Economic Growth and Equity in the Republic of Korea
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Country Economic Reports


(continued on inside back cover)
Economic Growth and Equity in The Republic of Korea

D. C. RAO*

The World Bank

Summary. — This paper presents a specific country case study of the relation between growth and equity. The study takes account of structural characteristics as well as government policies that have been used in the Republic of Korea. The first section reviews trends in employment and income distribution in the Republic of Korea during the last 10–15 years. It is seen as a country which has been quite successful in combining rapid growth with improved equity, and employment is considered the most important factor in this success. The second section discusses emerging problems which might affect equity in the Republic of Korea in the next decade and considers policies which might be required to deal with them.

The purpose of this paper is to consider the relation between growth and equity in a specific country setting — taking account of structural characteristics as well as the development strategy and specific interventionist policies that have actually been used. (The word 'equity' is used loosely to cover both absolute poverty and relative inequality of incomes. Where a distinction seemed necessary it is made.) The paper is in two parts. The first reviews the Republic of Korea's (referred to here as Korea) experience in the last 10–15 years, which is generally regarded as being exceptionally successful in combining rapid growth with advance in equity. This section includes a discussion of employment trends, employment being the most important contributor to the growth of incomes of the relatively poor. The second part of the paper discusses problems which are likely to affect equity in the next decade and their implications for policy formulation.

EMPLOYMENT TRENDS AND THE DISTRIBUTION OF INCOME

The data on the distribution of income in Korea are better than in many other countries but still rather fragmentary and generally defective. However, by combining information from various sources, some studies have attempted to formulate acceptable findings.1 First, the distribution of income in Korea is among the best in the developing world. A survey in 1970 showed that the bottom 40% of the people in Korea received 18% of the total income and the top 20% of the people received 43% of the total income. Information on 45 developing countries presented in a recent study2 shows that these shares are more egalitarian than in most other developing countries. Second, it would appear that there was no significant deterioration in the distribution of income between the mid-1960s and 1970/71 although, on the basis of cross-section evidence, one would have expected an increase in inequality during this period.

In evaluating Korea's good performance in distributing the benefits of growth during the last 15 years, one must note that it is partly a result of the elimination of great disparities in asset ownership in the period before rapid industrial growth took place.3 The partition of Korea in 1945 and the Korean War destroyed what little industrial wealth there was in the south, and a sweeping land reform radically altered the distribution of agricultural wealth. Before the land reform, it is estimated that around 94% of farmers were either full- or part-tenants. Redistribution of Japanese-held land in 1947 and a

* This paper has benefited from analyses of the Korean economy by numerous colleagues at the World Bank. I would particularly like to thank Mr. P. Hasan for extensive comments. The views stated here are my own and do not necessarily represent the views of the World Bank.
further land reform in 1949 virtually eliminated tenancy, put a ceiling of 3 hectares on paddy holding, and established a structure of very small owner-operated farms. The current structure of landholdings in agriculture is given in Table 1 below, which shows that land ceilings continue to be strictly enforced.

Table 1. Farm size distribution, 1968 and 1974 (% of Farm Households)

<table>
<thead>
<tr>
<th></th>
<th>1968</th>
<th>1974</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landless</td>
<td>2.2</td>
<td>4.7</td>
</tr>
<tr>
<td>Under 0.5 ha</td>
<td>33.2</td>
<td>28.3</td>
</tr>
<tr>
<td>0.5 to 1.0 ha</td>
<td>31.8</td>
<td>34.0</td>
</tr>
<tr>
<td>1.0 to 1.5 ha</td>
<td>17.6</td>
<td>18.3</td>
</tr>
<tr>
<td>1.5 to 2.0 ha</td>
<td>8.4</td>
<td>8.2</td>
</tr>
<tr>
<td>2.0 to 3.0 ha</td>
<td>5.2</td>
<td>4.9</td>
</tr>
<tr>
<td>Over 3.0 ha</td>
<td>1.6</td>
<td>1.6</td>
</tr>
<tr>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: Ministry of Agriculture and Fisheries, Yearbook of Agriculture and Forestry Statistics (1975).

In the last decade, there has been a small increase of tenancy arrangements and a decline in the proportion of households owning less than 0.5 ha (which is probably a sub-marginal size of holding), but the broad characteristics of land distribution have not changed. The broad distribution of land contributed importantly to the fact that farmers gained equitably from the growth of farm incomes, and the early spread of education enabled a wide segment of the population to participate in the rapidly expanding modern manufacturing sector and was instrumental in the extensive modernization of agriculture. A major adult education campaign had been started in the late 1940s, and primary education was made nearly universal by the early 1960s. In 1945, about 22% of those over 12 years of age were estimated to have been literate; literacy is now estimated at about 90%. There has also been an impressive growth of enrollment at all levels. Only a few remote rural areas are not yet reached by middle schools, and enrolment rates at this level now exceed 75%. The ratio of population aged 20–24 enrolled in tertiary institutions has reached nearly 10%, very high by the standard of developing countries. The investment in education has had a significant impact on the quality of the labour force. The proportion of those employed who have had some secondary and higher education doubled (from 16 to 32%) between 1960 and 1970; the ratio of those who have had no formal education dropped from 45 to 24% in the same period and would, no doubt, be much lower today. The breadth and intensity of the improvement in educational attainment has been one of the major elements in Korea's development strategy. The availability of a well-trained and highly productive labour force made possible the rapid expansion of manufacturing activities that intensively used labour, particularly skilled labour, and a rapid growth of labour productivity and incomes.

As national data on the size distribution of income are not available, one cannot assess with full confidence the impact of recent developments. However, partial analyses of the development strategy and various government policies tend to support the view that equity objectives have not been ignored: and, as noted above, at least until 1970, there was no significant increase in income inequality.

The relatively good performance of Korea in the distribution of the benefits of growth is principally the result of the growth strategy itself rather than the outcome of fiscal intervention in the form of taxes and subsidies. Choosing to rely on exports because of the poor endowment of natural resources, Korea was driven by the forces of comparative advantage to expand labour-intensive manufacturing activities. This has generated a rapid growth of employment, which directly benefited those at the lower end of the income scale. The marked improvement in the employment status of the population is undoubtedly the most important continuing influence in favour of equity in Korea.

