percent in both the periods of maxi-devaluation (associated with the oil price shocks), but was brought down to moderate levels very quickly—and rather spectacularly so in the 80s. The success story on this point involves two main policy and economic responses. First, the budget deficit (and the growth of money supply) was controlled. “The unified budget deficit, although swinging widely, never reached 5 percent of GNP and never stayed very high for more than two years in a row.”<sup>6</sup> Secondly, a crucial issue is that of the behavior of wages relative to labor productivity.

#### *Determinants of Unit Labor Cost*

We can use equation (1) to derive the following relationship:

$$\begin{aligned} U'_c &= W' - V' - e' \\ &= (w' + P'_c) - (v' + P'_p) - e' \\ &= (w' - v') + (P'_c - P'_p) - e' \quad \dots (2) \end{aligned}$$

The dots represent proportionate rates of change.

The additional variables are defined as follows:

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<sup>6</sup> Dornbusch and Park, p. 414. See pp. 414-17 of this paper for further discussion of this point.

$w$  = real wage (in terms of consumer goods)

$v$  = index of physical productivity of labor

$P_C$  = index of cost of living

$P_D$  = index of prices of manufactured goods

Equation (2) decomposes the percentage change in the unit labor cost into three elements: the wage-productivity gap, the shift in the ratio of consumer to producer prices; and the change in the nominal exchange rate. The contribution of each factor to the change in unit labor cost is given in Table III.1. (The basic data are given for reference in the Annex Table A.2 ).<sup>7</sup>

The following points in the table are worthy of emphasis:

- ( i ) The continuous depreciation of the exchange rate to which reference has already been made did **not** lead to an increase in the price of tradeables relative to the price of non-tradeables (as approximated by the producers' price index relative to the cost of living index).<sup>8</sup> Thus the domestic real exchange rate generally moved against manufacturing and increased the unit labor cost in most years. This is because devaluation did not fully compensate for inflation. Nevertheless it moderated the impact of inflation, and as we can see from the Table III.1, the magnitude of the upward pressure on unit labor cost from this source was small.
- ( ii ) In the years of crisis and stabilization policies, large devaluations as well as a substantial negative wage-productivity gap helped in the reduction of unit labor costs. This happened in all the three episodes of stabilization: first, in 1971 when the government acted to counteract a temporary

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<sup>7</sup> It should be noted that the wage series is really one of average earnings per worker—the annual wage bill dividing by the number employed. Basic wages as well as supplementary payments to labor are included in the wage bill.

<sup>8</sup> Cereals, an important part of the CPI, although imported to some extent—are really non-tradeables in Korea because of the administered price system operated by the Grain Management Fund. Thus a great deal of the consumer budget will be affectively non-tradeables.



**Table III.1 Annual Percentage Change in Unit Labor Costs and Its Components**

Year	Wage-Productivity Gap (1)	Consumer-Producer Price Differential (2)	Nominal Average Exchange Rate (3)	Unit Labor Costs (in US\$) (4) = (1) + (2) - (3)
1968	-6.14	3.88	2.27	-4.52
1969	-7.25	3.69	4.16	-7.72
1970	-3.19	3.70	7.77	-7.27
1971	-16.80	8.65	11.78	-19.93
1972	3.63	-2.44	13.18	-11.98
1973	5.17	-8.78	1.38	-4.99
1974	9.47	-1.57	1.54	6.35
1975	-10.45	4.78	19.66	-25.34
1976	10.37	-0.95	0.00	9.42
1977	7.43	-0.65	0.00	6.78
1978	3.59	1.27	0.00	4.86
1979	17.01	-1.00	0.00	16.00
1980	-9.34	1.99	25.50	-32.86
1981	-16.14	7.58	12.12	-20.68
1982	0.30	2.25	7.35	-4.80
1983	-5.65	0.58	6.11	-11.18
1984	-1.59	1.56	3.90	-3.93
1985	2.97	0.05	7.95	-4.92
1986	-2.47	-1.39	1.31	-5.17
<b>Averages</b>				
1967-73	-4.40	1.43	6.66	-9.63
1973-79	6.58	0.29	3.30	3.57
1979-81	-12.60	4.90	18.62	-26.32
1981-86	-1.21	0.60	5.28	-5.89

**Source:** "Principal Economic Indicators," Statistics Department, Bank of Korea (CPI and exchange rate)  
IFS Yearbook, IMF (deflator)  
Industrial Statistics Yearbook, UN (wage bill and value added)

slowdown in exports; second, in 1975 following the first oil price shock; and thirdly, during the "comprehensive" stabilization plan of 1980-81.

- (iii) The average figures given for the three periods 1967-73, 1973-79, and 1980 to date show clearly the different trends in unit labor costs associated with varying performances of the economy. They also help us to quantify the relative importance of the wage-productivity gap and the exchange rate movements in accounting for movements in unit labor cuts (in dollars).

During the first period of export expansion unit labor costs declined at a substantial annual rate of 9.6 percent per annum. It can be seen that the depreciation of the nominal exchange rate contributed as much as the excess of productivity growth over wage growth, to the decline of ULC, in spite of an adverse movement of domestic real exchange rate. The problem years after the first oil shock and the "big push" reversed the trend in unit labor costs. It is seen that its sharp increase in the period 1973-79 was largely due to the adverse wage-productivity gap. Although the exchange rate was devalued sharply in 1975, it will be recalled that Korea went to a fixed rate for the rest of the 70s. This policy was abandoned following the second oil shock. The experience of the two years of adjustment—1980 and 1981—shows the large contribution of devaluation—rather 50 percent more than the negative wage-productivity gap—to the reduction of ULC. But the negative wage productivity gap was substantial, so that the ULC decline was massive—offset only slightly by the increase in domestic real exchange rate. The continued decline of ULC until 1986—which was instrumental in the recovery—was again due more to nominal devaluation than to the negative wage-productivity gap, although the latter contributed significantly to it.

### *Wage-productivity Trends*

We conclude that the behavior of wages relative to productivity has been of crucial importance both in the periods of Korean growth and the short periods of stabilization. In developing countries with a large farming sector, it is tempting to assume *à la* Lewis that the negative wage-productivity gap which has been observed is due to an elastic supply of labor at a constant real wage, while productivity growth in the modern sector is significant due to exogenous technological progress—thus leading to a fall in unit labor costs over time. But the Korean story is different. As can be seen from

Figure 5, and Table A.1, real wage growth was more than 5 percent per annum throughout the 20-year period we have been considering, except in a few selected years. As it happens, these exceptional years were precisely the years of Korean stabilization policies—1971-72, 1975 and 1980-81. Of these, only in the last was real wage growth negative, but it fell by less than 5 percent. For most of the period, of course, the positive real wage growth was well above 5 percent.

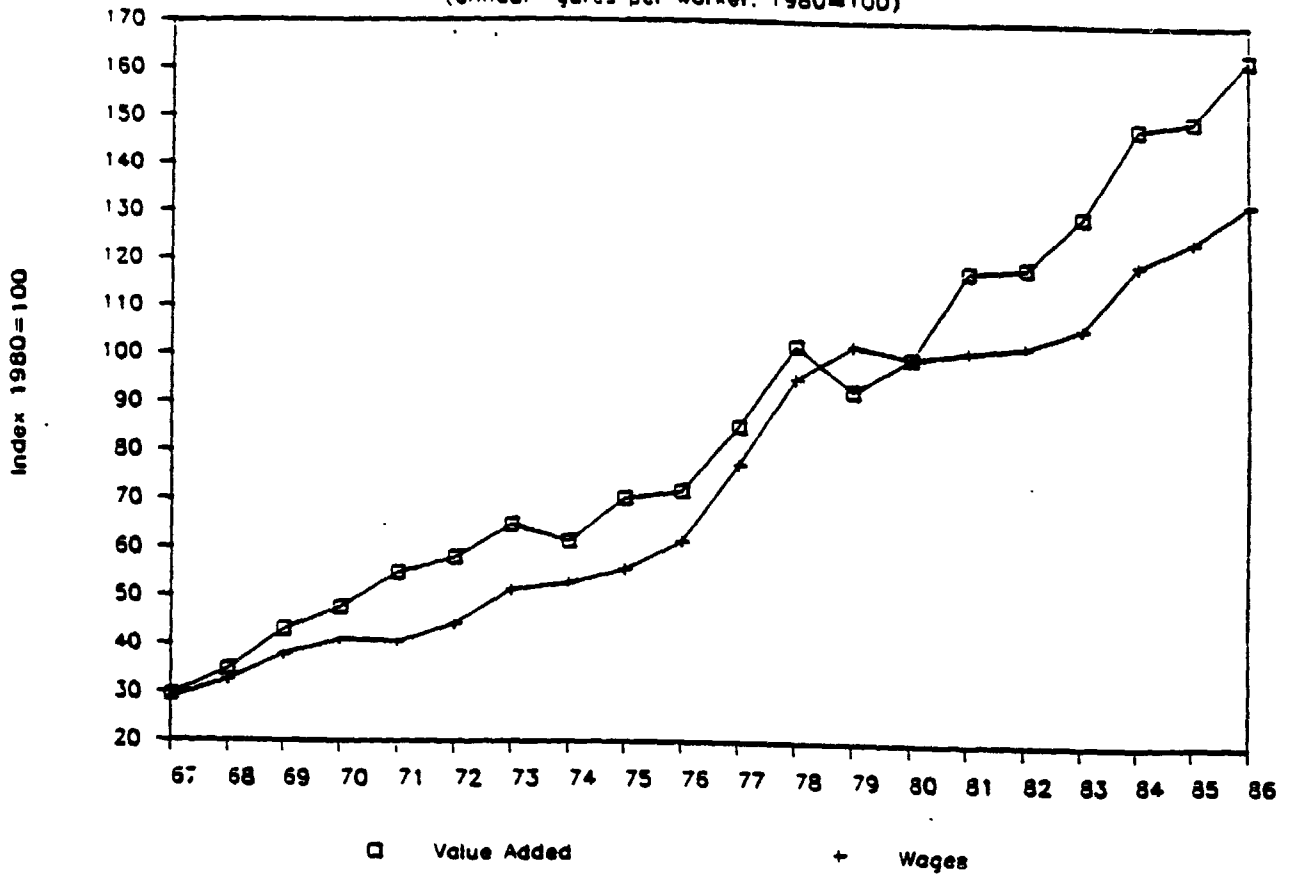
The sustained and substantial rate of increase in labor productivity thus emerges as a critical variable in the success of achieving a continuous reduction in unit labor costs despite the continuous devaluation of the currency. The productivity growth was sufficient to counter the rising import costs produced by the devaluation as well as permit a significant growth of real wages. In the crisis years all or more of the increase in productivity went into the reduction of unit labor costs while real wage growth was temporarily halted.

