

EMPLOYMENT ABSORPTION IN SOUTH KOREA: 1970-1980

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Using data based on census materials concerning developments during the decade 1970-1980, the paper outlines the rapid economic growth in South Korea and how this has affected employment. It examines changes in the structure of employment, output growth in each sector and the relationships between output growth and employment. It also evaluates the unusual concentration of nonagricultural activity in Korea's cities and its implications for urbanization and migration by comparing Korean experience with that of Taiwan. Issues associated with the turning point, which could have occurred around 1969 and 1965, are also discussed. After Korea's world-record development in the 1970s, the paper notes a dramatic reversal in 1980 and a slow recovery in 1981-82 with no return to rapid growth until 1983. Finally, the paper discusses the effects of the recent recession and recovery on employment absorption and prospects for the future.

1. Introduction

Rapid economic growth since the mid-1960s has placed South Korea (hereafter, simply "Korea") in a group of East Asian "miracle economies" whose speed and quality of development have been outstanding among developing countries.¹ From 1963 to 1982 real GNP more than quadrupled while employment almost doubled. Output and employment, consequently, rose at average annual rates of 8.4 per cent and 3.2 per cent, respectively, during this period. The averages conceal substantial variation as output growth slowed in response to oil shocks after 1973, reversed in 1980, and slackened with worldwide recession during the early 1980s. Employment has responded to output fluctuations and to the major changes in economic structure that have accompanied Korea's rapid growth. Chief among these structural changes have been an increase in the industrial sector's output and employment shares, the increase led by production of labor-intensive manufactures for export, and a sharp

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¹Attributes which justify grouping Korea, Taiwan, Hong Kong and Singapore as "The Four" or "gang of four", as others later termed them, were perhaps first discussed by Little (1979).

decline in agriculture's output and employment shares. Also, since Korea's industrial activity is highly concentrated in urban areas, much of the increase in employment has come in cities rather than in the countryside and has been associated with large-scale rural to urban migration.

Since Korea was the epitome of a labor-surplus country in the late 1950s and early 1960s, one issue to be addressed here is whether accelerated growth in subsequent years has been sufficient to absorb the surplus. That is, has Korea passed the turning point from labor surplus to labor shortage and, if so, when did this happen? Other, related questions, are questions of what happened to people who were of working age before the turning point, and where were new workers obtained afterward? These questions can be answered by assembling evidence that a turning point has or has not been reached, and by examining changes among the economically inactive and the underemployed. A prior issue, however, is the issue of what has happened to employment and, in particular, how have Korea's rapid growth and changing economic structure affected employment? We know that output expansion usually increases the demand for labor, but this expansion has been very uneven among sectors, as has the increase in output per worker, which affects the demand for labor as well. Also, employment growth has been centered in the industrial sectors which, in Korea, are concentrated to an unusual degree in urban areas. Such concentration limits rural employment opportunities, encourages migration, and raises questions of why industrial and service activities should be so spatially concentrated.

Consistent employment estimates, based on the labor-force definition of economic activity (i.e., classification depends on actual work status during the survey week) are available for Korea since late 1962. These estimates, derived from quarterly — more recently monthly — surveys, provide information on the unemployed and the inactive as well as the employed, and also include breakdowns by age, industry, occupation, hours worked, and status (i.e. employed, self-employed, family worker) of workers. Much more detailed industry and occupational information than is given in the surveys, and information on geographic units not given in the surveys, is provided by the 1970 population and housing census and by the recently released 1980 census. For this reason the discussion here is based largely on census materials and focuses mainly on developments during the decade 1970-1980.

Though discussion here focuses on employment absorption

during the decade 1970-80, earlier and later periods also merit consideration. In particular, the 1963-70 period shows a substantial 20 per cent rise in employment that outstripped the increase in potential labor supply or, as the term is used here, the increase in working-age population. The larger increase in actual employment than in potential supply indicates that there was considerable labor surplus in 1963 and that employment expansion to 1970 was absorbing this surplus. Since agricultural employment started to decline around 1966, the increase in employment was limited to nonagricultural activities, especially manufacturing, which accounted for 39 per cent of employment expansion in 1963-70. The increase in employment was spurred by very rapid output growth that was also concentrated in the industrial sector and led by output of labor intensive manufactures for export.

Output growth and employment expansion are related in the labor-absorption rate of income (output) growth, which shows that output had to rise by four per cent for each one per cent increase in employment in 1963-70. This was not very different from the figure for 1970-80, and reflects the rise in productivity or its inverse, the fall in labor intensity, that occurred in 1963-70 so that employment absorption was less than it might have been had output per worker (productivity) not risen.

Though commercial and credit policies during the 1960s may have raised productivity or reduced absorption by encouraging equipment imports and underpricing capital, an overall economic strategy that emphasized export expansion rather than import substitution probably had the opposite effect. Absorption benefitted, that is, because output grew more than it might have under an import-substitution regime, and because growth was concentrated in producing labor-intensive exports rather than capital-intensive import substitutes.²

Sufficient data are available as this is written to extend discussion of employment absorption to the period 1980-86. The decade of the 1970s ended in Korea with the second oil shock, President Park's assassination, and harvest failures. Mounting inflation was followed by recession in 1980 and the deflationary policies of the new Chun government that slowed growth in 1981-82. Recovery in 1983 and afterward was sufficient, however, to raise the overall growth rate in 1980-86 to the 1970-80 level. Though the labor-

²Kuznets (1976, pp. 36-81).

absorption rate of output growth dropped with continued productivity increase, employment rose by almost two million from 1980 to 1986. Unlike earlier periods, employment increased less than potential supply. Unemployment did not rise, however, because expansion of secondary and higher education and heavy migration both reduced participation rates. These and other aspects of employment absorption in the 1980-86 period are examined in the last part of this paper.

Changes in the structure of employment, output growth in each sector, and the relationships between output growth and employment are examined in Part 2 of this paper. The unusual concentration of nonagricultural activity in Korea's cities and its implications for urbanization and migration are assessed next in Part 3. Issues associated with the turning point, and the possibility that turning points were reached around 1969 and 1975 are considered in Part 4. The effects of the recent recession and recovery on employment absorption and prospects for the future are discussed in the final part, Part 5.

2. Employment and Output

Despite two oil shocks and subsequent worldwide economic disruption, real output in Korea more than doubled and employment increased by 25 per cent in 1970-80. As in earlier years, growth was uneven, with the largest increases in the industrial sector, followed by more moderate output and employment expansion in the service sector. Agricultural output rose 14 per cent but employment, which reached a peak in 1976, fell afterward for an overall drop of 7 per cent during the decade. These structural changes juxtapose decline in agriculture, a highly labor-intensive sector where low productivity increase has limited employment reduction, with the rise of industry, a sector in which low labor intensity and high productivity growth have limited employment absorption. Much of Korea's employment growth during the 1970s was therefore possible only because the rapidity of industrialization more than offset the industrial sector's low labor intensity and high productivity gains. If industrial output had grown no more than the average for agriculture and the services, employment would have grown by 1.3 million from 1970 to 1980, not the actual 2.5 million shown in Table 1.

