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Industrialization and Employment in Hong Kong, Korea, Singapore, and Taiwan

Abstract
[Excerpt] What are the links between macroeconomic growth and microeconomic development objectives? The initial view held by many economists, especially Latin America specialists, was that the goals of growth, employment, and income distribution are mutually incompatible and that the pursuit of all these objectives at once is bound to be futile. But in the last few years, studies of the economies of the Asian Newly Industrializing Countries (NICs), Hong Kong, Korea, Singapore, and Taiwan—the so-called "Group of Four"—have emerged, and they point to very rapid aggregate growth and marked improvements in labor market conditions and in income distribution. This chapter assembles the latest available information and examines the interrelationships between the macroeconomy and the labor market, with special reference to foreign trade and foreign investment.

Keywords
labor market, economic growth, trade, investment, Asian Newly Industrializing Countries, NICs

Comments
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8 Industrialization and Employment in Hong Kong, Korea, Singapore, and Taiwan

Gary S. Fields

What are the links between macroeconomic growth and microeconomic development objectives? The initial view held by many economists, especially Latin America specialists, was that the goals of growth, employment, and income distribution are mutually incompatible and that the pursuit of all these objectives at once is bound to be futile. But in the last few years, studies of the economies of the Asian Newly Industrializing Countries (NICs), Hong Kong, Korea, Singapore, and Taiwan—the so-called "Group of Four"—have emerged, and they point to very rapid aggregate growth and marked improvements in labor market conditions and in income distribution.[1] This chapter assembles the latest available information and

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1. Among the useful sources are:

Hong Kong: Ronald Hsia and Laurence Chau, *Industrialization, Employment and Income Distribution* (London: Croom Helm, 1978), and Steven Chow and Gustav Papanek, "Laissez Faire, Growth, and Equity—Hong Kong," *The Economic Journal* (June 1981).

Korea: Irma Adelman and Sherman Robinson, *Income Distribution Policy in Developing Countries* (New York: Oxford University Press, 1979) and Hakchung Choo, "Economic Growth and Income Distribution," in *Human Resources and Social Development in Korea,* edited by Chong Kee Park (Seoul: Korea Development Institute, 1980).

Singapore: V. V. Bhanoji Rao and M. K. Ramakrishnan, *Income Inequality in Singapore* (Singapore: Singapore University Press, 1980), and Pang Eng Fong, "Economic Development and the Labor Market in a Newly Industrializing Country: The Experience of Singapore," *The Developing Economies* (March 1981).

Taiwan: John C. H. Fei, Gustav Ranis, and Shirley W. Y. Kuo, *Growth with Equity: The Taiwan Case* (New York: Oxford University Press, 1979), and Walter Galenson, ed., *Eco-*

examines the interrelationships between the macroeconomy and the labor market, with special reference to foreign trade and foreign investment.

The impressive macroeconomic improvements that have taken place in Hong Kong, Korea, Singapore, and Taiwan are well known and include:

1. Extremely high rates of GDP growth. Economic growth rates averaged 8 percent and more in real terms throughout the sixties and seventies. Growth of this magnitude would be expected to shift the derived demand for labor curve outward, raising employment.
2. High rates of growth of exports. Each country achieved high GNP growth through export-led growth in which foreign investment played an important role. In the seventies, the rates of export growth ranged from 4.8 percent per year in Hong Kong to 28.8 percent in Korea. Because the export industries are labor-intensive, export growth would imply improvements in labor market conditions.
3. Structural shifts in the locus of economic activity. Over the last two decades, important sectoral changes have taken place. Most notable are the decline of agriculture and the rising importance of manufacturing in Korea, Singapore, and Taiwan, and the growth of finance relative to other economic sectors in Hong Kong. The labor market implications of these structural shifts are examined below.

As impressive as the macroeconomic improvements, though a subject of less attention, are the gains that have taken place with respect to labor market conditions and income distribution. Unemployment rates have fallen below 4 percent while labor force participation rates have been rising. The industrial composition of employment has improved, in that workers have left agriculture, self-employment, and unpaid family work—all relatively low paying activities—and moved into modern-sector jobs, where earnings are higher. The occupational structure of modern-sector employment has improved. Real wages have increased by as much as a factor of four.[2] Relative income inequality has fallen in three of the economies (Hong Kong, Singapore, and Taiwan). Absolute poverty has sharply

nomic Growth and Structural Change in Taiwan (Ithaca, N.Y.: Cornell University Press, 1979).

For an overall comparison of Hong Kong, Japan, Korea, Singapore and Taiwan: Edward K. Y. Chen, *Hyper-Growth in Asian Economies* (New York: Holmes and Meier, 1979).

2. Throughout this chapter, I use the terms "earnings" or "wages" to refer to pay per week or month.

diminished in all four. Real wages and incomes are a great deal higher throughout the four Asian NICs than they were two decades ago.

But not everything is entirely rosy. Korea suffered a serious recession in 1980, and there is some worry that the structural problems leading up to that recession have not been dealt with satisfactorily. Income inequality appears to be on the rise in Hong Kong and Korea. Wage growth in Singapore has lagged seriously behind the growth of national income. All four economies are vulnerable to world recession, to changing trade opportunities and conditions, and to possible squeezes from above by the Organization for Economic Cooperation and Development (OECD) countries and Japan and from below by emerging less developed economies such as Malaysia and the Philippines. Political uncertainties also loom on the horizon.