Employment and wages

In the last two decades, Korea has accomplished a tremendous improvement in the employment situation, although the pool of employable population has also grown exceptionally rapidly because of the interaction of a variety of demographic forces. The rate of growth of aggregate population declined from 3.0% p.a. during 1955–60 (a high growth rate, mostly the result of the baby boom following the Korean War) to a current rate of about 1.7% p.a. A substantial proportion of this slowdown was the result of a decline in marital fertility rates. However, the employable popula-
Continued to grow at higher rates. Until 1969, the annual growth rate was about 2.7%; it then accelerated to around 4.0% p.a. in 1971 and 1972; and has since decelerated to around 3.3% p.a. in 1975. The principal reason for this pattern of growth rates is the gradual maturing of babies born during the baby boom. The expansion of school enrolments has accounted for an increasing proportion of the employable population (see Table 2). Despite this, the labour force has grown faster than the employable population, at an average rate of 3.4% p.a. from 1963 to 1975 because of an increase in the proportion of the employable population seeking jobs. Nevertheless, the rate of unemployment has declined from 8.2 to 4.1% of the labour force because employment has grown even faster at the extraordinarily high rate of 3.7% p.a. during this period.

The main reason for the growth in employment is, of course, the rapid expansion of economic activity. The sectoral composition of employment has changed markedly in response to shifts in the structure of production. Although the absolute number of those employed in each of the three sectors has tended to expand (barring declines in agriculture in some years), there has been a significant shift in composition toward manufacturing, away from agriculture and, in recent years, also away from services (Table 3). Despite its small base in 1963, the mining and manufacturing sector absorbed 38% of the incremental employment during 1963–75 and 47% during 1971–75. The contribution of the manufacturing sector in improving the employment situation has been crucial and can be traced directly to the strategy of emphasizing labour-intensive export expansion. In addition to its direct absorption of employment, the manufacturing sector has also played a crucial dynamic role in increasing demand for services and in stimulating productivity growth in both services and agriculture.

Although rural population has been declining for the past decade, employment in the agriculture sector has increased; almost all of the increase has taken place since 1971, however. Prior to that, the numbers in agriculture fluctuated between 4.8 and 4.9 million; since 1971, there has been an increase of around 600,000 persons. It is not easy to explain this phenomenon, although there are a number of plausible hypotheses. The rising employment could be a result of the growing importance of crops other than grain, such as vegetables, that require more labour input; or of the fact that technological changes in agriculture (high-yielding seeds, improved water management, even power tillers) have not been labour-saving; or the higher proportion of women and aged in the rural labour force, which means more persons are required to supply the same amount of labour; or of the fact that agriculture tends to absorb the residue when manufacturing and services do not absorb the full increment in the labour force as in 1970–71 and 1974–75 when demand for labour in manufacturing was relatively slack. Some empirical evidence can be found in support of each of these possibilities. The basic facts are, however, that labour productivity in the agricultural sector is still low in comparison with other sectors, and is rising less fast than in other sectors of the economy. In 1975, value-added per worker in agriculture (including forestry and fishery) was

<table>
<thead>
<tr>
<th>Table 2. Manpower utilization (million persons and %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1963</td>
</tr>
<tr>
<td>Employable population*</td>
</tr>
<tr>
<td>Attending school</td>
</tr>
<tr>
<td>Labour force</td>
</tr>
<tr>
<td>Employed</td>
</tr>
<tr>
<td>Unemployed</td>
</tr>
<tr>
<td>(Unemployed as % of labour force)</td>
</tr>
</tbody>
</table>


* Defined as those 14 years or more of age, excluding military, prisoners and other institutionalized persons.
Table 3. Sectoral structure of employment

<table>
<thead>
<tr>
<th></th>
<th>Percent Composition</th>
<th>Rate of Growth (% p.a.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1963</td>
<td>1975</td>
</tr>
<tr>
<td>Agriculture, forestry, fishing</td>
<td>63.1</td>
<td>45.9</td>
</tr>
<tr>
<td>Mining and manufacture</td>
<td>8.7</td>
<td>19.1</td>
</tr>
<tr>
<td>Social overhead &amp; others</td>
<td>28.2</td>
<td>35.0</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>


the equivalent of $876, compared with $2,407 in mining and manufacturing and $1,586 for the economy as a whole. The growth of labour productivity in the agricultural sector was quite rapid during 1963–71, at 4.3% p.a., but slowed down during 1971–75 because of the increase in numbers employed in this sector. It is generally accepted that there still exists some under-employment in agriculture in the sense that the numbers employed in agriculture could decline without any significant losses of agricultural output, provided some means were found to cope with the very sharp seasonal peaks in labour demand in the sector.

As evident from Table 3, the manufacturing sector still employs less than half the number working in agriculture. But its marginal contribution is significant. Between 1963 and 1975, the increase in employment in mining and manufacture was 1.6 million, 38% of the increase in total employment. It is noteworthy that during most of this period, there has been no drift towards capital deepening in the manufacturing sector as an aggregate; both capital stock and employment increased by a little more than 100% between 1966 and 1973. This suggests that the gain in labour productivity is a result of improvements in technology and management or a more efficient allocation of labour to sectors where productivity is greater, rather than a higher capital-intensity of production.

For the economy as a whole, the average real wage has increased at a rate of nearly 7% p.a. during 1963–75; the share of wages in national income increased slightly in the mid-1960s and has been around 38% since 1967. In aggregate, compensation per worker rose faster than output per worker during 1966–70 but considerably slower during 1970–74. Real wages in agriculture have tended to rise at about 5% p.a. during the past decade, except for a sudden absolute drop in 1974. There are no data on how wage rates have changed in the services sector, and data on wages in manufacturing and agriculture are not always on a comparable basis. It would appear, however, that because of the close relationship of wage trends between the manufacturing sector and the rest of the economy, wages in services have continued to grow quite rapidly, even in sectors where productivity growth might not have been so fast.