The importance of productivity growth for the stability of the economy is also relevant for another reason—that of preventing the emergency of inflationary expectations. We have seen that until after the stabilization of 1980-81 Korean inflation rate has been double-digit and very high in short bursts. Yet the economy never degenerated into a dangerous spiral of rising wages and prices. Stabilization efforts in most countries generally need a period of stagnation or even decline in real wages. Often this wage effect is produced by an abnormal increase in the rate of inflation. The success of the effect depends on the subsequent behavior of wages as they are affected by inflationary expectations of workers. In many developing countries, particularly in Latin America, inflationary expectations have been explosive. Periods of real wage stability or decline have been followed by spiraling increases in wages and prices, leading to erosion of international competitiveness, as workers seek to defend their real wage unsuccessfully through accelerating money wage increases. In an economy like that of Korea, productivity growth has sustained a significant rate of real wage growth over many years. Thus the workers' confidence in the viability of the economy in improving their standard of living is continuously reinforced. It is easier for them to accept temporary real wage restraint (or even decline) without demanding money wage increases which feed an explosive inflationary spiral.

While the investment rate in Korea was high, the sustained growth in labor productivity was, to a large extent, due to the growth of total factor productivity.

FIGURE 5. REAL VALUE ADDED AND WAGES

(annual figures per worker, 1980=100)



Source: UN Yearbook of Industrial Statistics  
 "Principal Economic Indicators", Bank of Korea

Nishimizu and Robinson showed that, over the period in the 60s and 70s, Korea's TFP growth at 3.7 percent per annum was by far the highest of the countries covered.<sup>9</sup> The increasing efficiency in the use of both capital and labor allowed Korea a safe margin for increase in real wages without eating into profitability.

### *Wage Determination in Korean Manufacturing*

The increase in productivity made it possible for wages to increase. But why did it actually do so at the sustained rate that it did? What was the mechanism of determining wages in industry?

For the period covered in this study, before the late 80s, the influence of unions on wage levels was minimal. The right to strike was banned by presidential decree in 1971. Unions did exist in large firms, particularly in the textiles, metalworking and chemical sectors. But they needed prior permission from the government for collective bargaining. Earnings function studies have found no significant effect of unions on relative wages.<sup>10</sup>

Wage guidelines for both white and blue collar workers are specified from time to time by the Federation of Korean Industries (FKI) as well as by the Federation of Korean Trade Unions (FKTU). The former is dominated by the *chaebol*, while the influence of government on the latter has been recognized for some time. The government's own influence was used to support wage restraint, as during the stabilization period of 1980-81, as well as to ensure that the workers received a share of productivity gains in the years of sustained growth.<sup>11</sup>

<sup>9</sup> It was 1.3 percent per annum in Turkey, 0.5 percent in Yugoslavia and 2 percent in Japan.

<sup>10</sup> Cf. for example, Su-II Park, Part 3.

<sup>11</sup> Very recently, in 1988-89, the Korean government has shown a new commitment to a less interventionist policy vis-à-vis labor markets. The impact on independent wage bargaining was immediate. After two successive years of double-digit nominal wage increase, the FKTU was asking for a 27 percent wage increase in the spring negotiations of 1989. This was countered by the FKI's offer of a wage increase in the range of 8.9-12.9 percent depending on the sector. The government suggested that nominal wage increases should be no higher than real productivity gains. But as shown by continuing labor unrest, including large-scale strikes, this informal incomes policy is experiencing real difficulty in implementation.

In fact, with or without government encouragement, Korean industry showed strong predilections towards a profit-sharing system of remuneration. The basic wage constituted no more than 75 percent of total monthly earnings in the early 70s and seems to have fallen to 70 percent in the 80s.<sup>12</sup> Overtime pay and annual bonuses—both of which are related to business conditions and profitability—constitute the rest. Secondly, the industrial firms, particularly the larger ones seem to have formed the internal labor market structure. The level of starting wages in Korea is predominantly determined by the worker's formal schooling and sex, regardless of job content.<sup>13</sup> This basic wage rises on an almost regular basis by certain fixed amounts—the so-called “annual base-up.” This “base-up” is directly related to the length of service in the company, and is not necessarily associated with any promotion in job status. Promotion takes the form of skipping several “base-ups.” One econometric study found that “in the case of male workers, one year of “inside” experience (with the same employer) tended to raise wages on average by about 10 percent, whereas one year of outside experience (with a different employer) raised them by an average of only about 3.8 percent.”<sup>14</sup>

With a strong mechanism of rewarding firm-specific skills in place, clearly a major incentive for efficiency would be the sharing of the gains of productivity increase with the workers. The question might be asked: what is the exact nature of firm-specific skills which were being rewarded?

Amsden makes the point that Korea depended heavily on imported technology—and had little experience in these technologies with the possible exception of textiles. “Korean managers could never hope to manage in a tight, “Taylorist” top-down fashion, at least not initially, because no one at the top knew enough about the process (of

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The domestic change in the labor market scene after the government moved towards a “hands-off” policy underlines the importance of its impact on wage behavior through the previous periods of Korean development.

12 Funkoo Park, Table 17, p. 38 based on the Ministry of Labor's Occupational Wage Survey.

13 This account follows Su-II Park, Chapter V.

14 Amsden (1990), p. 88 quoting Lee (1983).

production) to do so. Under these conditions, it was imperative to rely upon motivated workers, even if they possessed little more than formal schooling, to exercise the most fundamental skill of all—intelligence.”<sup>15</sup> This was particularly so because the demands of an export-oriented strategy were quite severe on the maintenance of product quality.

A profit-sharing model of wage determination could explain the observed increase in real wage—at a rate a little below productivity growth in the period before 1974 and again after the adjustment of 1980-81. The successful wage repression of 1971, 1975 and 1980-81, which contributed strongly to the stabilization effort, has the hallmark of state paternalism in wage setting.

The question still might be asked: why did wages increase significantly faster than productivity in the period of “big push” in the second half of the 70s? The answer is probably that the high optimism of the state driven investments towards diversification was one of the factors. The other was the tightness of the labor market caused not only by the “big push,” but also the rather sudden and substantial emigration of Korean workers to the Middle East, to help in the latter’s post-oil construction boom.

As can be seen from Table A.1 the unemployment rate fell to an historic low in 1978. It might be mentioned that the unemployment rate touched this low again in 1986, and fell even lower in 1987 and 1988. As already pointed out, the events of the last few years have created a new situation in the Korean labor market. The wage explosion, which is still underway, is as much due to the tightness of the labor market, as to the less paternalistic role of the government in wage determination, and the emergence of union activism as a powerful force.