Improvements in Labor Market Conditions and Income Distribution

Rates of Employment and Unemployment

The most commonly used indicator of labor market conditions is the unemployment rate. Unemployment rates at the beginning of the eighties were: Hong Kong, 4.3 percent; Korea, 4.1 percent; Singapore, 3.1 percent; and Taiwan, 1.3 percent. Compared to the unemployment rates in many Western nations, this is a very favorable performance.

Table 8.1 presents time series data on changes in unemployment over time. In two of the countries—Korea and Taiwan—data have been available on an annual basis since the fifties and sixties. They indicate quite steady declines in unemployment rates. In Hong Kong and Singapore, the data until the mid-seventies are more fragmentary. In each case, the earliest source is a population census. I am hesitant to compare these unemployment rates with later ones, because of major methodological differences between the earlier sources and subsequent ones.[3] If, then, we use only later data, we find that the unemployment rate in Hong Kong rose in the early seventies and then fell to about 4 percent of the labor force, whereas in Singapore unemployment hovered around 10 percent throughout the late sixties, then fell sharply to the neighborhood of 3 percent in the early eighties.

3. For instance, in Hong Kong, the *Population Census 1961,* Table 215, categorizes the entire population, including infants and children, into various groups of employees, unemployed, retirees, independent workers, students, housewives, etc. Later censuses, much more sensibly, tabulate only persons in the economically active population over the age of 14; these persons are broken down into "working persons" and "unemployed persons," omitting entirely students, housewives, retirees, and other economically inactive people. Thus, the groupings in the 1961 figures do not conform to those in later censuses, so intercensus comparisons of unemployment rates should probably not be made.

Table 8.1. Unemployment Rates (%)

	Hong Kong			Singapore			Taiwan[3]	
	Censuses & House-hold Surveys	Labor Force Surveys[b]	Korea	Censuses & House-hold Surveys	Labor Force Surveys	Labor Force Surveys	Shirley W. Y. Kuo	Census of Popu-lation
1953							6.3	
1954							6.0	
1955							6.0	
1956							5.6	6.3
1957				5.2[C]			5.7	
1958							5.9	
1959							6.0	
1960							6.1	
1961	1.7[C]						6.2	
1962							6.3	
1963			8.2				6.4	
1964			7.7			4.3	6.4	
1965			7.4			3.3	5.2	
1966			7.1	9.1[d]		3.1	4.2	6.1
1967			6.2			2.3	3.4	
1968			5.1			1.7	2.8	
1969			4.8			1.9	3.4	
1970			4.5	10.4[C]		1.7	3.0	4.6
1971	4.4[d]		4.5			1.7	3.0	
1972			4.5	7.0[d]		1.5	2.8	
1973			4.0		4.0[d]	1.3	2.2	
1974			4.1		3.9	1.5	2.7	
1975		*Sept.* 9.1	4.1		4.5	2.4	3.7	
1976	4.3"	*Mar.* 5.6	3.9		4.4	1.5		
1977		*Mar.* 4.5; *Sept.* 4.1	3.8	4.8[d]	3.9	1.3		
1978		*Mar.* 3.8; *Sept.* 2.7	3.2		3.6	1.7		
1979		*Mar.* 2.3; *Sept.* 3.4	3.8		3.3	1.3		
1980		*Mar.* 3.2; *Sept.* 4.3	5.2	3.5[d]	3.1	1.2		
1981			4.1[f]			1.3		

Sources: For Hong Kong, computed from official census publications and Census and Statistics Department, *Report on Labor Force Survey* (various issues).

For Korea, Bank of Korea, *Economic Statistics Yearbook* (1981), table 145, pp. 270-71; and *Monthly Economic Statistics* (December 1981), table 96, p. 125.

For Singapore, Census and Household Surveys, computed from the respective official publications; *Report on the Labor Force Survey of Singapore* (various issues).

For Taiwan, Walter Galenson, "The Labor Force, Wages and Living Standards," in Galenson, ed., *Economic Growth and Structural Change in Taiwan* (Ithaca, N.Y.: Cornell University Press, 1979), table 6.13; *Taiwan Statistical Data Book 1981,* table 2.9; Directorate-General of Budget, Accounting and Statistics, *Statistical Yearbook of the Republic of China* (1981), supplementary table 4, p. 60.

[a]Age not specified.

[b]As proportion of labor force, ages 15 through 64.

°As proportion of economically active population, all ages.

[d]As proportion of economically active population, ages 10 and over.

[e]As proportion of economically active population, ages 14 and over.

"Third quarter, 1981.

All four economies achieved low rates of unemployment despite two demographic factors that made the attainment of full employment more than ordinarily difficult—population growth and rising labor force participation.

Table 8.2 displays population growth figures for each country. These growth rates, though moderate by international standards, nonetheless obligated the economies of these countries to create more jobs to attain a given employment rate. Population growth rates declined in all four countries as a result of falling birth rates and/or reduced immigration. Birth rates fell for a variety of reasons: the desire for smaller families, a decline in birth rates catching up with an earlier decline in child mortality, improved access to birth control information and technology, and government encouragement of small families. Immigration declines reflected restrictive government policies. Table 8.2 also shows that Korea, Singapore, and Taiwan clearly were able to expand employment at a rate faster than that at which the population was growing. Not so for Hong Kong. There, employment growth did not keep up with population growth, in part because of spurts of massive immigration; in 1980, immigration was severely restricted.