Recognizing the importance of sustaining employment growth, the Korean Government has always emphasized economic expansion to the limits of the availability of resources. GNP growth exceeded 7% even in 1972, when the Government imposed a stabilization programme following a balance-of-payments crisis, and in 1974 and 1975, when the economy was adjusting to a drastic adverse shift in the international terms of trade. In addition to emphasizing economic growth, Government policy has attempted to create an environment favourable to the use of labour-intensive techniques of production. Since 1965, real interest rates have, in general, been fairly high, although there have been periods when that has not been the case or low-cost borrowing from abroad has been permitted. In general, rising wage costs have not posed a serious threat to labour-intensity because real wages have not risen faster than labour productivity. Strikes are illegal. Continued improvement in education levels has provided a pool of labour that can be easily trained, reaching productivity levels that enable profitable exports while, at the same time, increasing real wages and incomes at a remarkable rate.

Subsidies

As noted earlier, direct fiscal intervention in favour of improving the size distribution of income is small. Excluding agricultural subsidies (which are discussed below), the payment
of subsidies from the central government budget amounted to only 1.7% of GNP in 1975, even if one includes transfers to local governments for expenditures on education. Incentives to the private sector, however, have tended to encourage capital-intensity, using interest subsidy and accelerated depreciation allowances rather than wage subsidies. No analysis is available of the redistributive impact of government operations in Korea but, once again, one can conjecture that it is not especially significant. The Government enterprise sector is not large in relation to the rest of the economy. Public expenditures on education are relatively large (around 3% of GNP) and, in large part, are directed toward providing free and compulsory primary education and a high quality public secondary school system. The tax system does not appear to be especially progressive. Although income tax rates are very progressive, they are diluted by a variety of exemptions. Indirect tax rates tend to be quite high on luxury commodities, but, in the absence of systematic studies of the tax burden, one cannot be sure of their net effect.

Thus, government expenditures (other than those on grain subsidies) are not specifically directed to the alleviation of poverty. Some expenditures, such as those on education, have clearly had some beneficial effect on income distribution. The more significant Government influence, however, is the strong policy emphasis on exports and economic growth, which has generated opportunities for employment and incomes that have substantially improved the living standards of the masses.

Rural urban balance

The substantially faster increase in labour productivity in the manufacturing sector, while half or more of the labour force is in agriculture, accentuates the problem of disparities in household incomes between the rural and urban sectors of Korea. Because of the great social importance of reducing rural—urban income disparities, the Government has monitored the situation very closely. A variety of instruments has been used to bolster rural incomes. The most important of these has been the price of grain, affecting the rural—urban terms of trade. Table 4 presents data on the relative prices of goods sold and purchased by farmers for selected years. From a peak in 1963 (before the acceleration of economic growth), the farmers' terms of trade deteriorated rapidly up to 1966 and reached a trough in 1968. Between 1968 and 1973, prices paid by farmers for their purchases increased by nearly 9% p.a., but their selling prices increased faster, principally because of the rate of increase in grain prices, and their terms of trade reached a peak of 114.7 (1970 = 100). Since then, there has been a small drop in the terms of trade because of the sharp increase in the farmers' cost of living (by 36% p.a. in the two years compared to an increase of 25% p.a. for the urban consumer price index). To some extent, the improvement of the farmers' terms of trade has been achieved by the subsidization of inputs. The sale price of fertilizer was held below costs by an increasing margin after 1971 until, in 1975, unit costs exceeded revenues by as much as 88% of the selling price. Quantitatively much more significant, however, has been the Government's support for higher grain prices to provide higher rural incomes. The ratio between the Government's selling prices and the price at which it purchases domestic rice and barley are shown in Table 5. Since 1968, the Government's release price of barley has been consistently below its purchase price and the difference has been expanding significantly.

Table 4. Farmers' terms of trade (Index, 1970 = 100)

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Prices received</td>
<td>40.1</td>
<td>74.3</td>
<td>164.2</td>
<td>267.6</td>
</tr>
<tr>
<td>(of which grain)</td>
<td>(47.3)</td>
<td>(73.1)</td>
<td>(169.0)</td>
<td>(303.1)</td>
</tr>
<tr>
<td>Prices paid</td>
<td>35.3</td>
<td>78.8</td>
<td>143.1</td>
<td>237.9</td>
</tr>
<tr>
<td>Terms of trade</td>
<td>113.6</td>
<td>94.2</td>
<td>114.7</td>
<td>112.5</td>
</tr>
</tbody>
</table>

Source: LPB, Monthly Statistics of Korea.

Table 5. Grain price support by government (Ratio of Government release to purchase prices*)

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Rice</td>
<td>1.19</td>
<td>1.17</td>
<td>0.99</td>
<td>0.85</td>
</tr>
<tr>
<td>Barley</td>
<td>0.90</td>
<td>0.88</td>
<td>0.86</td>
<td>0.75</td>
</tr>
</tbody>
</table>

* Excluding handling costs and wastage.

Source: Data from EPB and Ministry of Agriculture and Fisheries.

For rice, the purchase prices were below release prices until 1971; after which a considerable difference emerged. Without Government support of grain prices, the farmers' terms of trade could have deteriorated much more than the
2% that actually transpired between 1973 and 1975. The resulting deficits on grain and fertilizer were very large — about 2% of GNP in 1974 and 1975, excluding the amounts needed to finance the increase in stocks of grain and fertilizer.

Another instrument for reducing rural—urban disparities which has been heavily supported by the Government is the New Community Movement (Saemaul Undong). Broadly, the objective of the movement is to galvanize villages into improving their own living environment and productivity. Elected village committees select projects that are implemented principally by volunteer labour, with some assistance from the central Government in cash and building materials. The nature of the project depends on the level of organizational ability in the village. Starting with simple projects such as roof improvements and drains, villages progress to infrastructure projects (such as roads, bridges, minor irrigation) and schemes to supplement incomes (such as livestock raising, silk production, specialty crops and cottage industries). The physical infrastructure constructed under the movement is quite impressive, but it is worth stressing that the major objective of the Saemaul movement is to develop greater self-reliance, leadership and a sense of community, and thus to unleash latent development energies throughout Korea.