Table 1 shows levels and distribution of employment and output in 1970 and 1980 for the agriculture, industry, and service sectors and the components of the last two sectors. The figures are

SOUTH KOREA

Table 1 — Employment and Output in 1970 and 1980

(thousands)

A. <u>Employment</u>	1970		1980	
	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>
1. <u>Agriculture, forestry, hunting and fishing</u>	<u>5,157.0</u>	<u>50.8</u>	<u>4,794.7</u>	<u>37.8</u>
2. <u>Industry</u>	<u>2,369.1</u>	<u>23.3</u>	<u>4,139.9</u>	<u>32.7</u>
a. Mining	99.6	1.0	90.6	0.7
b. Manufactures	1,447.5	14.2	2,797.0	22.1
c. Construction	462.0	4.6	664.4	5.2
d. Electric, Gas, Water	30.8	0.8	36.5	0.3
e. Transport, Storage, Communications	329.2	3.2	551.4	4.4
3. <u>Services</u>	<u>2,626.8</u>	<u>25.9</u>	<u>3,747.3</u>	<u>29.5</u>
a. Trade (+restaurants, hotels)	1,286.2	12.6	2,058.6	16.2
b. Finance, Insurance, Real Estate	96.5	1.0	285.7	2.3
c. Community, Social, Personal	1,222.3	12.3	1,402.6	11.0
<u>Total</u>	<u>10,152.9</u>	<u>100.0</u>	<u>12,681.9</u>	<u>100.0</u>
B. <u>Output</u> ^a			billions of 1975 won	
1. <u>Agriculture, forestry, hunting and fishing</u>	<u>1,925.13</u>	<u>34.0</u>	<u>2,196.09</u>	<u>17.6</u>
2. <u>Industry</u>	<u>1,710.78</u>	<u>30.3</u>	<u>6,172.55</u>	<u>49.6</u>
a. Mining	108.76	1.9	178.29	1.4
b. Manufactures	909.06	16.1	3,812.78	30.6
c. Construction	335.83	5.9	864.92	7.0
d. Electric, Water, Gas	48.92	0.9	212.45	1.7
e. Transport, Storage Communications	308.21	5.5	1,104.11	8.9
3. <u>Services</u>	<u>2,020.51</u>	<u>35.7</u>	<u>4,091.27</u>	<u>32.8</u>
a. Trade (+restaurants, hotels)	992.49	17.5	2,313.65	18.6
b. Finance, Insurance, Real Estate	164.48	2.9	479.35	3.8
c. Community, Social, Personal	863.54	15.3	1,298.27	10.4
<u>Total</u>	<u>5,656.42</u>	<u>100.0</u>	<u>12,459.91</u>	<u>100.0</u>

Sources: Bank of Korea, *Economic Statistics Yearbook, 1982*; Economic Planning Board, *1970 Population and Housing Census Report* (Vol. 2, 10% Sample Survey, 4-1, Economic Activity), *1980 Population and Housing Census Report* (Vol. 2, 15 Percent Sample Survey, 4-1, Economic Activity).

^aGross domestic product at 1975 prices, less output from ownership of dwellings.

taken from census estimates rather than from labor-force surveys because the census provides more industry detail, and because the economic-activity volume of the 1980 census was released at the end of 1982. These estimates and national accounts data show the decline of agriculture, the rise of industry, and the stability of services in the employment and output totals, plus the relative importance of subsectors and intra-sectoral variation. Employment and output in the three major industry categories each increased faster than the all-sector average, for instance, while mining employment fell. In the service sector, employment-output shares expanded for trade, one of the larger categories, and fell for community-social-personal services, the other. This last, a residual category, declined because large increases in community-social employment (about half teachers) and output were more than offset by small increases in the government sector and a large drop in household-personal services.

Three measures that relate employment and output are given in Table 2 for the three sectors and in Table 3 for components of industry and services. The first is a measure of labor intensity, or man years per million *won* of output in 1970. Labor intensity is shown to be much higher in agriculture than in the other sectors, and particularly low for the utilities (electric-water-gas) and finance-insurance-real estate. Since the measures are based on employment rather than actual labor inputs, adjustment for average hours worked would reduce the figure for agriculture from 2.68 to 1.94, which is still above labor intensity in other categories. The low figure for highly capital-using utilities is what would have been expected, but not that for finance-insurance-real estate. Output information is not available for each of these subcategories, but the large share of financial institutions in the employment total suggests that banks are particularly capital intensive or, more likely in 1970, that output (income) was high because the government's monopoly of banking and the scarcity of capital raised the value of financial services. In addition to the large differences among categories, a major development here (not shown in the tables) has been the sharp drop over time in labor intensity. The average number of man years per million *won* of output fell 42 per cent from 1963 to 1970 and another 43 per cent from 1970 to 1980. Again, man years of employment should be adjusted for changes in the average workweek before one concludes that labor intensity or labor input per unit of output has in fact declined or that the inverse, output per unit of labor input, or productivity, has risen. The increase in the average workweek from 47.5 hours in 1963 to 48.3 in 1970 and 54.0 in 1980 has been insuf-

SOUTH KOREA

Table 2 -- Employment and Output: Labor Intensity, Productivity, and Relative Growth, 1970-1980

	Agriculture ^a	Industry ^b	Services ^c	Total
<u>Employment(n), thousands</u>				
1980	4,794.7	4,139.9	3,747.3	12,681.9
1970	5,157.0	2,369.1	2,626.8	10,152.9
Change (Δn)	- 362.3	1,770.8	1,120.5	2,529.0
Growth rate (G_n) ^d	- 0.73	5.7	3.6	2.2
<u>Output (y), billion won^e</u>				
1980	2,169.09	6,172.55	4,091.27	12,459.91
1970	1,925.13	1,710.78	2,020.51	5,656.42
Change (Δy)	270.96	4,461.77	2,070.76	6,803.49
Growth rate (G_y)	1.3	13.7	7.3	8.2
<u>Labor Intensity (n/y)^f</u>	2.68	1.38	1.27	1.79
<u>Productivity Indexes for</u> <u>1980, 1970=100</u>	123	206	142	176
<u>Labor Absorption Rate of</u> <u>Income Growth (G_n/G_y)</u>	- 0.55	.42	.49	.27

a — agriculture, forestry, and fishery.

b — mining; manufacturing; construction; electricity, gas, and water; transport, storage and communications.

c — all other (trade, restaurants and hotels; public administration; community, social, and personal services).

d — Compound annual (geometric average) rate.

e — Gross domestic product at 1975 prices, less output (income) from ownership of dwellings.

f — Man years per million won of output in 1970.