The other important demographic factor at work was rising labor force participation. Economic development frequently causes labor force participation rates to change. The reasons differ for men and women. For women, economic development commonly creates new job opportunities

Table 8.2. Population Growth and Employment Growth (% per annum)

Hong Kong[a]	Korea	Singapore	Taiwan
Employment Growth	*Employment Growth*	*Employment Growth*	*Employment Growth*
1961-76 = 3.1	1963-77 = 3.8	1957-79 = 3.7	1950-79 = 3.5
	1963-70 = 3.0		
	1970-78 = 4.1		
Population Growth	*Population Growth*	*Population Growth*	*Population Growth*
1961-76 = 3.4	1960-80 = 2.1	1960-79 = 1.9	1950-79 = 2.9

Sources: For Hong Kong, *Hong Kong Annual Report,* various issues.

For Korea, Population growth: Economic Planning Board, *Korea Statistical Yearbook* (1981), table II. I, p. 37. Employment growth: Bank of Korea, *Economic Statistics Yearbook* (1979), table 136, pp. 256-57.

For Singapore, Population growth: *Singapore Yearbook,* various issues. Employment growth: Computed from 1957 Census and 1979 Labor Force Survey.

For Taiwan, Directorate-General of Budget, Accounting, and Statistics, *Statistical Yearbook of the Republic of China* (1980), supplementary table 1, p. 4.

"For population ages 15 and over.

and raises the return on work in the labor market relative to work in the home, inducing larger numbers of women to participate in the labor force. For men, higher standards of living raise life expectancy, increase the likelihood that an older worker will live long enough and be able to afford to retire before he dies, and permit young males to remain in school longer—all of which lower male labor force participation rates.

Table 8.3 shows changing labor force participation rates in the four countries. In each, labor force participation rates rose for women and, except in Singapore, fell for men. The aggregate participation rate for both sexes went up in Korea, Singapore, and Taiwan and was effectively unchanged in Hong Kong. With labor force participation rates on the rise, the fall in unemployment rates is all the more impressive, since enough new jobs were created to employ those who were attracted into the labor force by improved job opportunities as well as those who previously were unemployed.

Note too the range in labor force participation rates across the four economies. Taiwan's is the highest. Although to the best of my knowledge, the reasons for these differences have not been explored rigorously in any empirical study, one contributing factor appears to be the four economies' respective rates of unemployment. Observe that the rank ordering of labor force participation rates is: Taiwan highest, then Singapore, Korea, and Hong Kong, whereas the rank ordering of unemployment rates is just the opposite—Hong Kong highest, then Korea, Singapore, and Taiwan. This is consistent with an "encouraged worker effect," that is, the availability of jobs encourages additional persons to enter the labor force and fill those jobs.

Employment Composition

Besides improvements in the rate of employment, employment composition also improved during the sustained period of growth in the four Asian NICs. These improvements are revealed in the following data on the mix of jobs by industry, activity status, occupation, and education.

Employment by Industry. The industrial mix of employment has shifted in favor of relatively high-paying activities. To establish this, we must first identify the well-paying industries. Table 8.4 presents the current structure of earnings by one-digit industry. In each country, two industries—agriculture and manufacturing—exhibit wage levels below their economy-wide averages. The below-average wage position of agriculture is not surprising; the same is generally true around the world. But the position of manufacturing as a relatively low-wage industry is unusual by international standards. In other developing regions, manufacturing wages are above

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Table 8.3. Labor Force Participation Rates (as % of population ages 15 and over)

	Hong Kong		Korea			Singapore			Taiwan		
	1961	1971	1963	1970	1980	1957	1970	1979	1960	1970	1979
Males	76.5	70.9	76.4	75.1	73.6	76.6	67.6	80.7	87.2	80.4	82.4
Females	32.3	37.1	36.3	38.5	41.6	19.3	24.6	41.9	25.0	30.2	46.7
Both sexes	55.0	54.2	55.3	55.9	57.6	49.0	46.6	61.4	56.8	57.1	65.5

Sources: For Hong Kong, Census and Statistics Department, *Hong Kong Social* 6- *Economic Trends, 1964-1974,* table 2.1, p. 5.

For Korea, Economic Planning Board, *Annual Report on the Economically Active Population,* 1974, tables 5.2 and 5.3, p. 31; and *Korea Statistical Yearbook, 1981,* table III. I, p. 69.

For Singapore, *Population Census 1970,* table 10.1; and *Report on Labor Force Survey, 1979,* table 1.

For Taiwan, *Statistical Yearbook of the Republic of China, 1980,* supplementary tables 1 and 8.