An attempt was made to test these points with an econometric model of wage determination. Our model was the usual augmented Phillips curve together with an element to capture the profit-sharing aspect. It is hypothesized that workers have a target real wage in any period which is governed by the productivity growth of a previous period. If the percentage increase in real wage falls short of the percentage increase in productivity of the earlier period, then there is additional upward pressure on money wages. It should be noted that the mechanism of the target wage could percolate

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<sup>15</sup> Amsden (1990), p. 89.

through the decision of workers or of employers or of both. The model would thus look like the following:

$$W'_t = a + b P_e + c U_{t-x} + d(v'_t - y - w'_t - y) \quad \dots(3)$$

where  $W'_t$  = percentage change in money wage in the current period;  
 $P_e$  = expected rate of inflation;  
 $U_{t-x}$  = unemployment rate x periods before;  
 $v'_t - y$  = percentage increase in productivity y periods before  
 $w'_t - y$  = percentage increase in real wages y periods before.

The values of x and y are found by the best fit of the model to the data.

The model was estimated with quarterly data for the period 1970.3-1988.3. The results are given in Table III.2. The expected inflation rate is approximated by the rate of increase in the CPI in the previous period. (It could also be interpreted as representing workers' effort to recapture lost real wages as a result of fast inflation). In the first equation reported in Table III.2, we get a reasonably good fit with all the variables having the right sign and strong significance.

The second equation increases the  $R^2$  substantially without reducing the significance of the explanatory variables significantly. The extra term DNOMAW(-4) is the percentage change in money wages since four quarters before the present. The inclusion of the variable increases the  $R^2$  by so much because there is a strong seasonal pattern in the money wage series.<sup>16 17</sup>

The footnotes to the table define the variables. The fitted equations support our hypothesis strongly. Both the rate of unemployment and the target real wage based on actual productivity increase enter the process of wage determination.

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<sup>16</sup> In particular, average earnings in the fourth quarter of each year are bumped up as workers are paid their annual bonus.

<sup>17</sup> Note that the variable TARGET (-2) in Table III.2 can be broken down into rates of growth of money wages, prices, and productivity, all lagged two periods. When we tried productivity only without the lagged wage and price indices, the estimated equation performed less well, with a smaller  $R^2$  and greatly reduced significance of the TARGET variable.



**Table III.2 Determinants of Percentage Changes in Nominal Wages  
1970-1988, Quarterly Data  
Regression Analysis (OLS Estimates)**

Constant	DCPI(-1)	UER	Target(-2)	DNOMAW(-4)	Adjusted R-squared	Durbin Watson Statistic	F-Statistic
0.135 (5.87)	0.869 (4.05)	-0.028 (-5.23)	0.214 (4.51)	-. .	0.519	2.24	25.8
0.070 (3.30)	0.478 (2.62)	-0.016 (-3.39)	0.097 (2.30)	0.59 (6.25)	0.695	2.24	40.3

DNOMAW: Percentage change in nominal monthly earnings per regular employee in manufacturing, averaged for each quarter

DCPI(-1): Inflation rate lagged one quarter.

UER: Unemployment rate.

TARGET(-2): Difference between growth in productivity and growth in real wages. The variable is lagged two quarters.

DNOMAW(-4): The dependent variable lagged four quarters.

Periods covered by both regressions go from the second quarter of 1971 to the third quarter of 1988 (70 observations). Figures in parentheses are t-statistics.

## IV. The Structure of Korean Labor Markets and Wage Differentials

The discussion on wages and productivity in Section III referred to the formal manufacturing sector. The coverage of the data was limited to wage employees in firms employing more than 10 workers. A great deal of employment in Korea has always been in the informal sector.

The size of the informal sector employment could be estimated by comparing two sources of employment data: the *Economically Active Population Survey* (EAPS), Economic Planning Board, which estimates total employment on the basis of a household survey and the *Actual Labor Conditions at Establishment* (ALCE), Ministry of Labor, which estimates employment on the basis of a survey of establishments above a certain employment size.<sup>18</sup>

Unfortunately, the ALCE excludes public sector employment from its estimates. Thus, the comparison has to be limited to the "production sector" of the economy—agriculture, mining, manufacturing and construction. A comparison for 1979 shows that practically the whole of the 5 million employed in the agriculture sector and a third of the 3 million in manufacturing were in the informal sector. Furthermore, a special census of the "commerce" sector (wholesale and retail trade, hotels and restaurants) for 1979 also revealed that 90 percent of the 1.3 million people were in establishments employing less than ten workers.<sup>19</sup> The agricultural sector has been declining over time, but the trends in employment in the informal component of the secondary and tertiary sector are not very clear. Likewise, data deficiency does not allow one to analyze trends in earnings in all parts of the informal economy. But it is possible to examine some specific aspects of the earnings difference between the formal and the informal sectors which appear to be important. These include (i) the farm/non-farm differential; (ii) differentiation in earnings by size of firm within the manufacturing sector; and (iii) the male/female differential. In what follows we shall be concerned with behavior of the earnings differences over the long period of the structural

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<sup>18</sup> Five or more workers until 1979 and ten or more workers after 1980.

<sup>19</sup> Lindauer, Table 18, p. 72 and p. 73, last paragraph.

transformation of the Korean economy, as well as the short-run behavior during the periods of stabilization and adjustment following the oil price shocks.

### *Farm/Non-farm Differential*

Korean data sources allow us to compare average annual farm incomes with annual earnings in manufacturing or with the average income of urban salary and/or wage earners. (The sample of salary earners includes white collar workers). Alternatively, we can compare real daily farm wages with real daily earnings in manufacturing. Because of the small number of wage earners in agriculture relative to farm-operators, the analysis of relative farm earnings is more significant. The series are graphed in Figure 6. The actual data and discussion of sources are given in Annex Table A.5. It is seen that in the period of expansion, 1966 to the first oil crisis of 1973, farm incomes per earner increased at only a slightly slower rate than average earnings in manufacturing. The differential in favor of manufacturing increased somewhat to about 50 percent at the end of the period. The urban wage earner's household income per earner was significantly higher.<sup>20</sup> But over the period the rate of growth of household income was substantially lower than that of farm income, so that the differential was squeezed.

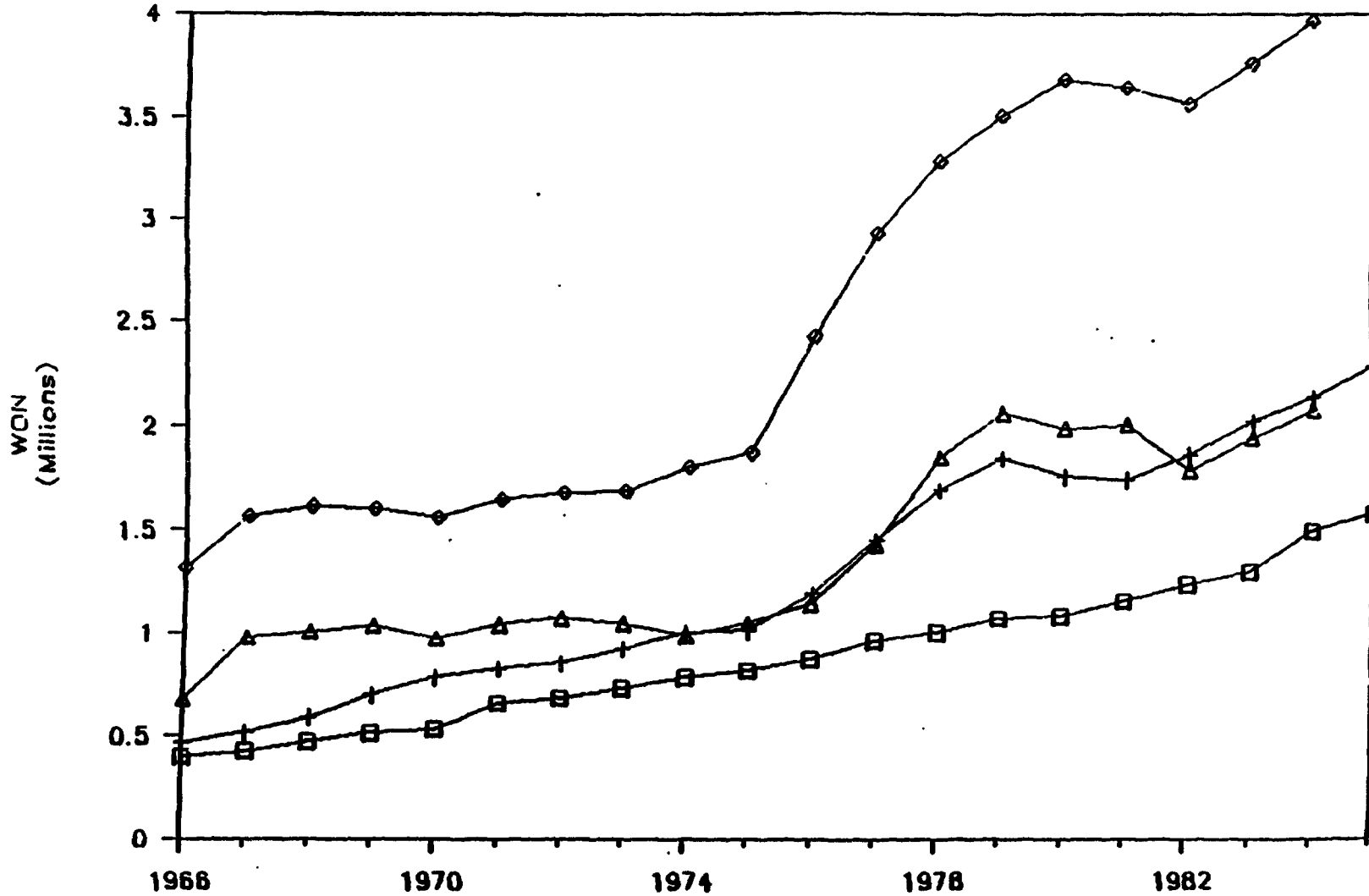
After the stabilization efforts following the oil crisis, urban earnings stagnated for a couple of years. Manufacturing earnings had a very low growth only in 1975, but urban wage earners' income seems to have fallen before this, both in 1973 and 1974. The slowdown of the economy, however, had no impact on the growth of income in the farm sector. The rural/urban earnings difference definitely fell in this period of adjustment.