Sources: as in Table 1.

ficient, however, to offset the decline.³

The productivity measures presented in Tables 2 and 3 both show, in index form, the change in output per worker from 1970 to

³Estimates for the 1963-70 period are derived from the author's "Labor Absorption in Korea Since 1963". Figures for earlier years cannot be used since consistent estimates are available only since 1963. Also, the census data for 197 and 1980 are not wholly comparable because the 1970 census was conducted on October 1, the 1980 census on November 1. Monthly surveys that began in July 1982 show a sharp drop in employment of 1.2 million from October to November that is centered in farm households, probably because October, when rice

Table 3 — Labor Intensity, Productivity, and Relative Growth
Within the Industrial and Service Sectors, 1970-1980

	<u>Mining</u>	<u>Manu- facturers</u>	<u>Electric Water, Gas</u>	<u>Construc- tion</u>
— Labor Intensity (n/y)	0.92	1.59	0.63	1.38
— Marginal Productivity ^a $(\frac{y + \Delta y}{y + \Delta n} \div \frac{y}{n})$	180	217	366	179
— Labor Absorption Rate of Income Growth (Gn/Gy)	— .19	.44	.11	.37
	<u>Transport, Storage, Communication</u>	<u>Trade</u>	<u>Finance, Insurance, Real Estate</u>	<u>Other Services</u>
— Labor Intensity (n/y)	1.07	1.29	0.59	1.42
— Productivity Indexes for 1980, 1970 = 100 $(\frac{y + \Delta y}{n + \Delta n} \div \frac{y}{n} \times 100)$	214	145	98	131
— Labor Absorption Rate of Income Growth (Gn/Gy)	.39	.55	1.02	.33

Sources: as in Table 1

harvested, and wheat and barley are planted, is a seasonal peak for farm employment. Since the survey reference period is the week centering on the 15th of the month, the September-October average should approximate October 1, the October-November average November 1. The decline from the first average to the second was 478 thousand, so that a 1980 census taken on October 1 would have shown employment to be 3.3 per cent higher in 1980 than the actual census taken on November 1. This also suggests that farm employment dropped less than is shown here and, in consequence, the decline in labor intensity would be smaller. More important quantitatively, however, is the impact of cyclical differences that have the opposite effect on labor intensity. Output growth was similar to that in adjacent years in 1970, but not in 1980 when there was an unusual 6.2 per cent decline. This centered in agriculture (1980 output was 20 per cent below the 1979 level) so that adjusting output figures to normal (adjacent) levels would lower labor intensity and accentuate the long-term decline from 1970 to 1980.

1980. Overall productivity increased 76 per cent from 1970 to 1980, an average of 5.8 per cent a year. This is probably the best single indicator of the impact of investment in human and physical capital and of the application of new technology on Korea's economic performance, and it shows that the impact was substantial. Except for the finance-insurance-real estate group, estimates for individual categories appear reasonable.⁴ Productivity increase was particularly pronounced in the industrial sector and, within industry, in manufacturing and such capital-intensive categories as electric-water-gas and transport-storage-communications. One reason may be manufacturing's role as the principal export sector and government policies that allocate credit in ways which have favored export growth. Since the investment-output relationship typically requires relatively little investment per unit increase in output for manufacturing (incremental capital-output ratios are low) and manufacturers have accounted for more than their share of non-residential fixed capital formation since the early 1960s, large productivity increases would be expected. The government's emphasis during the late 1970s on expanding particularly capital-intensive manufacturers like steel and chemicals should also show up in productivity increases by 1980. Productivity increase in the utilities and transport categories may have been above-average because these categories have maintained large shares of a rapidly expanding investment total. Utility investment accelerated in response to power shortages in the late 1960s and again in 1976 and afterward with the development of nuclear generating capacity. Similarly, transport investment doubled from 1966-67 to 1971-72 as the national highway network was developed to break a railway bottleneck. Productivity may have also increased because of the "lumpiness" of fixed-capital formation in utilities and transport. Small electric generating plants are uneconomic, for example, while highways cannot be built half-a-lane at a time. Both capital and labor are thus initially underutilized, but as demand increases, productivity rises because output expands with no increase in employment as labor is more fully employed.⁵

⁴The estimate for the finance-insurance-real estate category, as before with the labor-intensity measures, is unexpected because it shows that productivity declined from 1970 to 1980. Since real investment in the category more than doubled from the late 1960s to the late 1970s and many firms had acquired sophisticated office equipment by 1980 the explanation, as before, probably lies in product prices. In this instance, productivity may have dropped because the price of financial services should decrease or rise less than other prices as capital becomes more plentiful.

⁵East African railway and mining enterprises offer cases in point. See Frank (1968).

Aggregate productivity generally increases because of increases within individual categories and because of a shift in labor-force composition toward categories with above average productivity. This shift is seen in the employment categories where productivity more than doubled (manufacturing, electric-water-gas, transport-storage-communications). These categories accounted for 18 per cent of total employment in 1970, and 27 per cent by 1980. Since productivity increase competes with employment expansion and productivity increase was substantial, employment was undoubtedly lower in 1980 than it would have been if productivity had not increased or had increased less.⁶

The third measure given here, the labor-absorption rate of income (output) growth, relates annual (compound or geometric) growth rates for employment (G_n) to those for income or output (G_y) in the form G_n/G_y . Because this ratio measures the relative growth of employment and output, it can be used to show the amount of absorption per unit rise in output or its inverse, the rise in output associated with a unit increase in employment. It is related to both intensity and productivity in that absorption rises with rising labor intensity and falls with rises in labor productivity. Labor absorption in industry and the services has been almost twice the national average because labor has not been absorbed by agriculture but, on the contrary, has been expelled. Separate calculations for the numerator and denominator of G_n and G_y show that employment grew more in industry than in the services, but that this greater increase was more than offset by higher output growth (see Table 2). Overall, the labor absorption rate of output growth of 0.27 indicates that output (income) rose 3.7 per cent ($1/.27 = 3.7$) for each one per cent increase in employment during 1970-80.

Table 3 shows wide variance in labor absorption rates within the industry and service sectors. Absorption was negative in mining, partly because the demand for coal (the major mineral) stagnated after oil was substituted for coal in firing electric generators shortly before the first oil shock, partly because of productivity increases. Absorption was low in the electric-water-gas category because of unusually

⁶It is possible to calculate 1980 employment in the absence of productivity increase by dividing 1980 output by 1970 output per worker. This assumes, however, that output and its composition would be the same in 1980 with or without productivity increase, which is unlikely because incomes rise with productivity and, as incomes rise, Engel's Law requires that demand shifts in favor of more income-elastic goods and services.

high rates of productivity increase, but productivity increase cannot be invoked to explain the low absorption rate for other (community-social-personal) services. As with coal this was probably due to sub-average increase in demand and possibly to a shift in employment composition toward more productive jobs as the flight from domestic (household) service slowed employment growth⁷. Apparently high labor absorption in the finance-insurance-real estate category results from the same overstatement of output in 1970 that produced unrealistically low estimates for labor intensity and productivity increase. A more realistic estimate would be lower than the 1.02 shown. Relatively high absorption in trade, the largest service sector, accounted for 30 per cent of employment growth during the 1970s. This is a category where large units are more efficient as sales per employee or per unit of floor space rise with establishment size. There is little evidence that trade is the dumping ground for surplus that it may have been in the 1960s, nor is it clear that scale increase has yet been sufficient to restrict labor absorption.⁸

Productivity increase, change in demand, and other specific industry characteristics can be used to explain labor absorption in the three major sectors and their components, but absorption is also influenced by anything that alters the relative price of labor and capital or changes the scale of operations. The shift from import substitution to export expansion in the mid-1960s, for instance, increased absorption because Korea's exports are more labor inten-

⁷ Absorption in other services could also be low because output growth is upward biased or employment growth downward biased. I have no basis for assuming that employment figures are biased one way or the other, but the published output estimates are likely to be too low, not too high. The other services category includes government employees (less the military) and output is the sum of domestic product originating in public administration and defense as well as in community-social-personal services. The small increase in GDP originating in public administration and defense is almost the same as the increase in published estimates for government employment plus armed forces fixed at around 600 thousand. This is consistent with a national-accounting convention that measures government output growth by the increase in public employment with no allowance for productivity increase. This convention is highly unrealistic and downward biases published estimates of government output.