Table 8.4. Current Structure of Earnings (wages) by Industry

Industry	Earnings (wages)					Percentage of Average Earnings				
	Hong Kong[a] 1980	Korea[b] 1980	Singapore 1977[c]	Singapore 1979[d]	Taiwan 1979[e]	Hong Kong 1980	Korea 1980	Singapore 1977	Singapore 1979	Taiwan 1979
Agriculture	1,000	n.a.	282	118	63	[o.72		0.71	0.83	0.60
Mining		203		215	110		1.15		1.50	1.05
Manufacturing	1,070	147	359	119	96	0.78	0.83	0.90	0.83	0.91
Utilities	1,750	283	430	165	138	1.27	1.61	1.08	1.15	1.31
Construction	1,770	258	434	139	106	1.28	1.46	1.09	0.97	1.01
Commerce	1,790	211	400	135	135	1.30	1.20	1.00	0.94	1.29
Transport	1,850	203	417	162	143	1.34	1.16	1.05	1.13	1.36
Finance	1,850	282	687	194	145	1.34	1.60	1.72	1.36	1.38
Services	1,480	275	366	164	125	1.07	1.56	0.92	1.15	1.19
Unclassified					76					0.72
All industries	1,380	176	399	143	105	1.00	1.00	1.00	1.00	1.00

Sources: For Hong Kong, *Report on Labor Force Survey* (September 1980), table 1.49.
For Korea, Economic Planning Board, *Korea Statistical Yearbook, 1981,* table 3.8, p. 83.
For Singapore, *Survey of Households 1977,* table 10; *Yearbook of Labor Statistics, 1979,* table 28.
For Taiwan, *Survey of Personal Income 1979,* table 7.
"Median earnings per month (HK$).
Mean monthly earnings of regular employees by industry (thousands of won).
[c]Mean earnings per month (S$), based on survey of households.
Weekly earnings of employees, based on survey of establishments.
"Annual primary income per working recipient (NT$ thousands).

average. The premium of manufacturing wages over agricultural wages is about 20 percent in the four Asian NICs, compared to about 100 percent elsewhere.[4] Reasons for these differences are examined below.

Data on changes in employment structure over time are given in table 8.5. The four countries started the sixties with varying employment structures. Hong Kong was the most industrialized of the four; there, manufacturing was the largest sector of employment, engaging 43 percent of the labor force in 1961. In Taiwan as well, manufacturing was the largest employer, accounting for 32 percent of nonagricultural employment in 1964. In contrast, Korea and Singapore were notably less industrialized 20 years ago, the shares of manufacturing in total employment having been 22 percent and 18 percent respectively.

These initial conditions partly explain how the industrial structure of employment evolved in the last 20 years. Hong Kong, having the most advanced manufacturing sector around 1960, had the least scope for growth of manufacturing employment. Indeed, Hong Kong's industrial structure of employment has been the most stable of the four, the growth of employment in manufacturing in the sixties and seventies being only slightly above the average for nonagricultural employment as a whole (4.1 percent per year versus 3.6 percent). By contrast, commerce and finance expanded employment by 8 percent and 9 percent per year respectively in Hong Kong. Thus, while the share of manufacturing in nonagricultural employment virtually held constant, the share of commerce and finance more than doubled (from 12 percent to 26 percent).

In the other three countries, the percentage of the work force employed in manufacturing was initially smaller. Manufacturing employment was able to grow quickly, because of the growth of manufacturing output oriented primarily toward the export market. In Korea and Taiwan, the only other industries to achieve comparable rates of employment growth were the construction sectors, while in Singapore only the finance sector grew faster than did manufacturing. By 1979, the share of manufacturing employment in total employment in Taiwan (41 percent) was nearly as large as in Hong Kong (42 percent).

On the other end of the industrial distribution, agricultural employment has diminished in relative importance in each country. As recently as the early sixties, half or more of Taiwan's and Korea's labor forces were employed in agriculture; those shares were about halved by the late seventies. In absolute terms, agricultural employment remained un-

4. In Mexico, for example, average weekly wages among manufacturing workers were 127 percent of the economy-wide average and the agricultural wage 64 percent, producing a manufacturing/agriculture wage differential of 2:1. (David Turnham, *The Employment Problem in Less Developed Countries* [Paris: OECD: 1971], p. 75).

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Table 8.5. Changes in the Structure of Employment by Industry

	Percentage Distribution of Employment												
	Hong Kong				Korea			Singapore			Taiwan		
Industry	1961	1971	1976	1980	1963	1970	1980	1957	1970	1979	1964	1970	1979
Mining	0.8	3.3	0.1	0.0	2.0	2.3	1.4				3.0	3.3	1.2
Manufacturing	43.1	43.8	46.1		21.6	26.6	32.8	17.4	22.8	29.2	31.7	32.3	41.3
Construction	9.1	11.0	5.9	7.7	6.8	5.9	9.3	5.0	6.9	5.4	5.9	7.9	10.2
Utilities	1.7	0.6	0.5	0.5	0.9			0.9	1.2	1.0	1.6	1.2	0.6
Commerce	10.4	I 13.5	19.7	26.8	26.8			• 30.8	24.3	23.6	[20.3	23.2	19.5
Finance	1.5		3.4	4.9		• 65.2	56.5		3.7	7.2			
Transport	6.9	7.6	7.6	7.6	4.0			11.2	12.6	11.8	8.4	8.5	7.5
Services	24.0	20.3	15.4	16.3	37.9			33.7	28.2	21.6	25.7	23.3	19.7
Unclassified	1.5	n.a.	1.3		n.a.			0.8	0.4	0.2	3.3	0.3	n.a.
Percentage of nonagricultural employment	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture as a percentage of total employment	7.4	4.0	2.5	1.4	63.2	50.4	34.0	6.9	3.5	1.5	50.0	36.8	21.5