Earnings in the non-farm sector took a sharp upward turn during the period of the "big push" in the second half of the 70s. We have seen above in Section II that real wages in manufacturing increased at a rapid rate—above the rate of growth of labor productivity. It is apparent from Figure 6 that the income per earnings in urban households went up even faster. The average income of urban salaried households increased much faster than that of wage earners indicating the increased tightness in the

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<sup>20</sup> This may be due to (a) the exclusion from the sample of single member urban households who would presumably have low earnings, and (b) the inclusion of supplementary incomes from other sources in the family income.

Figure 6  
**REAL ANNUAL INCOME PER EARNER**  
 BY EARNER TYPE, 1966-85



( ) FARM      + MANUF      ◊ URB SALARY (HOUSEHOLD)      Δ URB WAGE (HOUSEHOLD)

market for white collar labor. Farm incomes per worker increased by about the same absolute amount per year as in the previous period, so that the rate of growth slowed down. The period of the "big push" then widened the rural/urban wage differential by a substantial amount. In 1979 manufacturing wages were 80 percent higher than farming earnings and urban wage earners' income 100 percent higher.

As in the first episode of stabilization, urban earnings in the period following the second oil shock fell, while farm earnings continued to grow at much the same rate. The rural/urban differential fell, but not by enough to restore it to the levels of the early 70s. Since 1982 rural and urban earnings have increased at a rather similar rate. The widening of the differential in favor of urban wage earners which took place in the late 70s seems to have been a permanent one.

It has been maintained that the comparison of average incomes, particularly after the stabilization program of the eighties, may be giving too favorable a picture for the farm sector. The deficit in the Grain Management Fund—which, as we have seen, supported the prices paid to farmers above the prices of cereals sold to consumers—was drastically reduced as part of the stabilization package in the years following 1981. The slowing down in the rate of inflation clearly helped the process of deficit reduction, but it has been suggested that the terms of trade for the farming population did deteriorate. Amsden believes that such a deterioration was mainly responsible for the mass exodus between 1982 and 1985 out of agriculture—"even larger than the migration associated with the 1980 harvest failure."<sup>21</sup> Moreover, "the last wave of migrants was believed to consist of relatively older people, unequipped to enter the labor force and unaccounted for in the unemployment statistics which, therefore, were lower than otherwise."<sup>22</sup> The outmigration from agriculture might, indeed, have prevented the rural-urban differential from increasing further in favor of the urban sector in the post 1981 period. Also the earnings distribution within the farm sector might have deteriorated (a point on which there is no statistical information). In any case, taken in conjunction with the point established that the earnings differential in favor of urban workers was at a higher level in the 80s than it was in the early 70s, the discussion does imply that the

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21 Amsden, p. 36.

22 Amsden, p. 36.

farming sector did suffer a relative deprivation after the boom of the late 70s and the subsequent adjustment of the economy.

### *Wage Difference by Size of Firms*

The difference in labor earnings between the informal and the formal sectors in the non-farm economy is of major interest in the history of Korean development. Unfortunately, the absence of comparable household surveys over a period of time does not allow us to look at trends in differentials for too many subsectors. Information does exist, however, on wage difference by size groups of firms in manufacturing. The wage levels in small firms could be expected to approximate levels of earnings in the informal sector. Thus a study of wage difference by size of firms is of interest.

It has been well-known to students of the Korean economy for some time that the government policies which led to export oriented industrialization also produced a dualism in the manufacturing sector. "While government policy towards domestic market-oriented small-scale industry has been characterized by benign neglect or active discrimination, export/large scale sector has enjoyed considerable advantages from the government through direct and indirect subsidies."<sup>23</sup>

A central role in this process of differentiations was played by credit policy. The preferential interest rate on export credit was reduced to 6 percent in June 1967 while the ordinary bank rate was set in 1965 at 26 percent. In addition, the exporting firms enjoyed a string of preferences in import licenses, tax concessions and favorable tariff rates for imported inputs. "These subsidies were disproportionately favorable to large-scale industries. In 1974, only 6 percent of small- or medium-scale industries (less than 200 employees) were designated by government as "export Industries." Government export subsidies were also scaled according to export volume and performance."<sup>24</sup>

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<sup>23</sup> Su Il Park, p. 57. See Chapter II of this work for an extended discussion of the issues summarized here.

<sup>24</sup> *ibid.*, p. 61.

Korean industry was also encouraged to adopt state-of-the-art technology developed in the high income countries, to enable it to cater to the needs of the world markets. This led to the adoption of capital intensive technology—a trend abetted by the low cost of loanable funds. Further, the recently designed technology of mass production favors large scale operations to reap the benefits of machine specialization. Thus, successive plants, in the exports industries in Korea, have been designed for increasingly large-scale production.

The difference in technology and labor productivity between large and small firms are associated with large differences in wages. To some extent the observed difference in average earnings per worker reflect differences in skill composition. But, as we shall see, even for a relatively homogeneous group like production workers who are dominated by the semi-skilled, very large wage differentials exist. An element of profit-sharing clearly enters into the high wages paid by large firms who have such high labor productivity. As already mentioned in Section III, the importance of labor unions, in the determination of wages was relatively small. On the other hand, there is considerable evidence of employer paternalism, mixed in with incentives for efficiency and low turnover, in the setting of wages at high levels in the large firms. It will be recalled, in particular, that basic wages account for only a part of total earnings in Korea. Various allowances and annual special earnings bonuses are a substantial component of earnings, and this proportion seems to increase sharply with firm size (see below).

Table IV.1 gives the evolution of employment, output and labor productivity by firm size between 1960 and 1982. Note that the definitions of small, medium and large firms are different in 1960 and 1963 from the definitions for later years. The data show the enormous importance of firms with less than 100 employees (small and medium categories in the table) in the early sixties. The “small” (employing less than 30 workers) employed 45 percent of the workers and produced a third of gross output. Value added per worker in the small firms was half of that in the large firms, and in the medium firms it was two-thirds of the large.

A major change seems to have taken place between 1969 and 1975. The large firms expanded fast at the expense of the small, the share of the latter dipping from 32 to 17 percent in terms of employment, and from 17 to 8 percent in terms of gross

output. At the same time, the difference in value added per worker narrowed markedly (from 14 percent of the level in large firms in 1969 to 40 percent in 1975).

The shocks of the mid-70s and the early 80s seem to have arrested the fast relative expansion of large firms. This, in spite of the "big push" of the 1975-79 period. The proportion of employment in large firms fell from 62 to 55 percent. The

**Table IV.1 Technology, Size and Productivity Differentials in Manufacturing Establishments**

Year	No. of Employees (% of Total)	Gross Output (% of Total)	Value Added per Worker Index	Fixed Assets per Worker Index
<b>1960:</b>				
Small	45.2	36.9	59.4	n/a
Medium	22.4	20.4	67.8	n/a
Large	32.3	42.6	100.0	n/a
<b>1963</b>				
Small	42.0	31.5	46.3	n/a
Medium	23.0	22.9	66.8	n/a
Large	34.9	45.5	100.0	n/a
<b>1969</b>				
Small	31.6	16.6	14.2	16.6
Medium	20.1	15.0	19.8	43.2
Large	48.2	68.3	100.0	100.0
<b>1975</b>				
Small	17.4	8.3	40.5	18.6
Medium	20.2	15.7	69.6	35.4
Large	62.3	75.8	100.0	100.0
<b>1980</b>				
Small	18.3	8.1	42.5	19.8
Medium	22.7	15.6	61.1	42.4
Large	58.9	76.1	100.0	100.0
<b>1982</b>				
Small	21.4	9.1	37.2	22.7
Medium	23.3	17.1	57.1	39.5
Large	55.1	73.6	100.0	100.0

**Note:** For the years 1960 and 1963, Small = 5-29, Medium = 30-99, and Large = 100+  
For the years 1969, 1975, 1980 and 1982, Small = 5-49, Medium = 50-199, and Large = 200+

**Source:** Report on Mining and Manufacturing Survey



difference in value added per worker, however, might have widened somewhat, reflecting perhaps rationalization and weeding out of less efficient firms in the large scale sector.