⁸ Censuses of wholesale and retail trade (plus restaurants and hotels) show that the average retail establishment (retail establishments account for over half of total trade employment) employed only 1.13 persons in 1968 and 1.81 in 1979. Average sales per establishment, after adjustment by the All-Urban CPI, rose 4.6 times in real terms, however, which shows that productivity increased significantly even if scale did not.

sive than its import substitutes and because export production has substantial indirect employment effects.⁹ In contrast, the emphasis on expanding iron, steel, chemical, and other large-scale, capital-intensive, import-substitute production during the late 1970s would reduce absorption. Credit allocation policies that favor large, well-established firms (particularly the *chaebŏl*, a Korean version of the earlier Japanese *zaibatsu*) also promote the increases in scale that reduce absorption. In mining and manufacturing, for example, the employment share of establishments employing 500 workers or more rose from 33 per cent in 1969 to 42 per cent in 1980. Output per worker in 1980 was more than twice as high in these establishments as in the ones employing 10-19 workers.¹⁰ Overvaluation of the *won* reduces import prices relative to domestic prices and encourages substitution of imported capital equipment for domestic labor. Domestic prices in Korea rose much more rapidly during the 1970s than prices in the US and Japan (Korea's main trading partners), yet the *won*-US dollar exchange rate remained unchanged from the end of 1974 to early 1980. Subsequent devaluation and adoption of policies to encourage previously neglected small and medium enterprises should favor absorption, though the absorptive effects of such policies were probably incidental to their adoption.

3. Urban Concentration and Employment

The employment and output estimates given in the last section were used to show how employment absorption and output growth during the 1970-80 period were related for each sector. I invoked government investment policy, productivity increase, shifts in demand, changes in relative factor prices, and growing scale of operations to explain changes in employment. The major changes, as employment rose by 2.5 million during the decade, were a sharp increase in industrial employment (1.8 million), a moderate rise (1.1

⁹ Estimates of the contribution of export to employment suggest that the direct and indirect employment generated by export production in 1970 accounted for 25 per cent of manufacturing employment and 9 per cent of total employment. See Cole and Westphal (1975).

¹⁰ Large firms do not necessarily have large establishments (i.e. operating units), but small firms cannot have large establishments by definition. The emphasis on iron, steel, chemical and other import-substitute industries limits labor absorption more because of the large-scale than because of the above-average capital intensity of these industries. Though investment in such industries might generate enough indirect employment (through forward and backward linkages) to outweigh low levels of direct employment, this is evidently not the case because "... small industry always has a greater labor requirement than its large-industry counterpart." See Meller and Marfán (1981).

million) in the service categories, and decline (0.4 million) in agriculture. Perhaps the main reason for the increase in industrial employment has been Korea's rapid, export-led industrialization which has been based on the exploitation of substantial comparative advantage in the production of labor-intensive manufactures.¹¹ Growth in service output and employment has been associated with industrialization and the expansion of manufacturing output for domestic and foreign markets. For example, much of the increase in employment by financial institutions, retail outlets, or — if the service category is to be defined more broadly — by the transport, storage, and communications sector has undoubtedly been caused by the growth of manufacturing output. The decline in agricultural employment, finally, can be explained by Engel's Law. This law postulates a low income elasticity of demand for food and food accounts for over 90 per cent of Korea's agricultural output.

None of these changes is unique to Korea, which shares them with most other newly industrialized countries. What is unusual, however, is the sharpness of the decline in agricultural employment. Although diminishing in relative importance since the quarterly surveys of the economically active population began in the early 1960s, agricultural employment started to fall in absolute terms around 1977. Declining agricultural employment has been associated with rapid urbanization, heavy rural-urban migration, and increasing concentration of non-farm jobs in urban areas.

We can examine the relationships among urbanization, growing concentration of industrial and service jobs in urban areas, and declining agricultural employment in Korea by comparing Korean experience with the experience in Taiwan. Development in Taiwan has perhaps been more like Korean development than any other country's during the past several decades. In 1970, 38 per cent of the population lived in urban areas in each country, but subsequent urbanization was more rapid in Korea. By 1980 when the proportion had increased to 47 per cent in Taiwan, it had reached 57 per

¹¹This feature of Korea's development has been extensively analyzed elsewhere. See, for example, Kuznets (1980).

cent in Korea.¹² This proportional measure is not wholly satisfactory because it takes no account of relative concentration in large metropolitan centers like Seoul and Taipei. One standard measure that gives more weight to metropolitan concentration is the sum of squares measure, or $H = \sum_{i=1}^n \left(\frac{P_i}{P}\right)^2$ where P = total urban popula-

tion, P_i = population in each of the n largest urban areas. Of particular interest is the inverse of H , a measure of the dispersal within urban areas. In calculating the inverse, or $1/H$ for Taiwan and Korea, n was limited to the largest cities that account for at least 70 per cent of the urban population.¹³ Values for $1/H$, which can vary from 1 (total concentration) to n (even dispersal), were 2.24 (1970) and 2.12 (1980) in Taiwan, 1.91 (1970) and 1.88 (1980) in Korea. Not only was urbanization more rapid in Korea than in Taiwan during the 1970s, but urbanization was considerably more concentrated around Seoul than around Taipei. In both cases, population increase has been more rapid in the suburbs or surrounding areas than in the cities themselves.

Korea's urban growth has been more rapid than total population growth so that much of the increase in urban population has come from rural-urban migration. A crude estimate of this migration, calculated by assuming natural increase in the cities is equal to that for the country as a whole, then subtracting natural increase from actual increase, shows that migration rose from 1.7 million in 1960-66 to 3.3 million in 1975-80, and that over two-thirds of urban growth in 1960-70 and 1970-80 has been due to rural-urban migra-

¹²Since urban areas have a minimum population of 100 thousand in Taiwan, but only 50 thousand in Korea, the Korean figures were adjusted by eliminating cities of 50-100 thousand for better comparability. A more serious problem is the administrative definition of cities and other population-size units. In Korea, for example, delays in reclassification have meant that towns (*eups*) with populations of over 50 thousand have not been reclassified as cities (*shis*). Also, some properly classified *eups* are more urban than rural, with high population densities and large proportions of non-farm households. See Chang, et. al. (1974). For these reasons, and because of rapid suburbanization in the areas around Seoul and Taipei, the adjacent provinces (Gyeonggi-do for Seoul, Taipei Hsien for Taipei) are included as urban in much of what follows.