Annual Rates of Growth of Employment by Industry

Industry	Hong Kong			Korea			Singapore			Taiwan		
	1961-76	1961-71	1971-76	**1963-78**	1963-70	1970-78	**1957-79**	1957-70	1970-79	**1964-79**	1964-70	1970-79
Mining	**-13.0**	19.2	-53.6	**4.0**	9.4	-0.5	n.a.	n.a.	n.a.	**0.3**	9.1	-5.1
Manufacturing	**4.1**	3.7	4.8	**11.0**	10.7	11.3	**6.3**	4.9	8.3	**8.5**	7.2	9.4
Construction	**0.6**	5.5	-8.5	**9.9**	5.1	14.2	4.2	5.3	2.6	**10.6**	12.2	9.5
Utilities	**-4.3**	-7.3	1.9				4.2	5.1	2.9	**-0.4**	1.6	-1.8
Commerce	**8.1**	**4.9**	15.4	**5.2**	6.4	4.2	2.6	1.0	5.0	**>6.4**	9.3	4.4
Finance	**9.2**								13.5			
Transport	**3.3**	3.2	3.5				**4.1**	3.7	4.7	**5.9**	7.2	4.9
Services	**0.6**	1.8	-1.8				**1.7**	1.4	2.2	**4.8**	5.2	4.5
Unclassified	**n.a.**	n.a.	n.a.	**n.a.**	n.a.	n.a.	n.a.	n.a.	n.a.	**n.a.**	n.a.	n.a.
Percentage of nonagricultural employment	**3.6**	3.6	3.7	**7.2**	7.4	7.0	**3.8**	2.8	5.3	**6.6**	6.9	6.4
Agriculture as a percentage of total employment	-3.8	-3.0	-5.4	**0.2**	-0.3	0.7	-3.4	-2.8	-4.3	**-2.2**	-2.3	-2.1

Sources: For Hong Kong, *Census 1961*, table 238; *Census 1971*, table 11; *Census 1976*, table 13; *Report on Labor Force Survey, Sept. 1980*, table 1.49.

For Korea, Bank of Korea, *Economic Statistics Yearbook* (1965 and 1979) and Economic Planning Board, *Economic Statistics Yearbook*, 1981, table III.8, p. 83.

For Singapore, *Census 1970*, table 10.48; *Report on LF Survey 1979*, table 44.

For Taiwan, Directorate-General of Budget, Accounting, and Statistics, *Statistical Yearbook of the Republic of China* (1980), Manpower, supplementary table 1.

Table 8.6. Employment by Activity Status (%)

	Hong Kong 1961		1971		1980
Employers		4.8		2.7	4.0
Own account		10.4		8.6	5.8
Employees		83.8		87.3	89.4
On commission	0.8		0.4		
Permanent	66.2		78.0		85.4
Casual	11.5		6.3		
Unpaid family workers	4.4		2.3		1.8
Out worker	0.9		0.3		2.2
Trainees & learners, miscellaneous		0.9		1.4	0.7
Total		100.0		100.0	100.0

	Korea 1963		1971		1980
Self-employed		37.2		34.2	33.9
Unpaid family workers		31.3		26.5	18.8
Employees		31.5		39.3	47.3
Regular	12.3		23.1		30.4
Temporary	6.5		5.7		7.4
Daily	12.7		10.5		9.5
Total		100.0		100.0	100.0

	Singapore 1957	1970	1979
Employers	3.7	2.8	4.0
Own account	17.5	17.1	9.3
Unpaid family workers	5.1	3.6	3.2
Employees	73.7	76.5	83.5
Total	100.0	100.0	100.0

	Taiwan 1956	1964	1970	1979
Employers	3.2	2.4	2.8	4.1
Own account	35.5	29.9	26.0	21.0
Unpaid family workers	24.4	28.5	20.3	11.2
Private employees	21.3	25.5	38.2	51.8
Government employees	15.5	13.7	12.5	11.9
Total	100.0	100.0	100.0	100.0

Sources: For Hong Kong, *Census 1961*, table 215, *Census 1971*, table 8. *Report on Labor Force Survey* (September 1980), table 1.3.

(source notes continued on facing page)

changed in Korea and declined in the other three countries. "Pull" rather than "push" forces were responsible for these changes; that is, rather than being forced from the land, labor willingly left agriculture to take jobs in expanding sectors, especially manufacturing.

At present, the shares of agriculture in total employment are, not surprisingly, a great deal lower in the city-states than in the two larger countries: 1.4 percent in Hong Kong, 1.5 percent in Singapore, 21.5 percent in Taiwan, and 34.0 percent in Korea. In fact, agriculture is still by far the largest employment sector in Korea. As for the industrial distribution of nonagricultural employment, manufacturing is now the single largest sector in each country, ranging from 29 percent in Singapore to 42 percent in Hong Kong. In each case, commerce and services also constitute a large share of employment. Other sectors are of relatively minor importance.

Combining the information in tables 8.4 and 8.5, we find evidence that the composition of employment has shifted systematically in favor of higher-paying sectors. One such shift is the movement from agriculture into manufacturing which took place in each country. In as much as manufacturing wages are higher than agricultural wages, the rising share of manufacturing in total employment combined with the falling share of agriculture provides one piece of evidence of job upgrading. Other important shifts are: the rising importance of employment in commerce and finance (high-wage industries) in Hong Kong; the diminishing importance of service employment (mixed evidence on whether service is a high-wage or low-wage industry) in Singapore; and the increasing share (as a proportion of total employment) of employment in Taiwan's service sector (a high-wage industry).