Thus, while the Korean experience supports the *a priori* model of a shrinkage of the large firm sector during the periods of adjustment with the "slack" taken up by small firms, the changes are not nearly as dramatic in the difficult period of 1975-82 compared to the expansionary phase of 1969-75.

Turning to the differential in earnings by size of firm in manufacturing, Table IV.2 gives the differentials in average earnings. These data show a substantial increase in the differential, particularly with respect to small firms during the decade of the 60s. The trend was reversed in the seventies, both in the years leading up to the first oil crisis, and subsequently during the period of the "big push." By the end of the 70s the small-large differential was about the same level as in 1960. But the second oil crisis and the adjustment of the 80's saw again a widening of the differential--but to a smaller extent than in the 60s.

**Table IV.2 Differentials in Average Remuneration by Firm Size  
in South Korean Manufacturing  
1960-1986**

Year	Large/Small (Small = 100)	Medium/Small (Small = 100)	Large/Medium (Medium = 100)
1960	136.5	99.9	136.6
1967	155.7	126.9	122.7
1970	180.9	147.6	122.6
1974	152.4	129.3	117.8
1979	130.1	115.9	112.3
1983	147.6	120.3	122.7
1986	149.0	119.4	124.8

Note: Small firms are defined as having 5-49 workers; medium, 50-199, and large, 200 or more workers.

Source: Korea--Statistical Yearbooks (1962, 1976, 1981, 1985 and Reports on Mining and Manufacturing Surveys for 1967 and 1970.

**Table. IV.3 Earnings Differentials by Size of Firm, Sex, Occupation and Educational Level of Workers in Korean Industries 1967 and 1980**

(Base = 100, Firms with 10-29 Workers in each Category)

Firm Size (No. of workers)	University Graduate				Middle or Elementary School Graduate			
	Male		Female		Male		Female	
	1967	1980	1967	1980	1967	1980	1967	1980
10-29	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30-99	117.6	103.4	88.5	88.7	113.0	105.1	107.3	98.2
100-299	131.7	111.3	126.5	109.3	124.3	125.2	124.0	103.6
300-499	149.2	112.1	99.9	101.5	157.4	131.7	132.5	104.7
500+	171.0	113.6	96.4	119.0	201.9	133.4	163.3	107.9

**Note:** For 1967, firm size ranges from 100 to 199 (instead of 1980 range that goes from 100 to 299); and from 200 to 499 (in 1980, it ranges from 300 to 499). Therefore, comparisons between these two groups should take into account this fact. The category for male and female with middle school and under for 1967 refers to production workers.

**Source:** Report on Wage Survey, 1967, the Bank of Korea, Table 2, pp. 50-65.

Report on Occupational Wage Survey, Administration of Labour Affairs, 1980, Vol. I, Tables III.4 and III.5, pp. 336-461.

The data of Table IV.2 do not control for skill, education and skill differences. When we do control for such differences, as is done in Table IV.3, it is seen that there is a significant **decline** in the differentials in 1980 compared to the levels of 1967 except perhaps for female university graduates. Taken together with the evidence of Table IV.2, we could conclude that there has, indeed, been an accentuation of dualism within the manufacturing sector of Korea before 1971. But this process was reversed in the next decade. It was threatening re-establishing itself again in the early 80s. It would be very interesting to see, when more recent data are available, if the wage explosion of the late 80s has contributed substantially to the accentuation of dualism.

#### *Male-Female Differences*

Table IV.4 gives the participation rates of males and females, separately for farm and non-farm households. It is seen that the participation rate for females in farm households does not show much of a trend. But the rate in non-farm households, although

well below the rate in farm households, has been slowly increasing over the period (with small cyclical dips in 1981 and 1985). But the increase in non-farm participation has by no means been spectacular. The process of development generally is accompanied by substantial increases in female participation arising both from the supply and demand sides. On the supply side important factors helping the process are

**Table IV.4: Labor Force Participation Rates, by Sex (percentage)**

	Farm Households			Non-Farm Households		
	Male	Female	All	Male	Female	All
1970	75.2	48.2	60.9	75.1	29.8	51.5
1975	73.8	51.8	62.7	75.1	31.2	52.5
1976	74.5	55.3	64.8	74.7	33.7	53.3
1977	74.3	52.5	63.3	76.9	33.5	54.0
1978	74.5	54.0	63.9	75.3	35.6	54.6
1979	73.5	54.2	63.6	74.4	35.9	54.4
1980	72.4	53.0	62.5	74.2	36.1	54.4
1981	72.1	53.4	62.6	73.7	35.4	53.8
1982	70.4	53.6	61.9	73.4	37.5	54.7
1983	68.7	51.3	59.8	71.8	37.9	54.2
1984	68.8	50.1	59.3	69.6	36.1	52.2
1985	68.9	50.7	59.7	69.8	37.7	53.1

**Source:** Economically Active Population Survey, reproduced from Grootaert, Table 2, p. 5

rising levels of education, reduced fertility and a general change in attitudes to market work on the part of women. The educational expansion in Korea seems to have benefited women as much as men. The average years of schooling of women has risen from 2.92 years in 1960 to 6.63 years in 1980 (as against the overall average of 3.86 and 7.61).<sup>25</sup> At the same time fertility levels have declined drastically (by more than half in the last twenty years) reducing the number of small children at home. This would tend to increase market activity for married females. On the demand side, industrialization and the growth of urban services—social and private—create opportunities for female employment. What makes the Korean case unusual is that in spite of the presence of these factors at levels above those for other developing countries

<sup>25</sup> *Ibid.*, p. 6.

the non-farm participation rate for females is, after two decades of development, well below those of other countries.<sup>26</sup>

Institutional changes facilitating greater participation of women in the non-farm workforce have been slow in coming. Grootaert points out that part-time work is not very common for women in Korea—only about 7-8 percent working 35 hours or less per week. In fact, the distribution of workers by hours worked showed little difference between men and women, except that men do more overtime work (more than 54 hours a week).<sup>27</sup> Evidently Korean employers have not taken the initiative in developing the market for jobs in clerical, sales and assembly line production work which can be easily split into two part-time jobs. Grootaert also points out that there has been limited government effort in establishing public day-care centers, and there have been various restrictions on private sector initiatives.

Turning to the composition of female employment in the non-farm sector, the time series for the proportion of female employment by industry and by occupation are given in Tables IV.5 and IV.6, respectively. As far as mining and manufacturing are concerned, the percentage of women workers increased at a modest but steady rate until 1980 and has declined somewhat since. There was, however, a decline in the crisis years following the first oil shock in 1974 and 1975. Thus, there is evidence that the proportion of women in manufacturing employment responds significantly to cyclical demand factors.

The increase of less than 10 percentage points in the share of female employment in industry must, however, be considered rather marginal compared to the large shifts in the industrial structure of the economy in the twenty-year period. Much more pronounced growth of female employment is seen in the occupations categories in Table IV.7. This is particularly so in the clerical and service categories where the proportion of women in total employment has been doubled.

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<sup>26</sup> Even the neighboring countries of Asia had significantly higher rates. 49.7 for Hong Kong, 48.9 for Japan, 45.8 for Singapore and a high of 78.4 for Thailand. USA and Canada has rates of around 52 percent (Grootaert, p. 6, quoting the ILO Yearbook for 1984).

<sup>27</sup> Grootaert, Table 10, p. 15.

It has, however, been noticed that the increase in female employment in these white collar categories has been confined to narrow low-income groups. "Clearly clerical work has undergone a major and rapid image shift from a male to a female occupation... More than 80 percent of the clerical workforce below 25 (in 1984) are women; the clerical workforce above age 35 is 95 percent male."<sup>28</sup> In the service categories there is evidence of severe "crowding" of women into two sub groups—viz. teachers and "medical, dental and veterinary personnel." In the "administrative and managerial" category only 2.9 percent are women—far below the proportion in other East Asian countries.<sup>29</sup>

**Table IV.5 Evolution of Female Employment by Industry  
(Women Workers as a Percent of Total)**

Year	Agriculture	Mining & Manufacturing	Construction	Services
1963	37.98	27.89	8.81	32.26
1964	37.97	29.57	3.83	32.08
1965	38.32	28.03	4.62	34.30
1966	38.84	29.46	3.35	31.79
1967	39.28	30.76	3.86	32.35
1968	40.22	31.75	6.01	34.22
1969	39.01	32.76	8.01	33.59
1970	41.62	31.18	1.76	34.67
1971	41.82	33.40	2.59	34.27
1972	42.95	33.09	2.30	32.90
1973	42.13	37.78	2.96	34.67
1974	41.51	35.31	5.11	35.59
1975	41.53	33.55	4.89	35.91
1976	42.64	37.59	4.91	37.33
1977	41.59	37.99	7.84	35.12
1978	44.10	38.39	7.67	36.56
1979	44.57	38.52	7.66	37.54
1980	43.77	38.05	8.56	38.23
1981	43.66	37.72	7.89	38.43
1982	43.74	37.30	6.98	41.01
1983	43.16	37.10	6.99	42.13
1984	42.72	36.49	7.42	41.43

Source: Economic Planning Board: Year Book of Labor Statistics

<sup>28</sup> Grootaert, p. 20.