¹³Areas included were Taipei and Taipei Prefecture, Khaosung, Taichung, and Tainan for Taiwan; Seoul and Gyeonggi Province, Pusan, and Taegu for Korea. Rand McNally's *Commercial Atlas and Marketing Guide*, incidentally, gives estimates for the Seoul metropolitan area (11.2 million in 1980) and the Taipei metropolitan area (5.05 million in 1981) that are much larger than those for each city proper. Methodology is described in Wheaton and Shishedo (1981, pp. 17-30).

tion.¹⁴ A similar calculation for Taiwan indicates that in 1970-80, rural-urban migration accounted for only 42 per cent of the less rapid urban growth. This difference is of interest mainly because it is evidence that the underlying forces that push people out of rural areas, pull them to urban areas, or both, are stronger in Korea than in Taiwan. One possible reason for Korea's migration is that farm, non-farm income differentials may have widened so that non-farm (mainly urban) employment has become increasingly attractive. This pull thesis competes with the push thesis, proposed below, that concentration of new jobs in urban areas has forced rural Koreans to migrate to the cities in order to find work.

Emphasis on income differentials should not obscure the fact that the real income of the average Korean farm household almost doubled during the 1970-80 period. Also, the available evidence suggests that from 1970 to 1980 rural-urban income differentials narrowed rather than widened. The evidence for this is shaky, however, because it is derived from calculations based on inappropriate data, inappropriate because the farm and non-farm figures are in many ways noncomparable. Farm and non-farm income estimates are taken from urban family and farm household surveys that were not designed to be compared. Also, results differ according to the kinds of adjustment used to improve comparability.

Adjustments to reflect differences in rural-urban living costs, household size, and tax burdens, to exclude the effects of inflation on farm inventories, or to include the imputed rental value of owner-occupied homes are large enough to alter the results.¹⁵ Parity ratios (farm income ÷ urban income) based on unadjusted data, for what they are worth, show that income of the typical farm household was only two-thirds that of the average urban household in 1970, but that parity increased to 81 per cent by 1981. Parity ratios for households in Taiwan have been similar, and ranged from 75 to 82 per cent in 1975-80. Though income differentials have fluctuated in Korea as parity fell from 1963 to 1967 or 1968, then rose to the mid-1970s before falling once again, the proportion of rural residents migrating

¹⁴This method, chosen rather than the census-survival method for ease of computation, has been used by others. See, for example, Kannappan (1983, p. 42).

¹⁵Estimates for the same year, with and without adjustment, have shown farm-household income to be as much as 32 per cent more or 28 per cent less than urban-household income! See Choo, 1982. Choo concludes that except for some widening in 1967-70, there is no evidence during the 1963-1979 period of growing rural-urban income differentials.

to urban areas has increased continuously from 9.3 per cent (of the 1960 base) in 1960-66 to 18.5 per cent (of the 1975 base) in 1987-80. This evidence, admittedly imperfect, suggests that Korean experience is inconsistent with the pull thesis.

The other possible reason for heavy rural-urban migration, and for the decline in agricultural employment, has been the concentration of new, nonagricultural employment in Korea's urban areas. Agricultural employment could fall without rural-urban migration, of course, if enough new non-farm jobs were created in rural areas to offset the decline. This did not happen during the 1970s. Also, more rapid decline in Korea's agricultural employment (7.0 per cent) than Taiwan's (1.7 per cent) in 1970-80 might result from more rapid increase in Korea's nonagricultural employment. This was not the case, however. Nonagricultural employment doubled from 1970 to 1980 in Taiwan while increasing only 59 per cent in Korea.

Heavy migration was inevitable, rather, because a large increase in rural labor-force entrants during the 1970s coincided with a small increase in the relatively limited supply of nonagricultural jobs available in rural areas. The total increase in potential new labor-force entrants from 1970 to 1980 was 5.9 million. This number includes persons aged 4-13 in 1970 who would be 14 or more by 1980, and therefore old enough to be covered in labor-force surveys, less those aged 14 or more who died between 1970 and 1980. Of the 5.9 million increase, 3.4 million either remained economically inactive or were unemployed, and only 2.5 million found employment. More than half of the young entrants after 1970 were children who lived in *myuns*, rural administrative units with population of less than 20 thousand.¹⁶ New jobs for them were located mainly in urban areas, however. The 0.4 million drop in agricultural employment — such employment is 95 per cent rural — was only partly offset by a small increase in rural, nonagricultural jobs (see Table 4). Urban non-agricultural employment, in contrast, rose by 2.6 million. While some rural youths would continue their schooling or remain otherwise economically inactive and others would fill existing jobs when they were vacated, many would have to move to urban areas to find employment.

As Table 4 shows, Korea's urban-rural pattern of employment contrasts sharply with Taiwan's. Nonagricultural employment was relatively larger in Taiwan's rural areas in 1970 than in Korea's,

¹⁶New entrants could also be drawn from those who were economically inactive in 1970, but most probably came from the 5.0 million of 9.1 million persons aged 4-13 in 1970 who lived in rural areas.

and this employment grew much faster in Taiwan, even faster than employment in Taiwan's cities. There are several possible reasons for the limited growth of rural employment in Korea. One is the extensive intervention by the government in private market activities. Entrepreneurs who need government approval to obtain scarce credit, import raw materials, and so forth, have extra incentive to locate in or near the center of government (Seoul) in addition to that provided by the usual benefits of urban agglomeration. Another reason has been the belated expansion of the infrastructure needed to attract industry. Korea's road network, for example, has been developed mainly in urban areas. While the overall supply of paved roads expanded from 32 km per 1,000 square km in 1970 to 107 km per 1,000 square km in 1980, the figure for Taiwan in 1970 was already 189 km per 1000 square km. Slow development of the rural infrastructure, in turn, followed from the emphasis on "building an industrial base" in Korea's first two five-year plans (1962-66, 1967-71), which focused on investment in industry rather than in agriculture.¹⁷

Priority shifted to "regional balance" and rural development during the Third Plan (1972-76), and the *saemaul undong* ("new-village movement") was initiated in late 1971 to improve rural life and raise farm incomes and productivity. These goals were implemented by subsidizing fertilizer costs (until 1975) and by increasing government purchase prices for barley and rice. While such measures reversed the 1963-69 decline in the average farmer's terms of trade (prices received ÷ prices paid) so that terms remained quite favorable through 1978, they probably did not help poor farm families much. These families have relatively small holdings and therefore market a smaller share of their output than more well-to-do farm families. They are also much more dependent on non-farm employment. Because their farm income did not benefit fully from government price supports and their off-farm income was restricted by the limited supply of rural nonagricultural jobs, the number of farm families in the smallest holding-size class dropped disproportionately from 1970 to 1980.

Opportunities to increase farm-family income through off-farm earnings have been limited for all farm families, not just poor ones. The average farm family in Korea derived 31 per cent of its income from non-farm activities in 1979-81. The comparable figure for

¹⁷ More detailed discussion of Korea's rural-urban balance and its income (rather than employment) consequences is given in Ho (1979, pp. 645-59). See also Ho (1982, pp. 973-90).