Employment by Activity Status. When economic development is successfully taking place, another dimension of structural change is to be found in the mix of jobs by activity status, i.e., a rising proportion of a country's labor force working as employees and smaller proportions engaged as own-account workers, unpaid family workers, and casual employees such as day workers. The data presented in table 8.6 indicate that such improvements have occurred in the four Asian NICs.

For Korea, Se-Il Park: *Wages in Korea,* table 5, p. 29. Economic Planning Board, *Korea Statistical Yearbook, 1981,* table III.2, p. 73.

For Singapore, *Population Census 1970,* table 10.10; *Report on Labor Force Survey, 1979,* table 11.

For Taiwan, Directorate-General of Budget, Accounting, and Statistics, *Statistical Yearbook of the Republic of China, 1980,* supplementary table 9, p. 24, and supplementary table 3, p. 48.

Employees constitute a considerably higher proportion of total employment in Hong Kong and Singapore than in Korea and Taiwan. By contrast, Korea and Taiwan have much larger proportions of their labor forces in own-account employment and unpaid family work than do Hong Kong and Singapore. These differences reflect the city-states' higher levels of national income and the consequent expansion of wage employment relative to the other activity status categories.

Employment by Occupation. A third indicator of employment upgrading is the occupational structure of employment. Data on the current structure of earnings by occupation and on changes in the occupational distribution of employment are presented in tables 8.7 and 8.8 respectively.

As in other developing economies, the occupations that earn the highest wages are administrative and managerial, and professional and technical. Those occupying intermediate pay positions are clerical, sales, and service occupations.[5] Production workers are next lowest. Agricultural workers are at the bottom.

The occupational structure of employment has shifted somewhat in favor of better-paying occupations. Agriculture is the lowest-paying sector, and the fraction of the labor force employed in that sector has diminished with economic development in each country. Many of the persons who left agriculture found jobs as production workers; the figure for production workers increased as a proportion of total nonagricultural employment in Korea and Taiwan and held steady in Hong Kong and Singapore, reflecting the fact that economic growth in Korea and Taiwan was based to a large degree on the production of manufactured goods for export. Professional and technical occupations, relatively high-income categories, expanded their shares of total employment, as is typical in the course of economic development. The rapid expansion of employment in professional, technical, and production employment caused service employment to expand less rapidly in the four Asian NICs than in many other developing economies.

Employment by Education. A fourth indicator of employment upgrading is an improving educational level of the labor force. The evidence presented

5. Service occupations and service industries occupy different earnings rankings. Service occupations are moderate to low-paying (table 8.7), whereas service industries pay relatively well (table 8.4). The difference is that service industries include government, medicine, law, and other high-paying activities, but government workers are in administrative and clerical occupation and doctors and lawyers are in professional occupations, not service occupations.

Table 8.7. Structure of Earnings by Occupation

Occupation	Earnings in National Currency					Earnings Index (Average = 1.00)				
	Hong Kong 1980"	Korea 1980[b]	Sin;gapore 1977"	Sin;gapore 1979[d]	Taiwan 1979[e]	Hong Kong 1980	Korea 1980	Singapore 1977	Singapore 1979	Taiwan 1979
Professional & technical	2,960	266	846	J 342	163	2.14	1.76	2.12	}2.39	1.55
Administrative & managerial	4,380	438	1,563		244	3.17	2.91	3.93		2.32
Clerical	1,490	177	412	1	122	1.08	1.17	1.03	1	1.16
Sales	1,470	109	408	117	134	1.07	0.72	1.02	0.82	1.28
Services	1,270	115	266	J	111	0.92	0.76	0.67	J	1.06
Agricultural	1,070	131	266	} 97	63	0.78	0.87	0.67	I0.68	0.60
Production	1,540	118	289		90	1.12	0.78	0.72		0.86
Not classified	1,350				95	0.98				0.90
Total	1,380	151	399	143	105	1.00	1.00	1.00	1.00	1.00

Sources: For Hong Kong, *Report on Labor Force Survey* (September 1980), table 1.42.
For Korea, Department of Labor Affairs, *Report on Occupational Wage Survey, 1980.*
For Singapore, *Report on the Survey of Households 1977,* table 11; *Yearbook of Labor Statistics, 1979,* table 28.
For Taiwan, *Report on the Survey of Personal Income, 1979,* table 7.
"Median monthly earnings (HK$).
Mean monthly earnings (thousands of won); data based on survey of establishments.
'Mean monthly earnings (S$).
[d]Mean weekly wages (S$); data based on survey of establishments.
"Primary income per year per working income recipient (NTS thousands).