Official statistics show a striking improvement in the distribution of incomes between rural and urban households in recent years (see Table 6). Income disparities were at their greatest in 1967 when the manufacturing sector was doing very well and agricultural output declined because of poor weather conditions. Since then there was a sustained relative improvement in rural incomes until, as shown in Table 6, the gap was virtually closed. Compared to average urban households, rural households are slightly larger (5.6 vs 5.2) and have more workers (2.9 vs 1.3). Thus, official statistics still show a wide disparity in incomes per worker and a small disparity in incomes per capita between rural and urban sectors.

It should be noted, however, that the statistics underlying Table 6 suffer from a number of serious limitations. First, there are shortcomings in the definition of incomes and the coverage of the two surveys. The urban survey is confined to wage and salary earners rather than to all income earners and excludes those who earn more than a specified ceiling; the rural survey appears to define income as inclusive of changes in the book value of inventories and thus to overstate rural incomes in periods of rising inventories and grain prices. Second, since the comparison is based on nominal incomes, no account is taken of the difference in rates of inflation; as we have noted above, rural cost of living has risen faster than urban in recent years. This tends to bias the comparison, overstating the real increase in rural incomes in relation to urban incomes. The existence of such a bias is confirmed by cross-checks using national accounts data and comparing consumption rather than income. Allowing for these biases, it is likely that per capita consumption is about twice as high in urban as in rural areas and, if one allows for differences in inflation rates, there has not been much change in the relative position of urban and rural households in recent years.

Nevertheless, it is remarkable that average per capita consumption in rural areas (a concept that is not subject to some of the major measurement errors that beset the estimation of rural incomes) has grown at about 4% p.a. in real terms over the past decade. And one must recognize that preventing a widening of income disparities is a major task when labour productivity in manufacturing has been growing as fast as nearly 7% p.a. while agriculture suffers from severe land and climatic constraints. The basic

Table 6. Ratios of rural and urban income levels (%)

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<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Household incomes</td>
<td>116</td>
<td>63</td>
<td>87</td>
<td>102</td>
</tr>
<tr>
<td>Per capita incomes</td>
<td>107</td>
<td>57</td>
<td>80</td>
<td>93</td>
</tr>
<tr>
<td>Per worker incomes</td>
<td>43</td>
<td>27</td>
<td>41</td>
<td>48</td>
</tr>
</tbody>
</table>

Source: Data from EPB and Ministry of Agriculture and Fisheries.

Note: These are ratios of average monthly incomes of farm households to those of urban wage and salary earners.
problem appears to be the slow growth of non-agricultural incomes in the rural sector. These have remained at around 20% of farm household incomes for the last five years, having risen to nearly 24% for a brief period during 1968-70. As noted above, government policies have attempted to change this by establishing industrial estates outside existing industrial concentrations and encouraging the so-called 'Saemaeul' factories in rural areas.

The heavy reliance on manipulation of grain prices to remedy rural-urban disparities has important effects on equity. Within the urban sector, of course, keeping cereal prices low benefits the lower income groups. The share of cereals in total expenditures ranges from 30% for urban families with lowest total expenditures to 11% for those with highest total expenditures. Further, lower income groups consume relatively more barley than rice and, as noted in Table 5, it is barley that has been subsidized proportionately more and on a sustained basis. The impact on rural income distribution, however, is less favourable. The benefit from grain price support is distributed according to the proportion of output that is marketed. Families with smaller landholdings tend to consume a greater proportion of their cereal production and tend to derive a smaller proportion of their incomes from agricultural sources. Consequently, the proportionate impact on income from an increase in rice support prices is estimated to be five times as high for farmers who hold more than 2 ha. as it is for farmers who hold less than 0.5 ha.

While there are grounds for doubting whether rural-urban income disparities are being reduced and whether internal terms of trade are the appropriate instrument for achieving this objective, one should note that Korea's villages enjoy an unusually high level of basic services. There are 2.8 million rural households in about 45,000 villages, of which 18,600 villages are legally constituted (ri) and have about 100 or more households in them. All villages have easy access to primary schools and most villages to middle schools as well. Family planning material is widely disseminated - as evidenced by the fact that rural fertility rates have declined about as fast as urban rates. About 91% of all households have access to electricity. More than half of the legal villages have community telephones. Almost all villages are connected by roads, although there is still much room for improvement in the quality of rural access roads. Access to piped water is still relatively low. On the whole, the breadth of distribution of most services is probably better than that in other countries at comparable levels of development.

EMERGING PROBLEMS AND IMPLICATIONS FOR POLICY

Although Korea has had an excellent record in combining rapid growth with a reasonably wide distribution of the benefits of growth, some serious problems remain. Korea is running into problems that beset more mature economies while its per capita income is still low ($530 in 1975) and a substantial number of Koreans are poor. If one defines a 'minimum' income level at $138 per head (in 1975 prices, this being the income estimated to be required to support a consumption of 2,210 calories per day per person, using Korean dietary and expenditure patterns), it is estimated that roughly 8% of the population (slightly under 3 million persons) have incomes below this minimum level. Secondly, the income share of the top 20% of households is 6 times that of the lowest 20%. We will examine below some of the factors that will determine how successful Korea can expect to be in dealing with these problems in the next 5 to 10 years.

Demographic trends

Demographic factors will tend to be less favourable for achieving a rapid improvement in equity. Economic development and a vigorous family planning programme have succeeded in reducing fertility rates; and aggregate population grew by an estimated 1.7% last year. But because of the increase in the proportion of women of childbearing age, the rate of growth of Korea's population will probably accelerate (to about 1.9% p.a.) during the next decade even assuming a continued decline in total fertility rates. As more births imply a higher dependency ratio and lower per capita incomes, one of the determinants of equity will be the effectiveness of the family planning programme in reaching the lower income groups. An added concern is the recent tendency for the age at marriage to fall. (Rising age at marriage was a major explanation of the reduction in fertility in the past.) The reasons for this phenomenon are not well understood and it is not certain whether it is a reversal of a trend or merely an aberration. A relevant observation is that some labour-intensive export industries (mainly electronics) are based on the employment of unmarried girls. These girls tend to leave their
jobs on marriage rather than when they have their first child as in other countries. Thus, the age at marriage might well be related to the availability of and/or the demand for this particular type of job. The variety of interactive influences is clearly great and a better understanding of this problem would be needed for policy formulation in this area.