<sup>29</sup> The percentages are 13.1 in Hong Kong, 6.1 in Japan, 17.4 in Singapore and 19.8 in Thailand. (Grootaert, Table 14, p. 22, citing ILO sources).

**Table IV.6 Evolution of Female Employment by Occupation  
(Women Workers as a Percent of Total)**

Year	Professional	Clerical	Sales	Service	Agriculture	Products & Equipment Operations
1963	21.46	11.28	44.81	19.83	38.08	19.83
1964	19.18	10.20	45.52	20.64	38.00	20.64
1965	18.03	10.03	46.21	20.06	38.38	20.06
1966	16.73	9.85	43.97	22.21	38.67	22.21
1967	16.14	11.63	42.77	23.61	39.37	23.61
1968	16.25	17.00	44.25	24.38	40.35	24.38
1969	15.57	13.81	42.95	25.09	39.30	25.09
1970	18.40	13.54	42.70	57.70	42.36	23.35
1971	19.43	16.55	41.25	23.72	41.92	23.72
1972	16.45	16.79	42.10	22.81	42.93	22.81
1973	19.11	17.83	42.08	27.88	41.99	27.88
1974	19.90	19.39	41.67	26.92	41.43	26.92
1975	20.86	20.88	40.72	57.38	41.41	25.84
1976	20.56	23.08	43.03	58.44	42.57	29.96
1977	22.53	24.47	41.60	54.38	41.61	29.92
1978	25.08	27.67	42.21	56.14	44.17	29.16
1979	26.34	30.60	43.41	56.27	44.62	29.02
1980	25.34	32.75	43.72	58.12	43.83	27.73
1981	23.54	33.62	44.21	57.72	43.82	26.68
1982	26.64	34.12	45.96	58.18	44.00	27.10
1983	26.67	34.21	47.35	59.99	43.38	27.89
1984	27.16	33.58	46.82	60.72	42.99	26.99

**Source:** Economic Planning Board, Year Book of Labour Statistics.

This survey covers all individuals 14+ except armed forces, foreigners and prisoners.

Another aspect of the differential conditions of employment by sex is revealed by looking at the changes in employment by work status. The employed labor force is classified into self-employed workers, family workers and employees. The distinction between the first two is important for work status. A self-employed person could be a small entrepreneur, and often has earnings above wages earned by employees. A family worker, on the other hand, is a working unpaid member of the household. One of the most striking developments in Korea is that in 1984 nearly 80 percent of family workers in the mining and manufacturing sector were females. Between 1976 and 1984 the proportion of females among employees remained unchanged. But the proportion of females among family workers went up from 65 to 80 percent, while the female's share

in the self-employed category was drastically reduced by half to 26 percent.<sup>30</sup> Evidently, during the period of the "big push" and the subsequent adjustment there was a sharp drop in the role of women as entrepreneurs.

Another feature of Korean labor markets is that within employees there are three categories, regular, temporary and daily workers. We have referred earlier to the importance of internal labor markets in Korean manufacturing. Because of the security of tenure and access to bonuses and other benefits which internal labor markets imply, Korean employers use a large proportion of the workforce on temporary or daily contracts. This gives flexibility to the size of the workforce and lowers the cost of labor, particularly when there is a decline in business conditions. Table IV.8 gives the series for the three categories of workers, separately for men and women for the period 1963-85. It is seen that the proportion of regulars among male workers has increased substantially, with only a dip between 1972 and 1975. But for female the proportion in 1985 was about the same as in 1968. The percentage of regulars among females seems to have fallen significantly both after the first oil shock in 1973-75 and following the second period of stabilization in the early 80s. It is only known that regulars are better paid than temporaries, partly because they have claims to bonuses and some fringe benefits which the latter do not, and also the conditions of employment (eg. security of tenure) are better for the regulars. Evidently, women workers have been used in a more "marginal" way in the last two decades.

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<sup>30</sup> Grootaert, p. 27. and Table 18.

**Table IV.7: Percent Distribution of Total Employment by Sex and Status  
(Non-farm Households)**

Year	Males			Females		
	Regular Employees	Temporary Employees	Daily Workers	Regular Employees	Temporary Employees	Daily Workers
1963	49.6	17.6	32.6	34.6	26.6	38.6
1964	48.6	20.4	30.8	32.0	34.0	33.8
1965	51.4	20.7	27.7	35.2	36.4	28.3
1966	55.3	17.4	27.2	39.3	30.0	30.6
1967	57.5	17.4	25.0	45.7	23.2	30.9
1968	62.9	14.5	22.4	49.0	22.5	28.4
1969	65.7	11.3	22.8	55.3	20.1	24.5
1970	68.8	11.8	19.2	57.9	22.1	19.8
1971	69.2	11.3	19.4	55.2	23.9	20.8
1972	62.4	12.6	24.8	52.0	26.7	21.1
1973	56.5	19.7	23.7	44.7	34.5	20.7
1974	62.3	17.0	20.5	46.7	33.3	19.8
1975	60.9	19.5	19.4	48.3	33.9	17.6
1977	64.9	15.6	19.3	54.9	26.1	18.8
1979	68.3	13.8	17.8	57.7	24.9	17.2
1980	71.5	12.1	16.2	58.5	24.6	16.7
1982	73.7	10.8	15.3	62.3	21.5	16.0
1984	71.9	14.7	13.2	50.6	30.5	18.7
1985	72.3	14.9	12.8	48.8	30.4	20.8

**Source:** Economic Planning Board; Yearbook of Labour Statistics (The survey is based on the population aged 14 and over and not in the army, imprisoned, or foreigners.)

Turning to earnings, the trend in the female/male differential for different educational groups is plotted in Figure 7. It seems that while university and college educated females have improved their relative earnings since 1970 (although still earning a little more than 70 percent of the male average), the bulk of the female workers with high or middle level schooling have more or less the same relative earnings as in the early 70s. There might have been a trend towards the reduction of the

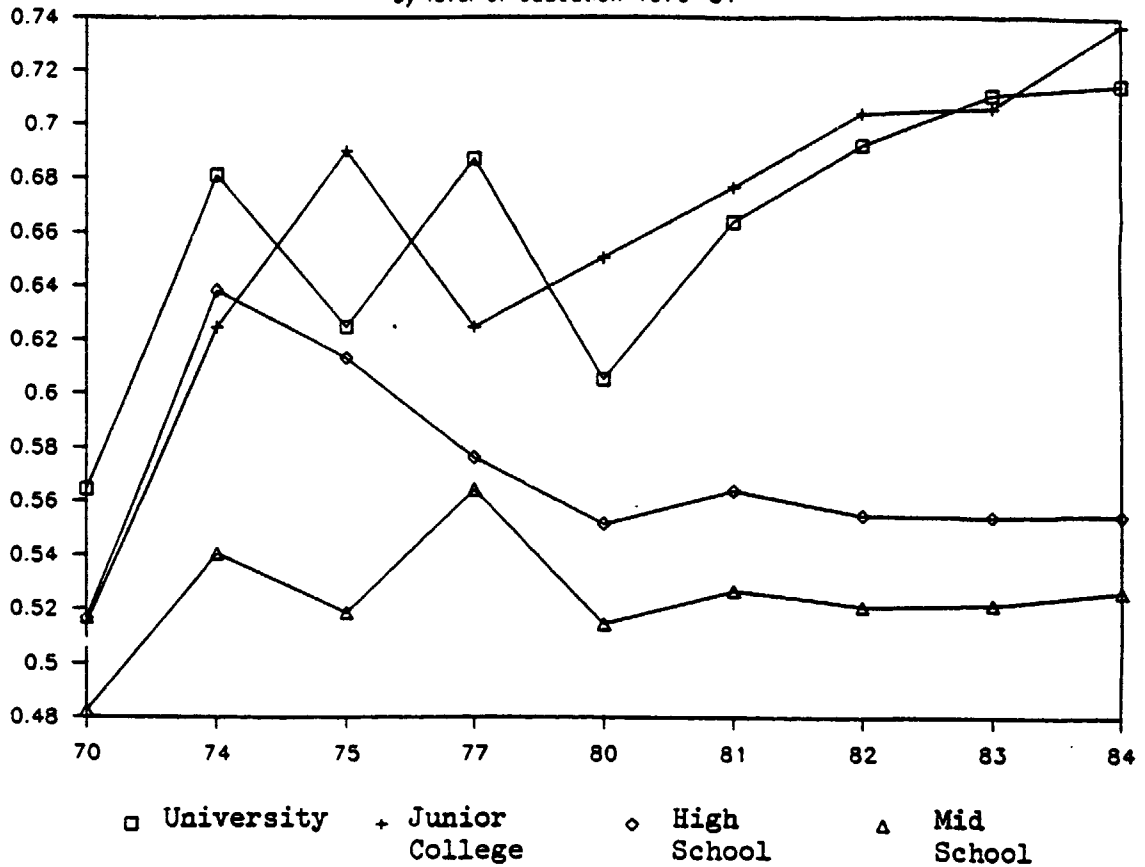


gender differential for this group (particularly the high school graduates) in the “big push” period of the late 70s, but this gain has been lost in the 80s.