Table 8.8. Shares of Employment in Various Occupations (%)

	Hong Kong				Korea			Singapore			Taiwan		
Occupation	1961	1971	1976	1980	1963	1970	1980	1957	1970	1979	1964	1970	1979
Professional & technical	4.7	5.0	5.4	6.1	2.5	•4.7	5.4	4.8	8.6	8.6	4.2	4.1	5.2
Administrative & managerial	3.1	4.6	2.1	2.5	0.8			1.9	1.7	2.8	2.7	3.1	0.9
Clerical	6.0	[l6.2	9.5	13.1	3.5	5.9	9.4	11.9	12.9	15.8	5.2	6.6	11.8
Sales	13.7		11.3	10.8	10.1	12.3	14.7	18.2	16.2	15.3	10.3	13.1	12.1
Services	15.1	14.9	14.8	17.5	5.4	6.5	8.1	15.6	13.6	11.1	5.6	5.9	6.9
Production	48.6	51.7	52.4	50.0	15.0	20.3	29.6	39.6	39.3	38.6	23.0	30.7	41.9
Agriculture	7.7	3.6	2.6	1.4	63.0	50.3	32.9	7.8	4.1	1.8	49.1	36.5	21.2
Not classified	1.1	4.0	1.9					0.2	3.6	6.0			
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: For Hong Kong, *Census 1961,* table 234; *Census 1971,* table 11; *Census 1976,* table 13; *Report on Labor Force Survey, September 1980,* table **1.4.**

For Korea, Bank of Korea, *Economic Statistics Yearbook, 1965 ir 1979* and Economic Planning Board, *Korea Statistical Yearbook, 1981,* table III. 2, pp. 72-73.

For Singapore, *Census 1970,* table 10.56, *Report on the Labor Force Survey, 1979,* table 47.

For Taiwan, Directorate-General of Budget, Accounting, and Statistics, *Statistical Yearbook of the Republic of China, 1975, 1980,* Manpower, Supplementary table 2.

in table 8.9 indicates large increases in the proportion of the work force that has secondary and higher levels of education and similar reductions in the proportion without education. It is difficult to decide how to interpret these changes, since educational upgrading is both a cause of economic growth and a consequence of it. Nonetheless, the fact that better-educated persons earn more than less-educated persons and are employed in higher occupational categories suggests that workers are now better off as a result of improved education.

One anomaly emerging from table 8.9 is that the proportions of workers with university education are higher in Taiwan and Korea, the two poorer economies, than in Hong Kong and Singapore. Why did Taiwan and Korea invest more in human capital, and did they grow faster as a result? To answer these questions would be a study in itself.

Real Wage Growth (Expressed in Terms of Real Monthly Earnings)

We have seen that higher proportions of the populations are employed and the mix of jobs is improved. Are average real wages higher? Table 8.10 speaks to this issue, and the answer is a definite yes. In Korea and Taiwan, real wages per worker doubled every 10 years. Real wages in Hong Kong grew by 150 percent in 20 years. These improvements are the envy of the rest of the world. In Singapore, however, wages grew less rapidly because of a deliberate government policy, until 1978, of restraining wages.[6] The wage restraint policy was intended to maintain international competitiveness. Average real monthly earnings per *worker* failed to grow between 1966 and 1975 in Singapore;[7] but due to a doubling of the female labor force participation rate, and the falling unemployment rate, real wages per *family* increased by about 40 percent over the same time period.[8] Beginning in 1978, however, wage growth was encouraged by means of a "wage correction policy," and indeed real wages grew between 1978 and 1980 at rates comparable to those of the other three economies. The Singapore government allowed the wage correction policy to lapse in 1981. Singapore's future wage policy is still under debate.

In sum, Singapore's uneven experience notwithstanding, the overall record is one of rising real wages. Those who were employed earned more

6. Essentially, the National Wages Council knowingly recommended that wages rise at below market rates. For further discussion of wage policy, see chapter 6 by Chia Siow Yue in this volume and the articles by Pang Eng Fong and Linda Lim and Pang Eng Fong cited in the notes to table 8.10.

7. It is possible that natives' real wages rose while their places at the bottom were being taken by guest workers, but no statistics are available to test this proposition.

8. The available wage figures for Singapore exclude employers' contributions to the Central Provident Fund. This is a substantial omission, inasmuch as the employer's rate of contribution has risen over time and now amounts to 22 percent of salary.

Table 8.9. Employment by Educational Attainment of Worker (%)

	Hong Kong			
	1961	1971	1976	1980
No schooling	20.2	16.2	13.9	10.4
Private tutor	6.4	5.5	[45.4	38.1
Primary	46.3	46.1		
Junior middle or lower secondary	13.6	12.2	15.8	16.9
Senior middle or higher secondary	9.4	15.2	19.1	24.5
Postsecondary	1.4	1.9	2.2	5.0
University	2.9	3.0	3.6	4.4
Total	100.0	100.0	100.0	100.0

	Korea		
	1960	1970	1980
No schooling	44.7	23.8	16.0
Elementary school	39.5	43.6	35.5
Middle school	7.3	[26.4	20.1
High school	6.2		21.8
University & college	2.4	6.1	6.7
Total	100.0	100.0	100.0

	Singapore			
	1966	1972	1977	1980[a]
None	54.1	20.6	13.8	22.5
Primary	29.2	36.9	35.2	50.0
Secondary	[13.3	36.2	40.5	16.2
Upper secondary		4.4	7.7	7.7
Tertiary	3.4	2.0	2.7	3.6
Total	100.0	100.0	100.0	100.0

	Taiwan			
	1965	1970	1975	1980
Illiterate	26.0	20.7	15.9	9.0
Primary	54.3	52.7	47.9	39.6
Junior high & vocational	9.0	12.1	15.4	19.8
Senior high & vocational	7.5	10.5	14.7	20.8
University	3.1	3.9	6.1	10.9
Total	100.0	100.0	100.0	100.0

(Source notes on following page)

for their labor than workers a generation ago did. In Korea, Taiwan, and Hong Kong, the rates of real-wage increase were substantially similar to the rates of increase of the GNP—an impressive record.