Table 4 — Nonagricultural Employment, Urban and Rural: Korea and Taiwan, 1970 and 1980

	1,000's				
	Urban		Rural		
	1970	1980	1970	1980	
				% increase	
<u>Korea</u>					
Industry	1,638.7	3,263.2	730.4	876.7	20.0
Services ¹	1,808.1	2,873.4	790.8	873.6	10.5
Total	3,446.8	6,136.6	1,521.2	1,750.3	15.1
<u>Taiwan</u>					
Total	1,650.9	3,182.8	1,159.1	2,410.0	107.9

¹ Does not include 27.9 thousand workers not classified by industry in 1970.

Sources: EPB, *Population and Housing Census Reports for 1970 and 1980* (as in Table 1); Department of Government Affairs, Taiwan Provincial Government, *1970 Taiwan Demographic Fact Book*; Ministry of the Interior, *1980 Taiwan - Fukien Demographic Fact Book*.

Taiwan (1979) was 73 per cent and 72 per cent for Japan a decade earlier.¹⁸ Such low levels of off-farm earnings are evidence that the supply of nonagricultural jobs in rural areas has been limited, and insufficient to provide employment for the large number of rural children who reached working age in Korea during the 1970s. The consequence, to recapitulate briefly, has been a relatively sharp decline in agricultural employment as many people migrated from the countryside to the cities. At the other end, the consequence was unusually rapid urbanization.

4. The Turning Point and Labor Supply

In the late 1950s and the first half of the 1960s Korea was the archetypal labor-surplus economy. Surveys of the urban (non-farm) labor force have revealed high rates of unemployment among young workers while the unemployment rate in Seoul in 1965 was estimated at 23 per cent. Studies of rural underemployment have found that there was a third more workers than needed in 1958-64, and that about 30 per cent of agricultural labor time in 1959 was unutilized.¹⁹ More recently, complaints of labor scarcity in agriculture and a Fifth Plan farm mechanization program designed to "... meet the potential labor shortage problem at harvest time ..." indicate that Korea passed the turning point from labor surplus to labor shortage sometime between the mid-1960s and the early 1980s.²⁰ The passage is significant because the marginal product of labor in the "traditional" (i.e., pre-modern or subsistence) part of the economy is low, possibly below the subsistence or institutional wage rate before the turning point is reached. Unskilled labor is freely available to the "modern" or capitalistic sector at the institutional wage rate and can be transferred from the traditional sector without loss of output. After the turning point, supply is limited and wages should rise with marginal productivity in the traditional sector.²¹ As output and employment expand after the turning point, with relatively less traditional activity such as peasant farming, household service, street vending, and household manufacture and relatively

¹⁸Kuo (1978, p. 48).

¹⁹The urban estimates are Ro Chung-hyun's, cited in Healey, (1972, p. 771). On rural unemployment, see Hong Young-pyo (1966, pp. 3-23), and Cho Young-sam (1963).

²⁰Government of the Republic of Korea, *The Fifth Five-Year Economic and Social Development Plan, 1982-86* (English version), 1982, p. 57.

²¹The terminology here is Arthur Lewis's. The turning point concept was developed by Lewis, Fei and Ranis, and Minami. See, for instance, Lewis (1954, pp. 139-91) and Minami (1968, pp. 380-402).

more large-scale manufacturing, finance, transport, and other modern industry-related services, the additional labor needed by the modern sector is no longer a free good from society's viewpoint. The opportunity cost of expanding modern-sector output is now the increasing loss of traditional-sector output.

If a turning point has been reached, marginal productivity of labor should rise and real wages increase . . . possibly with a lag . . . in the subsistence or traditional sector. The unskilled labor that was once freely available to the modern sector is no longer as available, so skilled-unskilled wage differentials should narrow as unskilled labor becomes increasingly scarce. Estimates by Bai for real wages and marginal productivity of labor in agriculture, a major traditional-sector component, show that both have risen continuously since 1963 but that marginal productivity, which started lower, rose faster so that the two were equal (crossover) in 1969. Also, since farmers should behave as profit maximizers after the turning point, product elasticity (marginal product of labor) in equilibrium should equal labor's income share because the marginal product of labor equals the wage rate in equilibrium. The product elasticity and labor-income share series reach equilibrium (crossover) around 1971, which confirms the other evidence that the agricultural turning point occurred around 1969 (Bai Moo-ki, 1982, pp. 125-27).²²

Though the agricultural turning point came in the middle of a period (1966-74) when terms of trade improved sharply for farm households, agricultural wages did not rise much in the late 1960s. Bai explains this anomaly by distinguishing urban from rural (mainly but not entirely agricultural) traditional sectors, noting that labor is supplied to the modern sector from both the urban and rural traditional sectors, and that agricultural wages would be depressed after the agricultural turning point if labor is still surplus in the urban traditional sector. The heavy rural-to-urban migration discussed in

²²As Bai notes, with the production function $X = f(K, L)$ where X =output, K = capital, and L = labor, the product elasticity of labor (β) is $(\partial x / \partial L) \cdot (L/X)$ and where W =wage, labor's income share (γ) is WL/X . Since $\partial x / \partial L = W$ in equilibrium, then $\beta = \gamma$. Another, earlier study by Sedjo dates the agricultural turning point around 1963. See Sedjo (1976, pp. 213-22). Sedjo estimates marginal product of labor in agriculture, which rises continuously from the early 1950s, and real wages of hired agricultural labor, which rise from 1963. He deflates wages with the farm consumer price index, an index that ". . . lacks representativeness as compared with the city consumer price index and is more vulnerable to sampling errors". (See Hakchung Choo, 1982, p. 20). Since the real-wage estimates are suspect and Sedjo offers no other evidence to date the agricultural turning point, Sedjo's findings are not used here.

the previous section might explain, in turn, why labor would still be surplus in the urban traditional sector. Bai estimates the supply elasticity of labor (with respect to wages) to the modern sector, calculates skill, occupational, sectoral, and firm-size wage differentials, and presents figures on changes in labor's income share and in job opening/applicant ratios to show that the second or "true" turning point came around 1975. That is, surplus labor no longer existed in either the urban or rural traditional sectors after 1975. The supply of labor to the modern sector therefore becomes increasingly inelastic and modern-sector wages rise with rising marginal productivity in the urban traditional sector (Bai, 1982, pp. 130-38).

Turning-point analysis explains the shift in employment from the traditional to the modern sectors and the exhaustion of surplus labor as development proceeds largely in terms of modern-sector demand. Little is said of supply factors that may alter the surplus in the traditional sector(s) and advance or retard the turning point. In Korea, supply has been influenced in recent years by the post-Korean War baby boom, expansion of education, and overseas construction activity. The number of potential new entrants (14 year olds) rose from 749 thousand in 1970 to 856 thousand in 1980 and will rise to 954 thousand in 1986 before beginning to fall. Overall population growth rates have declined, however, with accelerated economic development and the initiation of an unusually effective family-planning program in the early 1960s.