Figure 7

## SOUTH KOREA: FEMALE/MALE EARNINGS RATIO

by level of education 1970-84



Source: Occupational Wage Survey

Note: The survey is based on a random sample of establishments employing 10 or more regular employees, excluding agriculture, forestry, fishing, government administration, public education, army and police.

## Conclusion

This paper has investigated the successful adjustment to external shocks of an open economy with heavy dependence on key imports. In the Korean case, the macroeconomic problem, as we have seen, was accentuated by a high investment rate maintained throughout the growth process of the last two decades. The rate of investment continuously outrunning the rate of domestic savings kept the economy walking on a tightrope of external deficits on the current account as well as internal inflationary pressures for much of this period. Maintenance of external competitiveness was of central importance to an export-oriented economy.

The evidence shows that an active exchange rate policy (continuous devaluation of the won except for a few years in the late 70s, and maxi devaluations in the periods of "shock") has been central to the mechanism which kept unit labor costs in dollars falling throughout the period. But the success of devaluation in producing the desired result depended on policies affecting both the capital and labor markets. In the capital markets, the maintenance of cheap credit for the large scale sector cushioned the exporting firms from the rising costs of interest payments and imported inputs which devaluation induced. Equally important was the tight government control of external capital flows which prevented destabilizing speculative movements of capital.

On the labor market front, the evidence shows the importance of state paternalism in wage negotiations in the formal sector in keeping real wage increases in line with productivity growth, but somewhat below it in most periods (again with the exception of the period of the "big push"). It was also eminently successful in drastically slowing down or even halting real wage growth during the short-run periods of crisis. But the wage-productivity relationship behaved in the healthy way it did because real wages increased significantly in most years. This experience must have been instrumental both in securing worker acquiescence to the temporary stagnation of wages and in preventing destabilizing inflationary expectations from developing.

The critical factor here was the strongly positive time trend in total factor productivity growth. It is this which kept the rate of real wage growth high, at the same time that the unit labor cost in industry was falling.

Real wages in the large-scale manufacturing sector in Korea have "risen faster, possibly than in any previous or contemporary industrial revolution."<sup>31</sup> It was suggested in our analysis that the major factor behind this real wage growth was most likely profit-sharing as an incentive scheme in the process of wage determination. The internal labor market structure of the large firms in Korean manufacturing encouraged this process, as did state paternalism. We would expect that in large segments of the labor market, outside the large firms the mechanisms of the internal labor markets would be weak, and wages would be lower in these segments and would rise less fast. This is, indeed, what has been suggested by earlier writers. For example, Amsden writes: "By world standards, Korea has the highest inter-manufacturing industry wage dispersion and the widest gap in gross wages between the sexes (Krueger and Summers, 1986; Jong Woo Lee, 1983). Underlying the rapid rise in real wages beginning in 1965 was the preening of a labor aristocracy: male, employed by the *chaebol*, in the new heavy industries. At the opposite end of the spectrum is the economically active population in the informal sector."<sup>32</sup>

The absence of comprehensive household surveys in Korea precluded the investigation of formal-informal earnings differentials in large parts of the labor market. But we are able to look at a limited range of wage differentials. Earnings in the farm sector did not perform all that badly vis-à-vis average earnings in the non-farm or urban sectors. Up to the first oil shock of 1973 annual farm incomes per worker increased at only a slightly lower rate than the average earnings in manufacturing. But during the "big push" of the late 70s the differential in favor of manufacturing wages increased from 50 to 80 percent, and although it fell somewhat after the adjustment following the second oil shock, it was in the mid-eighties well above the earlier levels.

Analysis of gross wage differentials by firm size within the formal sector (i.e., excluding very small firms employing less than 10 workers) shows very large differences in average earnings. The differential in favor of large firms increased to a high point of 81 percent in 1970, but then declined to 30 percent in 1979. It increased again in the early 80s, and might have gone up much more sharply with the wage explosion in the large scale sector. Comparing wage differences between more

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31 Amsden, 1990, p. 79.

32 Amsden, 1987, p. 4.

homogeneous categories of labor, it is seen that the differential which, was about 100 percent in 1967 (for male middle or elementary school graduates), fell to 33 percent in 1980. At the same time, the large scale sector seems to have taken the main brunt of short-run adjustment following the oil shocks. Wages stagnated in this sector for short periods after the adjustment, and the relative expansion of the large firms at the expense of the small, which was going on rapidly until 1973, seems to have been halted in the next decade.

Amsden suggested that "not only Korea set world records with its growth rate in wages, it also has outcompeted other countries in its discrimination against women workers."<sup>33</sup> In section IV, we found evidence of surprisingly small increases in participation rates of females in the non-farm sectors; severe occupational crowding; a larger proportion of females in lower status jobs like "temporaries" or "family workers," and more or less constant wage differential in favor of male workers, maintained over the years.. Average earnings of female workers with high or middle school education were 52 percent of the earnings of males with similar education. As is to be expected, females seem to have been disproportionately affected during the post-shock periods of sharp adjustment.

While Korea's record in solving some of these structural problems in the labor market has not been very good, her astonishing success in managing the short-run macro-economic balance in the economy may also be threatened in the future. A full analysis of contemporary developments in the labor market is beyond the scope of this paper. But we should, in concluding, draw attention to the explosive increases in wages in manufacturing since 1987. This type of wage push, emanating from a breakdown of the traditional relationship between the Korean Federation of Trade Unions and that of Employers, threatens to upset the wage-productivity balance which, we have seen, has been a key to the success of Korea's macro-economic stability. If wages go soaring above productivity growth, Korea's share of the export market relative to her close competitors will undoubtedly be threatened, and in addition, there will be the threat of inflationary spiral, and perhaps the need for much more painful adjustments when external shocks develop in the future. "A recent study of manufacturing unit labor costs found that between 1980 and 1986 Taiwan's ULC rose 56% relative to Korea's. In

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<sup>33</sup> Amsden, 1990, p. 85.

1987 and 1988 the two economies' ULCs increased at the same rate. It was only in the first quarter of 1989 that Korea's ULC began to increase relative to Taiwan.<sup>34</sup> The concern of the coming years is how much and in what way is Korea able to contain these new developments in the labor market. The other significant question is Korea's ability to sustain--if not to increase--the record rate of total factor productivity growth which she has achieved in the last two decades or more.

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34 Quoted in World Bank (1989), p. 7.

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**ANNEX**

**Table A.1 South Korea: Major Economic Indicators**

Year	GNP Growth (%)	Current Account (% GNP)	Exports Growth (%)	Budget Deficit (% GNP)	Unemployment rate (%)
1967	6.60	-4.12	28.00	-.-	6.2
1968	11.30	-7.49	42.20	-.-	5.1
1969	13.80	-7.76	36.90	-.-	4.8
1970	7.60	-7.35	34.00	1.60	4.5
1971	8.60	-9.38	27.90	2.30	4.5
1972	5.10	-3.56	52.10	4.60	4.5
1973	13.20	-2.28	98.60	1.60	4.0
1974	8.10	-13.05	38.30	4.00	4.1
1975	6.40	-9.05	13.90	4.60	4.1
1976	13.10	-1.09	51.80	2.90	3.9
1977	9.80	0.03	30.20	2.60	3.8
1978	9.80	-2.17	26.50	2.50	3.2
1979	7.20	-6.43	18.40	1.40	3.8
1980	-3.70	-9.56	16.30	3.20	5.2
1981	5.90	-7.21	21.40	4.70	4.5
1982	7.20	-3.91	2.80	4.40	4.3
1983	12.60	-2.07	11.90	1.60	4.1
1984	9.30	-1.62	19.60	1.40	3.8
1985	7.00	-1.01	3.50	1.00	4.0
1986	12.90	4.39	14.60	1.80	3.8
1987	12.80	7.39	36.20	-.-	3.1
1988	12.20	7.84	28.40	-.-	2.5

Source: Statistics Department, The Bank of Korea, "Principal Economic Indicators" (GNP and exports growth, 1988 GNP growth rate is preliminary).