The momentum generated by the baby boom will continue to have a strong influence on the age structure of Korea's population for many decades (see Table 7). The principal consequence of the baby boom is that the labour force will continue to grow faster than the total population, probably until the end of this century. Assuming the current structure of labour force participation rates, the annual growth of the labour force is estimated at near 2.7% per annum during 1981–90, compared with the population growth rate of 1.9% per annum.12 The total labour force in 1990 is projected at 18.9 million, compared with about 12.7 million in 1976 and 14.9 million in 1981.

It is unlikely that specific policies can exert a broad influence on the rate of labour force participation, which tends to be determined by demographic and cultural factors in the long run and the employment situation in the short run. One should further note that the labour force participation rate among women in Korea is relatively low in comparison with several other countries (particularly in the middle age groups) and could well increase in the future, thereby increasing the supply of labour. While this is a good thing for income growth in the long run, the implications during the next decade could be less favourable. By postponing the tightening of the labour market, it will reduce the growth of incomes of the self-employed and wage earners particularly in the services sector. To the extent that the increased participation takes place in middle-income groups, the effect on the incomes of the poor could be more direct. The general policy implication of these trends is that employment demand will have to grow at around 3% p.a. in order to absorb the growth in the labour force. A higher growth will be needed to achieve significant improvements in equity.

**Growth constraints**

This is not an impossible task, recalling that employment grew at about 3.8% p.a. in the past decade. However, there are some constraints that must be overcome. Although domestic savings rates continue to rise (the marginal savings rate is in the region of 0.25 to 0.3), inflows of foreign capital will continue to be necessary to finance investment. While Korea's capacity to service external debt is currently strong and growing increasingly so, a continuation of external inflows conflicts with the goal of eliminating the current account deficit in the balance of payments by 1979 (stated in the Fourth Five-Year Plan). However, it is unlikely that policy-makers in Korea will allow employment growth to fall below 3% p.a. in order to achieve the goal of 'self-sufficiency'.

Continuing rapid economic growth also depends on the growth of demand for exports. Korea has recently been gaining in prominence as a major exporting LDC but its share in world manufactured exports is still less than 1% (or about 15% of LDC manufactured exports) and there is no indication that its competitiveness is currently being eroded. Thus, export prospects are good. One should recognize, however, that in the next 10 years or so, Korea will face more severe competition from lower wage LDCs; and, in the short run, Korea faces the threat of more severe quantitative restrictions on its exports imposed by the developed countries. Nearly half of Korea's exports consist of textiles, clothing, footwear and electronics - categories that have a high risk of being discriminated against by developed importing countries. Thus, the rate of growth of export demand will probably slow down significantly (from a

### Table 7. Age structure of population (%)

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</thead>
<tbody>
<tr>
<td>Below 15 years</td>
<td>40.6</td>
<td>43.5</td>
<td>38.3</td>
<td>30.9</td>
<td>28.1</td>
</tr>
<tr>
<td>15 - 64 years</td>
<td>55.7</td>
<td>53.2</td>
<td>58.2</td>
<td>64.3</td>
<td>65.5</td>
</tr>
<tr>
<td>Over 64 years</td>
<td>3.7</td>
<td>3.3</td>
<td>3.9</td>
<td>4.7</td>
<td>6.4</td>
</tr>
</tbody>
</table>

historical average of over 30% p.a. at constant prices). In addition, it is likely that exports will get more capital-intensive ... more of Korea's relatively scarce resources. Historically, manufactured exports have been less capital-intensive than most domestic manufactures or agriculture. But as a consequence of an attempt to shift to 'skill-intensive' export products (e.g. machinery and more technologically sophisticated electronics) in response to shifting comparative advantage, some increase in capital-intensity is likely to be unavoidable.

Another constraint on economic growth might be the difficulty in maintaining rapid growth in productivity. In the past decade, value added per worker in manufacturing grew at nearly 7% p.a. This was achieved without any significant increase in the capital-labour ratio largely because of the rapid expansion of labour-intensive export industries. As these industries now approach technological maturity and grow less fast, there could be a slowdown in the rate of growth of productivity in the manufacturing sector. The impact effect of this is on the modern manufacturing sector alone but it could also have a strong adverse influence on poverty alleviation through its effects on transfers (both public and private) and on wages and incomes in the services sectors.

Is it possible to increase the labour-intensity of growth, enabling a higher rate of labour absorption in the face of these constraints on aggregate growth? The problem is that, if anything, future output growth might generate employment more slowly than in the past because of increasing capital-intensity in the manufacturing sector. Increasing the rate of labour absorption in agriculture and services would not have much of an impact on per capita incomes or on equity because labour productivity in these sectors is still relatively low and is unlikely to increase markedly until the labour market gets tighter. In the manufacturing sector, capital-intensity is likely to increase not only because of the composition of export demand (as noted above) but also as an automatic response to rising wage costs and possible pressures to prevent a further worsening of the environment. Is it possible to counteract these tendencies by influencing the composition of domestic demand? The possibilities seem limited, especially as one of the policy objectives is to minimize the distorting effects of the indirect tax structure. Towards this latter goal, the dispersion in import tariffs is being reduced and most local indirect taxes are being replaced by a value-added tax. Special excise taxes are being retained on some 'luxury' items but it is unlikely that this instrument can also be used to discourage the consumption of 'capital-intensive' commodities. Thus, as long as investment resources are freely available for labour-intensive export industries (where the constraint is demand) and capital is not squandered on wasteful public investment, it would be difficult to further increase the labour-intensity of aggregate demand. Even so, it is still possible to influence the rate of labour absorption by policies that affect the factor intensity of production techniques. In general, as stated earlier, Korea continues to follow sensible policies in this regard. However, there are some emerging policy issues. One is the speed at which employer-based social security schemes ought to be introduced. Since these schemes will tend to increase the unit cost of labour and are unlikely to benefit workers in small firms (who are in greatest need), a large-scale pension scheme would probably adversely affect labour absorption. On the other hand, the social and political pressures for such schemes are great, partly as an indicator of greater prosperity. Another dilemma is caused by the need to correct some imbalances in wage structure without accelerating wage inflation. An immediate aspect of this problem is the pressure to increase Government salaries. While Government workers probably are underpaid, large increases in their salaries will almost certainly have an effect on other wages and, therefore, on the growth of employment. A third conflict is caused by the desire to encourage the establishment of heavy industry to facilitate the shift in export structure. This leads to the provision of subsidized credit from Government funds (at an interest rate of 12% whereas organized market rates for medium-term finance are about 21½%). The same objective also leads the government to support expansion in the metals and chemicals industry without an adequate analysis of their economic benefits and costs.