Actual numbers of new entrants have been less than the potential number. One reason has been the rapid expansion of schooling. The proportion of workers educated through the high-school level, for instance, rose from 26 per cent in 1970 to 43 per cent in 1980.²³ More secondary schooling has delayed entry for many young workers, as has the doubling of college entering classes that began in 1980. Also, when Korean firms became major contractors on construction projects in the Middle Eastern oil-producing countries during the late 1970s and early 1980s, as many as 200 thousand Koreans were working on these projects at one time. Such workers have been excluded from labor-force surveys since they were over-

²³Increased schooling is reflected in the economically-active population surveys, which show that while the total number of the economically active population rose 42 per cent from 1970 to 1980, the number of those aged 14-19 dropped 20 per cent.

seas.²⁴ An offsetting change has been the rise in female labor-force participation, which added 400 thousand workers to the labor force from 1970 to 1980. The increases, both in participation by women and in size of entering-age cohorts, more than offset the decreases, mainly from more schooling. The net effect of supply factors, consequently, has been to delay the turning point.

Though rising productivity and real wages may mark the turning point, a more obvious indicator would be declining unemployment. Unemployment, which has fluctuated narrowly between 3 and 5 per cent since 1970 does not reflect labor market slackness, tightness, or the turning point in Korea, however. Unemployment is not an alternative for the self-employed or family workers who still accounted for half of all workers as late as 1982. Also, without unemployment compensation, social security, and other social welfare programs, the alternative to employment for non-farm families is often family work rather than unemployment. Nor is unemployment an alternative for farm families during the slack season. The alternatives in this case are typically shorter workweeks or inactivity as women concentrate on housekeeping duties. For these reasons, unemployment is a poor indicator of labor-market conditions in general or the turning point in particular in countries like Korea.

Korea wages are also an imperfect indicator of the turning point in Korea. Though skilled-unskilled wage differentials should narrow after the turning point as surplus labor is exhausted, Bai found that the opposite had occurred. Wage differentials widened in the late 1970s, according to Bai, because an economic boom at the time centered in heavy industry with "unusual demand for the skilled." The boom coincided with supply restrictions from labor outflow to the Middle East and unduly limited college enrollments (Bai, 1982, p. 132). He might also have mentioned that the government, concerned with growing wage disparities during the mid-1970s, tried to narrow wage differentials by pressuring employers to pay higher wages to unskilled workers. This led to higher wages (real as well as nominal) for all workers and, in the subsequent boom, to wage increases beyond those justified by productivity increases. Real wages consequently rose faster in the late 1970s than in the

²⁴The armed forces are also excluded from survey coverage. Unlike overseas construction workers, however, both numbers and length of service have been stable for a long period. This exclusion would therefore reduce actual below potential labor-force activity by a constant number, approximately 600 thousand.

early 1970s, which would appear to confirm Bai's 1975 turning point. Government intervention has also influenced wages more recently when real wages did not increase at all from 1979 through 1982 as a result of government wage-price controls.

Since real wages are affected by government edict as well as by market conditions in Korea, real wage increases do not necessarily indicate that the turning point has occurred. Other evidence is needed to confirm this. Such evidence can be found in Korea's labor force survey data on workweek, terms of employment, and activity status. The evidence suggests that if the turning point was not passed around 1975, supply was still tighter after this time than it was before.

Passage of the turning point from surplus to scarcity not only increases labor productivity and real wages, but should also increase hours worked, alter the status of workers, and affect the choice between activity and inactivity. The average workweek, for instance lengthened from 48 hours in 1970 to 56 in 1982. Lengthening was a combined product of the shift from agricultural work, with short average workweeks, to nonagricultural work with long ones, and the increase from 1970 to 1975 or 1976 in both agricultural and nonagricultural workweeks. In particular, the sharp increase in the proportion of nonagricultural workers working long hours can be seen as evidence of growing labor shortage. Similarly, tighter supply or growing shortage should encourage employers to offer regular rather than temporary or daily employment.²⁵ Tight supply should also allow workers who would otherwise be restricted to the family business as unpaid family workers to find outside employment for pay. In each case, the evidence is consistent with growing shortage. Increase in the number of regular employees from non-farm households accelerated during the late 1970s, for instance, while temporary employment declined and daily work grew more slowly. Self-employment and family work both lost ground to outside employment. Increased job opportunity after the turning point has, in addition, evidently encouraged women to work who would otherwise be inactive. This is seen in the slow growth of housekeeping and the rapid increase, especially during the late 1970s, of activity rate among women in non-farm households.

²⁵Temporary workers have employment contracts of less than one month, daily workers are those employed on the basis of daily need and all other workers who cannot be classified as regular employees. See Administration of Labour Affairs, *Yearbook of Labour Statistics*, 1979, p. 476.

The survey data, besides confirming turning-point dates, can be combined with supply measures to reveal something of how labor was absorbed before and after the turning point. Working hours were shorter when labor was more plentiful in the late 1960s, for example, and did not begin to rise until the early 1970s. One reason for this was the decline in the relative share of agricultural employment from 59 per cent in 1965 to 51 per cent in 1970 and 38 per cent in 1980. Average working hours in agriculture were only 72 per cent of those in other sectors in 1965 and 1970 before rising to 78 per cent in 1980. Agriculture thus retained a pool of underutilized workers before the turning point. Also, though entrance of young workers was increasingly delayed by additional schooling, and school attendance is a major reason for inactivity among people aged 14 or more, the economically active population increased faster than the inactive population throughout the 1970s. This was mainly due to the slow rise in housekeeping, the other major inactive-population category besides school attendance. From 1970 to 1980 as the number of women keeping house rose 20 per cent, the number who were economically active rose 48 per cent.²⁶ However, the main reason, besides rapid output growth, that labor could be absorbed before the turning point, and that additional workers could be found afterward, was the sharp jump in the supply of potential workers from the 1960s to the 1970s. Korea's working-age population increased 24 per cent from 1960 to 1970, then 39 per cent from 1970 to 1980, a time pattern that could not have been better suited to labor requirements before and after the turning point.

5 Recession, Recovery, and Beyond

The employment-output relationship, urban job concentration, and the turning point have been examined here mainly by evaluating growth from 1970 to 1980 or by comparing changes during 1970-75 with those in 1975-80. While the 1970s were years of world-record development for Korea, there was a dramatic reversal in 1980, slow recovery in 1981-82, and no return to rapid growth until 1983. The record is unusual not only because rapid growth came after the Nixon "shock" and subsequent international monetary disarray, and after the first oil shock in 1973 and the worldwide recession that followed, but because Korea maintained a high-growth strategy when

²⁶There was also a sharp decline from 1970 to 1980 in the number of men classified as inactive because of housekeeping duties. Housekeeping is probably the alternative to unemployment for men.

most other countries were adopting the deflationary policies that slowed growth and accelerated unemployment. The high-growth strategy, briefly, has involved heavy emphasis on export expansion, the use of foreign-exchange proceeds from growing exports to pay (in part) for increased investment, and the increased investment to raise productive capacity and output.²⁷

That the strategy worked can be seen by comparing Korea's growth record with those of the other 63 middle-income countries in its World Bank reference group. Investment increased more rapidly from 1960 to 1970 than in any of the other countries, and faster from 1970 to 1980 than in all but a few oil-exporters. Real output (gross domestic product) also rose faster from 1960 to 1970 than in all but three or four of the middle-income countries and, at 9.8 per cent a year (1970-79), faster than any but Syria's and Iraq's during the next decade (World Bank, 1982, Indicator Tables 2 & 4). The strategy also served, as we have seen, to expand employment absorption at a time of increasing labor supply.