Bank of Korea, Economic Statistics Yearbook.

Table A.2 South Korea: Net Barter and Income Terms of Trade

Year	Net Barter Terms	Income Terms of Trade	Per Cent Change	
			Barter	Income
1980=100				
1963	111.48	1.21		
1964	112.83	1.88	1.21	55.60
1965	114.87	3.36	1.81	78.39
1966	128.15	4.91	11.57	46.41
1967	132.85	6.23	3.66	26.80
1968	138.06	8.93	3.92	43.31
1969	133.27	12.40	-3.47	38.89
1970	134.19	16.06	0.69	29.45
1971	133.08	20.57	-0.82	28.09
1972	132.35	30.76	-0.55	49.56
1973	125.62	45.82	-5.08	48.97
1974	101.31	40.73	-19.35	-11.12
1975	92.10	45.10	-9.09	10.74
1976	105.10	69.90	14.12	54.99
1977	112.40	89.00	6.95	27.32
1978	117.80	106.70	4.80	19.89
1979	115.30	103.40	-2.12	-3.09
1980	100.00	100.00	-13.27	-3.29
1981	97.90	115.00	-2.10	15.00
1982	102.20	127.90	4.39	11.22
1983	103.10	150.00	0.88	17.28
1984	105.30	177.10	2.13	18.07
1985	105.90	191.70	0.57	8.24
1986	114.70	234.70	8.31	22.43
1987	118.08	296.94	2.95	26.52
1988	121.36	344.87	2.78	16.14

Note: Net barter terms of trade are defined as the ratio of export to import unit value index. Income terms of trade are defined as the product of the net barter terms of trade and the export quantum index.

Table A.3 South Korea: Debt Ratios

	Debt/GNP	Debt/Exports
1970	23.48	144.35
1971	28.42	158.69
1972	30.76	143.84
1973	29.00	95.21
1974	33.00	95.57
1975	31.12	110.28
1976	28.30	85.82
1977	38.39	109.91
1978	34.59	100.89
1979	35.45	117.18
1980	52.97	130.57
1981	51.21	120.98
1982	55.11	131.65
1983	52.09	133.03
1984	49.70	125.10
1985	53.76	142.45
1986	44.46	111.35
1987	30.35	71.92
1988	14.94	38.06

Source: On-Line World Development Debt Service.

Note: Total external debt equals public, publicly guaranteed, private non-guaranteed, IMF credit, short term debt, outstanding and disbursed.

**Table A.4 South Korea: Data Used for Unit Labor Costs in Manufacturing**

Year	Annual Value Added (billion won)	Annual Wages (billion won)	Manuf. Deflator 1980= 100	CPI 1980= 100	Average Exchange Rate (won/\$)
1967	206.6	53.3	17.1	15.3	270.5
1968	300.1	76.6	18.3	17.0	276.7
1969	424.2	105.7	19.9	19.1	288.2
1970	547.9	137.1	22.3	22.2	310.6
1971	688.6	160.4	23.4	25.2	347.2
1972	899.3	211.5	26.7	28.1	392.9
1973	1379.6	310.3	29.9	29.0	398.3
1974	1867.2	451.3	37.7	36.1	404.5
1975	2828.1	651.6	45.4	45.2	484.0
1976	4075.1	1009.1	52.8	52.1	484.0
1977	5596.9	1460.4	58.5	57.4	484.0
1978	8193.0	2221.8	66.2	65.7	484.0
1979	9205.0	2922.1	78.9	77.7	484.0
1980	11857.0	3471.7	100.0	100.0	607.4
1981	15412.0	4133.5	113.7	121.3	681.0
1982	17306.0	4754.1	119.4	130.1	731.1
1983	20912.0	5499.6	122.8	134.5	775.8
1984	24656.0	6495.1	123.7	137.6	806.0
1985	26737.0	7244.5	126.7	141.0	870.0
1986	32882.0	8607.3	131.3	144.2	881.5

Source: UN Yearbook of Industrial Statistics.  
IMF International Financial Statistics.  
Bank of Korea.

**Table A.5 (a): Annual Earnings per Worker in the Farming and Manufacturing Sectors**

Year	Real Annual per Worker Farm Income		Real Annual Manufacturing Earnings	
	1980 Won (thousands)	(% Change per Annum)	1980 Won (thousands)	(% Change per Annum)
1966	400		467	
1967	426	6.4	520	11.1
1968	474	11.2	593	14.0
1969	518	9.2	707	19.2
1970	537	3.7	787	11.3
1971	660	22.9	826	5.0
1972	688	4.2	858	3.8
1973	735	6.8	924	7.6
<b>1966-73 Average</b>	<b>555</b>	<b>11.9</b>	<b>710</b>	<b>13.9</b>
1974	785	6.7	1004	8.6
1975	822	4.7	1018	1.4
1976	876	6.5	1190	15.8
1977	964	10.1	1446	21.4
1978	1004	4.1	1696	17.3
<b>1974-78 Average</b>	<b>890</b>	<b>6.9</b>	<b>1271</b>	<b>17.2</b>
1979	1072	6.7	1845	8.7
1980	1081	0.8	1760	-4.6
1981	1152	6.5	1742	-0.9
1982	1232	6.9	1864	6.9
1983	1292	4.8	2023	8.5
1984	1490	15.3	2138	5.7
1985	1579	5.9	2294	7.2
<b>1979-85 Average</b>	<b>1271</b>	<b>7.8</b>	<b>1952</b>	<b>4.0</b>

**Table A.5 (b): Annual Household Income per Earner for Urban Households**

Annual Real Household Income per Earner				
Year	Salary Earner Households		Wage Earner Households	
	1980 Won (thousands)	(% Change per Annum)	1980 Won (thousands)	(% Change per Annum)
1966	1316		681	
1967	1569	19.2	981	44.1
1968	1615	2.9	1006	2.4
1969	1609	-0.4	1038	3.2
1970	1562	-2.8	975	-6.0
1971	1652	5.7	1041	6.7
1972	1685	1.9	1073	3.0
1973	1690	0.2	1046	-2.5
1966-73 Average	1587	4.0	980	7.6
1974	1806	6.8	990	-5.3
1975	1873	3.7	1052	6.2
1976	2428	29.6	1146	8.9
1977	2932	20.7	1427	24.5
1978	3284	12.0	1851	29.6
1974-78 Average	2465	20.4	1293	21.7
1979	3507	6.7	2058	11.1
1980	3684	5.0	1985	-3.5
1981	3646	-1.0	2006	1.0
1982	3568	-2.1	1787	-10.9
1983	3760	5.3	1938	8.4
1984	3962	5.3	2074	7.0
1979-84 Average	3388	-16.6	1975	-16.6

*Note on the data*

Data on daily farm wages and incomes were collected from the Korean National Agricultural Cooperative's monthly report. These same figures are reported in the Statistical Yearbook published by the Economic Planning Board. Census years were 1975 and 1970, all other years are based on sample surveys. The survey is carried out by the Ministry of Agriculture and Fisheries and is based on a sample of farm households engaged primarily in farming and cultivating a plot of land more than 0.1 hectare. The survey is conducted monthly and revised after censuses. Income includes agricultural receipts, side-business receipts, non-business receipts (wages, rent, etc.) and property (assets) receipts less farm and side business expenses. Daily farm wages are also reported in these documents. Here, men's daily wages (cash and in kind) are shown for all workers.

The price index used to deflate farm incomes was the prices paid by farmers index, reported in the same documents. These prices are collected at 85 rural markets covering 201 items.

Farm income was normalized to per worker farm income by dividing total farm income (including income from non-farm sources) by the number of farm workers.

Data on manufacturing earnings were extracted from the Statistics Yearbook published by the Economic Planning Board. These statistics are collected by the Ministry of Labour in a Monthly Wage Survey. The survey covers all manufacturing establishments with 10 or more employees. The earnings reported are the average monthly earnings of all (men and women) regular employees. Regular workers are those whose term of employment contract are one month or more, and who worked for more than 45 days during the three months prior to the reporting day. Monthly earnings include overtime pay, bonus pay and base pay.

The deflator used to estimate real earnings for manufacturing and urban household incomes was the all cities consumer price index. This is reported in the Economic Planning Board's Statistics Yearbook. Average price data are collected three times a month at 9 principal cities including Seoul on 394 commodities and services. Up until 1965, the city consumer price index survey was carried out in Seoul alone.



Urban incomes data was also taken from the Statistics Yearbook. This data is based on the Family Income and Expenditure Survey conducted by the Economic Planning Board each month. The survey covers all households residing in one of Korea's 50 cities, excluding farmer' households, fishing households, single person households, foreign households and households whose income and expenditure are not easily identified. Income includes earnings, income from subsidiary jobs and other income.

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