The policy implications of this discussion are not startling: (a) mobilize adequate resources (including external borrowing) to generate more rapid aggregate growth; (b) foster the absorption of new technology and provide other infrastructure to facilitate changes in the structure of the manufacturing sector and maintain the pace of productivity growth; and (c) continue to emphasize the absorption of labour, particularly in manufacturing, through the maintenance of appropriate factor prices and public investment policies. The difficulties arise, however, in identifying the specific instruments to be used toward some of these goals.
and resolving the internal conflicts that arise, as noted above.

Rising inequalities

While rapidly rising employment and a variety of Government measures (particularly regarding the rural—urban balance) have had a favourable influence on equity in the past decade, one must also note the existence of some contrary influences within both urban and rural areas. The ownership of urban wealth is probably more skewed than that of farm land, and aggregate urban wealth is undoubtedly growing much faster than rural wealth. Thus, while continued enforcement of land ceilings has prevented the emergence of large rural landowners, the overall distribution of wealth is probably more unequal now than it was 10 or 15 years ago. In recent years, there have been attempts to curb the accumulation of urban real estate by imposing progressive property taxation, taxing capital gains and by direct Government intervention in land transactions for urban redevelopment. These measures which appear to be strictly implemented have had a definite impact on the rate of growth of real estate values. But there has been a concurrent increase in returns from the securities market. Hence, the magnitude of impact on the overall distribution of wealth is difficult to assess. One should note that incentives for private accumulation continue to be necessary for sustaining growth in manufacturing, particularly in export activity.

In the rural sector, as we have noted, the larger farmers benefit more from the price support policies and have easier access to subsidized rural credit (which has a cumulative impact on their incomes in relation to small farmers). In the past, the Government induced a shift in the terms of trade in favour of the rural sector as a measure to promote equity. This shift will be difficult to maintain. Currently, there exists an unsustainable imbalance between Government purchase and selling prices of grains caused by the rapid increase in import prices in 1973 and 1974, a desire to compensate farmers for inflation (42% in 1974 and 26% in 1975) while cushioning the impact of imported inflation on the urban consumer. The fiscal burden implied by current Government grain price policies is excessive. Government selling prices cannot be raised much because it is holding stocks of inferior qualities of grain and because the control of inflation is itself a major policy goal. Therefore, it is likely that there will have to be greater restraint in raising purchase prices -- which is possibly a good thing from a distribution viewpoint but could have adverse production effects.

Role of government

As hinted above, Korea's interests as a trading nation play a dominant role in the determination of policy. In the past, this has led to a strong emphasis on promotion of labour-intensive exports which has had a coincidental benefit for equity. Gradually, policy determination has become more complex. As Korea becomes an increasingly large exporter (and evidently dependent on export growth) there are increasing political pressures to liberalize imports (to strengthen its hand in negotiating market access to developed countries). As dependence on foreign savings is reduced, the Government also loses some of its influence on the allocation of private investment. This further restricts the ability of Government to influence domestic demand composition or to levy high rates of direct taxation. Thus, while export growth will continue to play an important part in achieving aggregate growth of incomes and employment, increasing trade orientation will probably reduce the ability of the Government to intervene directly in the distribution of wealth and incomes. This must not be exaggerated, however. The Government still has the ability and the responsibility to improve the provision of piped water, electricity and paved roads for poor urban and rural areas; to increase the supply of low-cost dwellings for low-income households, particularly in urban areas and to improve the access of the poor to better medical facilities. Once again, while they are readily acceptable as objectives, their implementation poses severe administrative problems.

Macro-model simulations

The propositions that fairly rapid economic growth continues to be necessary to achieve significant gains in poverty alleviation during the next decade and that, even so, there will probably be some increase in relative inequality in the next few years, are supported by simulations of a macro-economic model of Korea that has been prepared by Mr. S. Gupta. The model uses an input output table, national accounting relationships, and informa-
tion on the distribution of income from income and expenditure surveys to construct a detailed simulation model of the Korean economy. The model is primarily long-run in its structure; investment is savings-constrained and export are exogenously specified. There is no optimization process, since sectoral investment shares are exogenously specified. Consumption elasticities are functions of per capita income and occupation classes; wages are determined by productivity, cost of living and unemployment, prices adjust to changes in the cost of production; non-wage incomes of workers are derived as a residual, deducting the cost of inputs (including wages and indirect taxes) from production value. Consistent solutions of the model are obtained, ensuring material balances in each sector. Aggregate household incomes for each sector are adjusted by the number of workers (determined by sectoral employment elasticities), the number of dependents (determined by demographic factors and unemployment) and incidence of taxes to derive per capita disposable income in each of 31 classes. It is assumed that the total income in each class is distributed according to a log-normal distribution with parameters estimated from base period data, i.e. it is assumed that within each of the 31 income classes, the distribution of income remains unchanged over time. However, the distribution of household incomes for the economy as a whole changes because of differences in the rates of growth of average per capita incomes in the different sectors.

In addition to the rate of unemployment and measures of relative income inequality (income shares and the Gini coefficient), the model also derives the number of persons whose per capita income is below a 'minimum' level of W 67,000 per year (i.e. $138) at 1975 prices. The number below this minimum income level is another very important indicator of equity. It should be emphasized, however, that the estimate of this number is by no means exact for a number of reasons. The estimation of the minimum income level is based on a number of assumptions and the derivation of projected household incomes does not account of transfers from rich to poor households which in reality would tend to ameliorate poverty. Further, the estimates are naturally sensitive to the employment situation and assumptions concerning which sectors carry the burden of caring for the unemployed.