This enviable record ended in 1980 when political turmoil after President Park's assassination the previous fall combined with disastrous harvests in 1979 and 1980 and soaring inflation to reduce output for the first time since the 1950s. The inflation, in turn, resulted from the second oil shock in 1979, the Park regime's obsessive drive to expand the heavy and chemical industries in the late 1970s, and inexplicable delays in adopting deflationary policies after they were clearly needed.²⁸ Inflation not only disrupted ordinary economic transactions but, when combined with failure to devalue the *won* from 1974 to 1980, also eroded Korea's considerable comparative advantage in the export of labor-intensive manufactures. Though output expanded once more in 1981 and 1982, growth was slow. It was slow because the new Chun regime adopted wage-price controls and restrictive monetary and fiscal policies to contain inflation, worldwide recession limited demand for Korea's exports, and excess capacity discouraged investment. Specifically, real exports rose only 5 per cent in 1982, the investment ratio (gross domestic capital formation ÷ GNP) fell from a record 42 per cent in 1979 to 31 per cent in 1982, and where GNP had expanded at an annual average rate of 9.8 per cent in 1970-79, the figure for 1979-82 was only 1.7 per cent.

Reversal and recession also raised unemployment and slowed

²⁷See Kuznets (1983).

²⁸See Kuznets (1982, pp. 71-87).

employment absorption. The published estimates of unemployment, for example, rose from 3.8 per cent in 1979 to 5.2 per cent in 1980. A more meaningful statistic, unemployment among employees from non-farm households, the population at risk, increased from 8.8 per cent to 12.2 per cent. There was also a decline in the quality of employment as the growth in numbers of non-farm household employees slowed while growth in the number of non-farm household family workers accelerated.²⁹ The slowdown in absorption and the decline in employment quality undoubtedly would have been greater if the growth of the working-age population had not slowed too, from annual rates of 3.4 per cent in 1970-79 to 2.4 per cent in 1979-82.

The recession of the early 1980s ended with a jump in the annual GNP growth rate from 5.4 per cent in 1982 to 11.9 per cent in 1983. Subsequent growth has been erratic as the annual rate of GNP increase dropped in 1984-85 before rising to 12.5 per cent in 1986 and, according to preliminary estimates, even more in 1987. Absorption responded to recovery too, but with a lag as employment increase slowed in 1983, reversed in 1984 and then rose sharply in 1985-86. The return to high growth rates, mediated by rising productivity, supported a substantial 13 per cent rise in employment from 1980 to 1986. This was less than the rise in potential supply (working age population), however, and unemployment would have increased if other factors had not reduced labor-force participation. One of these was the expansion of secondary and higher education, including a doubling of college entrance quotas from 1980 onward. Increased schooling was probably responsible for declining participation among young people of working age. Between 1980 and 1985, for instance, activity rates among people aged 15-24 dropped from 38 to 30 per cent. Another factor that reduced participation was continued heavy rural to urban migration. This reduced participation because farm-household women have much higher activity rates than women in non-farm households. Rural to urban migration in 1980-85 (3.4 million) was of the same order as that in 1975-80 (3.3 million), and female activity rates during the 1980-86 period were in the 52-56 per cent range for farm households, only 36-40 per cent among non-farm households.

Korea's absorption problems were recognized publicly for the

²⁹Gregory argues that employment status provides one basis for assessing quality of employment, and that unpaid family workers and the self-employed "... are frequently viewed as representing employments of last resort ...". See Gregory (1980, p. 677).

first time in the Fifth Plan (1982-86) targets. These include annual growth rates of 7.6 per cent for GNP, 4-5 per cent for productivity, and 3 per cent for employment. Since 1981 base-year unemployment was 4.8 per cent and employment was to rise faster than the economically-active population, unemployment was to drop to 4.0 per cent by 1986. Actual growth was above target, as was productivity increase, while both employment and activity rose less than anticipated. The unemployment target was achieved, but only because the shortfall in demand was exceeded by the shortfall in supply. Absorption may also have been greater, and unemployment lower than they would have otherwise been because the government imposed wage-price controls during the early 1980s — as part of a stabilization program to curb inflation — and pressured employers not to fire workers as the recession deepened.³⁰

Employment absorption in the future should continue to be shaped by demographic and educational development whose effects were already apparent in the Korea of the 1970s and the first half of the 1980s. Other developments — particularly the recent political upheaval that led to a wave of strikes in the summer of 1987 and the election of Roh Tae-woo as president in December, 1987 — are also likely to have an impact on absorption. Continued decline in the rate of population increase, for example, has reduced the size of the youngest age cohorts so that the potential labor supply should grow more slowly as the number of 15-year olds declines in the late 1980s. Education expansion, which reduced supply in 1980-86, should play a lesser role in the future. The proportion of middle and high-school graduates going on to the next higher level of education has risen in recent years so that enrollment ratios among working-age youth are already high by international standards. Similarly, rural to urban migration should have less impact on participation in the future than in the past. High levels of off-farm migration have drained the pool of potential migrants as Korea's rural population dropped by four million from 1975 to 1985. Also, since younger persons are more likely to migrate than older ones and earlier migration has already contributed to the aging of the rural population, migration potential is less than might be expected by counting those persons who still live in rural areas. (By 1986, over half of farm-household workers were 45 years old or older; the figure for non-farm households was only 14 per cent). Mechanization of agriculture may sustain migration, though, as equipment increasingly displaces farm workers. The

³⁰Wage-price controls would support employment to the extent that demand for labor is price elastic and, as is usually the case, the controls are more effective in curbing wage increases than in restricting price hikes.

stock of power tillers doubled from 1980 to 1985, for example, but there were still fewer than 600 thousand for 1.9 million farm families.

Riots and public protest in the spring of 1987 persuaded President Chun to call elections rather than appoint a successor before stepping down in early 1988. A wave of strikes in the summer then revealed labor discontent as well as political unrest. This was hardly surprising since repressive laws and government policies had reduced unions to impotence and fostered a widespread view that workers had not shared the fruits of Korea's development. The strikes also revealed the fragility of labor-management relations and the unwillingness of a previously interventionist government to intervene in strikes for fear of losing popular support for its candidate in the upcoming election. These developments suggest that unions are likely to play a larger role in labor markets in the future, perhaps a modest one like Japan's weak enterprise unions, possibly a strong one along the lines of Western industrial unions. Weakness or strength should be evident in the unions' impact on wages and working conditions or, to the extent that demand is price elastic, in their impact on employment absorption. Other developments may also influence absorption, such as increasing friction with trading partners, but these should have less immediate effects than the dramatic political-institutional events of 1987.

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