The equity implications of alternative growth paths can be illustrated by comparing two simulations in which the average GNP growth rate for the period 1976–90 is 7.8% p.a. and 9.4% p.a. (see Table 8). It should be readily recognized that both 'high' and 'low' growth rates shown in this table are lower than the rate of growth actually achieved by Korea in the past decade and higher than the rates of growth achieved by most other developing countries. They are presented here because we believe they are both feasible and yet have significantly different implications for equity. The implications for employment and for various indicators of equity are presented in the table. As is to be expected, the high growth option scores significantly better on all the equity indicators primarily because of the rapid elimination of unemployment.

Under the low growth option, the rate of unemployment rises for another decade, and the employment situation begins to improve only in the latter half of the 1980s and only because the growth of the labour force slows down (from 2.9% p.a. during 1981–86 to 2.3% p.a. during 1986–90). With the higher growth path, full employment is reached in the late 1980s after which growth in GNP is reflected primarily in higher average labour productivity rather than in higher employment. The increase in labour productivity is obtained primarily as labour shifts from agriculture and services (where it is under-employed and hence has lower productivity) to the manufacturing sector where employment demand is growing fastest.

The improvement in the employment situation under the higher growth option has a dramatic effect on measures of relative inequality and on the number of persons below the minimum income level. By 1990, the ratio of incomes of the top 20% to the bottom 20% of the income distribution is projected to rise to 14 under the low growth assumption, compared with 9 for the high growth case. A comparison of the shares of the different income classes and of the Gini coefficient shows that the high growth path leads to a more egalitarian distribution of income both at corresponding time periods and at equivalent levels of per capita incomes. The difference in relative income inequality is particularly noticeable in the comparison of the shares of the bottom 20% shown in Table 8. Under the low growth option, even with an average growth rate of 7.8% per annum in GNP, the number of those below the minimum income can be expected to increase substantially, both in absolute number and as a percentage of total population. Under the high growth option, on the other hand, the number below the mini-
Table 8. Growth and equity

<table>
<thead>
<tr>
<th></th>
<th>Low growth*</th>
<th></th>
<th>High growth*</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GNP per capita (1975 $)†</td>
<td>594</td>
<td>814</td>
<td>1,311</td>
<td>840</td>
</tr>
<tr>
<td>Employment (millions)</td>
<td>12.2</td>
<td>14.2</td>
<td>18.2</td>
<td>14.3</td>
</tr>
<tr>
<td>(Agriculture) (5.5)</td>
<td>(5.6)</td>
<td>(5.8)</td>
<td>(5.6)</td>
<td>(5.8)</td>
</tr>
<tr>
<td>(Mining and manufacture) (2.5)</td>
<td>(3.3)</td>
<td>(4.6)</td>
<td>(3.3)</td>
<td>(5.2)</td>
</tr>
<tr>
<td>(Services) (4.2)</td>
<td>(5.3)</td>
<td>(7.8)</td>
<td>(5.4)</td>
<td>(7.9)</td>
</tr>
<tr>
<td>Unemployment rate (%)</td>
<td>3.7</td>
<td>4.8</td>
<td>3.7</td>
<td>3.6</td>
</tr>
<tr>
<td>Persons below minimum income (millions)**</td>
<td>2.7</td>
<td>2.3</td>
<td>5.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Share of bottom 40%</td>
<td>18.4</td>
<td>17.0</td>
<td>13.4</td>
<td>17.0</td>
</tr>
<tr>
<td>Share of bottom 20%</td>
<td>6.9</td>
<td>6.3</td>
<td>3.6</td>
<td>6.2</td>
</tr>
<tr>
<td>Share of top 20%</td>
<td>46.2</td>
<td>47.9</td>
<td>50.2</td>
<td>48.1</td>
</tr>
<tr>
<td>Ratio of top 20% to bottom 20%</td>
<td>6.7</td>
<td>7.6</td>
<td>13.9</td>
<td>7.8</td>
</tr>
<tr>
<td>Gini coefficient</td>
<td>0.383</td>
<td>0.406</td>
<td>0.456</td>
<td>0.407</td>
</tr>
</tbody>
</table>

Source: Simulations of the macro-model.

* The difference in GNP growth rates in the two alternatives is as follows:

<table>
<thead>
<tr>
<th>(% p.a.)</th>
<th>1976–81</th>
<th>1981–90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low growth:</td>
<td>8.4</td>
<td>7.4</td>
</tr>
<tr>
<td>High growth:</td>
<td>9.1</td>
<td>9.5</td>
</tr>
</tbody>
</table>

† Population is estimated to be: (million persons) 35.9 39.3 43.9 46.5

** Defined as those households whose income per capita is below the 'minimum' level of W 67,000 at 1975 prices. It should be noted that the magnitude in each year is sensitive to the assumed minimum income level.

The minimum income level declines in absolute terms and, as a proportion of total population, from 8% in 1976 to 3% in 1990.

Under both growth paths, the indices of relative inequality tend to rise and are higher in 1990 than in 1976. This is partly because of continued divergence between average incomes among various sectors of the economy (the result of differential growth rates of productivity) and partly due to the fact that the weight of economic activity is shifting from the rural sector, where incomes are relatively evenly distributed to the urban sector where income inequalities are much greater.18 Once full employment is reached however, the disqualifying effects of this structural shift are offset by the more rapid growth of productivity (and incomes) in the low-income urban occupations consequent on the reduction of underemployment. Therefore, in the high growth path, relative inequality begins to decline from the mid-1980s, whether measured by the Gini coefficient or by an examination of the income shares. The Gini coefficient reaches a peak of about 0.45 when per capita income is nearly $1,300 and then declines. About this stage, the income shares of the bottom 20% and 40% begin to rise and that of the top 20% to fall. Under the low growth path, however, the various indices of relative inequality continue to rise at least until 1990.19

Even if the higher degree of relative inequality could be tolerated, the large increase in the number of those below the minimum income level is a compelling argument against following the low growth path. To raise their average incomes above W 67,000 per year (the minimum income level) in 1990 the required income supplement works out at over W 200 billion, which is about 0.8% of GNP and 4.2% of government expenditure in that year. While these ratios do not, in themselves, appear large,
allowance must be made for the immense difficulty of targeting welfare expenditures so that they actually reach the poor. The actual amount of outlays needed to achieve the required income supplement would very likely be some multiple of the figures cited above and would be large enough to adversely affect public savings and future growth. We conclude, therefore, that the solution of the poverty problem under the low growth path would probably be beyond the scope of fiscal transfers.

Although the high growth path is distinctly superior on equity grounds, there are still some deficiencies in the picture presented in Table 8. The first area of concern is the deterioration in relative inequality for the next decade before the turning point in the mid-1980s. We have discussed above the structural causes of this pattern of variation in relative inequality and it might well be impossible to avoid completely without very drastic measures that would jeopardize the momentum of growth. As the per capita incomes of the bottom 40% are projected to grow at 4.8% per annum, one might accept a temporary decline in their share of aggregate income. Since the model assumes that there is no benefit from the tightening of the labour market until full employment is reached, the share of the low-income groups tends to decline further and recover more sharply than would, in practice, be likely. In reality, the improvement in relative inequality would probably start more gradually and sooner than projected in the model simulations. As the labour market tightens, there would be a gradual movement of labour away from the low productivity sectors into manufacturing, thus causing an earlier reduction in relative inequality. This process would begin in the early 1980s in the high growth path, but probably not until nearly 1990 in the low growth path.

A second area of concern is that, even with high growth, there might be a sizeable number below the minimum income level in 1990. Hence, some alternative form of income supplement would be needed. The amount of direct transfers needed to bring them above the minimum income level is not that great — 0.1% of GNP or 0.5% of government expenditure in 1990. The number of workers involved is not insignificant, however — over 2% of the urban work force. Thus while the scale of the fiscal burden is appreciably less than in the low growth case, it might still be difficult for a programme of direct fiscal transfers alone to eliminate the residual problem of poverty in the high growth case. It would probably be necessary to use additional redistributive devices. A minimal measure would be to ensure that even the poorest segments of society are adequately served with piped water, electricity, paved roads, etc. In addition, public subsidies could be used to ensure the cheap availability of goods purchased by the poor, so that the effective real earnings of the poor might be raised above the poverty level. Food, housing, health, education, and transport are possible vehicles for such a poverty-alleviation programme. In order to minimize leakage of the benefits to other income classes, a useful principle might be to provide sufficient variety of consumption goods and services, subsidizing only the lower quality goods to make them affordable by the poor while concurrently providing unsubsidized, better quality goods that the middle and upper-income classes would prefer. For example, this policy would call for the subsidization of barley, buses and small, low-income dwellings, while increasing the availability of rice, apartment houses, and common-use taxis (jitneys) without subsidization.

The principal policy conclusion from this discussion of the relationship between growth and equity would appear to be that the rate of growth of Korea's GNP would have to be sustained at over 9% p.a. in order to prevent an increase in the number of those below the minimum income level and a steady deterioration in relative inequality of incomes. This rate of growth would prevent these problems from getting too large and, at the same time, generate more resources which could be used for selective measures to raise the real income of the poor and further improve the quality of life more generally. If a growth rate of over 9% p.a. can be sustained and special measures taken, Korea can look forward to full employment and elimination of absolute poverty before the end of the next decade.

NOTES

1. See Irma Adelman and Sherman Robinson, Income Distribution Policy in the Developing Countries: A Case Study of Korea (Stanford University Press and Oxford University Press, forthcoming); Bertrand Renaud, Economic Growth and Income Inequality in Korea, World Bank Staff Working Paper No. 240


3. The following discussion draws heavily on Adelman and Robinson, Income Distribution Policy in the Developing Countries, and Choo, 'Some sources of relative equity in Korean income distribution'.

4. Defined as those 14 years or more of age, excluding military, prisoners, and other institutionali- zed persons.

5. Primarily because of an increase in labour force participation by women in rural areas.

6. It is not entirely clear why growth in real wages slowed down in the latter period. In part, this probably represented lags in the response of nominal wages to the acceleration in the rate of inflation. This could be the mechanism by which wage earners were made to share the loss in national income because of the adverse shift in the international terms of trade.

7. There has been substantial intervention to influence the rural/urban distribution of incomes. Since rural incomes are below urban incomes, these measures too, of course, have an impact on overall size distribution.

8. Prices of fertilizers were substantially raised in December 1975, and the subsidy was eliminated.

9. The monthly income ceiling was W 200,000 until 1975 and has since been raised to W 350,000 ($412 and $722 respectively at 1975 exchange rates).

10. See, for example, Bertrand Renaud, Economic Growth and Income Inequality in Korea, op. cit.

11. This section draws heavily on analysis of these issues by T. King, R. Moran and C. Pierce at the World Bank.

12. This projection does not allow for an increase in female participation in the labour force, which is currently relatively low.

13. Liquor, gasoline, jewelry, fur, electrical appliances, automobiles, luxury sport items and furniture, etc.

14. Of the projected total investment of $39 billion during the Fourth Five-Year Plan period (1977–81), the investment directly by the Government is $12 billion (31%), most of which is in transport, communication, agriculture and education.


16. The income classes distinguish wage and non-wage sources of income in each of 17 production sectors, except for agriculture (2 sectors) and mining.

17. While 'full employment' is a useful construct, its artificiality should be recognized. For instance, we have not allowed for frictional unemployment; if we allow 2% of the labour force for this, and assume that it is met entirely by reducing under-employment in agriculture, this would reduce agricultural employment from 5.7 million in 1986 to about 5.3 million in 1990 (compared with 5.5 million in 1976). It should also be noted that we have not attempted to estimate the current degree of under-employment and not considered how labour force participation might respond to the employment situation. Briefly, we might use the model's projection of 'full employment' simply as an indicator of tightness in the labour market.

18. The share of the bottom 40% in sectoral income in 1976 is estimated at 24% in agriculture and 17% in the non-agriculture sectors.

19. If the simulation experiment were carried beyond 1990, it is possible that relative inequality would begin to decline at some point on the low growth path as well, but this has not been examined.
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No. 52. D.C. Rao, "Economic Growth and Equity in the Republic of Korea," *World Development*