Income Inequality

The high and rising levels of inequality that characterize most other rapidly growing economies have been avoided for the most part in Hong Kong, Singapore, and Taiwan. Some of the relevant data are presented in table 8.11.

The Gini coefficient of inequality in developing countries ranges from below .3 (low inequality) to above .6 (high inequality). By comparison, inequality is at low-to-moderate levels in the four Asian NICs. In fact, Taiwan has the most nearly equal income distribution of any developing country except Yugoslavia.[9] In Hong Kong, Korea, and Singapore, inequality levels are not high by international standards.

Over time, since data first became available, inequality has fallen overall in Hong Kong, Singapore, and Taiwan. These reductions in income inequality are impressive both when regarded in their own right and when matched against other countries' experiences. In the majority of other developing countries for which information is available, income inequality rose over time.'" Inequality in Singapore and Taiwan, however, has about leveled off; it is apparently rising in Hong Kong. This may portend a new era of less equitable growth, but it is too early to tell. As for Korea, inequality appears to have increased if the data are to be believed; but I am inclined to dismiss the Korea figures as too unreliable to be useful."

9. World Bank, *World Development Report 1980,* table 24.

10. See Gary S. Fields, "Poverty, Inequality, and Development: A Distributional Approach," *Journal of Policy Modeling* 3.3 (1981), table 2.

11. Whether the data are to be believed is debatable. According to Chen, *Hyper-Growth in Asian Economies,* p. 156: "There are many estimates of personal distribution of income in

Sources: For Hong Kong, *Census 1961,* table 236; *Census 1970,* table 10; *By-Census 1976,* table 17; *Report on Labor Force Survey, September 1980,* table 12.

For Korea, Economic Planning Board, *Population Census* (1960 and 1970); and *Survey on Economically Active Population.*

For Singapore, *Census of Population 1980, Release No. 4,* table 14, p. xxiv; and *Reports on the Household Surveys, 1966, 1972, 1977.*

For Taiwan, Directorate-General of Budget, Accounting, and Statistics, *Monthly Bulletin of Labor Statistics, Republic of China* (October 1981), table 1.5; and Walter Galenson, "The Labor Force, Wages, and Living Standards," in Galenson, ed., *Economic Growth and Structural Change in Taiwan (Ithaca,* N.Y.: Cornell University Press, 1979), table6.9, p. 396.

"The 1980 census reports a much higher proportion of employees with less than secondary education than is reported from the earlier household surveys for 1966, 1972, and 1977, on which the figures for those years are based.

Absolute Poverty

If relative income inequality is changing by only small amounts, and if inequality levels are low to moderate, it follows that the poor must have participated more or less proportionately in the fruits of development. And indeed, table 8.12 shows that poverty was reduced in all four economies. While poverty fell in most other developing economies it did not fall in all.[12] Undoubtedly, the main reason for the reduction of poverty in the four Asian NICs is that more people were employed in better-paying jobs.[13] Still, we must be careful to remember that these benefits are insufficient; much poverty remains.

Industrialization and Employment

A country's economic growth experience is related to its labor market in two important ways: product demand affects conditions in the labor market, by way of the elementary relationship that the demand for labor is derived from the demand for product; and labor market conditions affect the product market, by way of the ability of firms to produce competitively in the world market.

In this section, I offer empirical evidence in support of three propositions:

1. In interindustry analysis in the four Asian NICs, employment growth is related *directly* to the growth of output and of exports.

Korea. But they are mostly based on small samples and contain considerable biases, and since they are based on different methodology their degree of comparability is rather low." And Adelman and Robinson, *Income Distribution Policy in Developing Countries*, p. 48, state: "There are no acceptable data for the size distribution of income in Korea . . . " before the mid-seventies. On the other hand, in private correspondence, Robinson has expressed his confidence in the data since 1970, and a Korean economist, Hakchung Choo, has written extensively on income distribution change, at least through 1976. Although the estimates of relative inequality in Korea are based on the best available evidence, after reading all the qualifiers I conclude that we lack a firm enough statistical basis for inferring how income inequality has changed there. See Hakchung Choo, "Economic Growth and Income Distribution," in Chong Kee Park, ed., *Human Resources and Social Development in Korea* (Korea Development Institute, 1980), pp. 284-88.

12. See Fields, "Poverty, Inequality, and Development, table 3.

13. This claim follows from two facts. The first is that most families get most if not all of their incomes from the work they do. Second, decomposition studies from a number of countries including Taiwan indicate that labor-income inequality is the primary factor accounting for overall income inequality. The Taiwan evidence is presented by John C. H. Fei, Gustav Ranis, and Shirley W. Y. Kuo, "Growth and the Family Distribution of Income by Factor Components," *Quarterly Journal of Economics* (February 1978), pp. 17—53. This and other evidence is reviewed in Gary S. Fields, *Poverty, Inequality, and Development* (New York and London: Cambridge University Press, 1980), especially pp. 111-14.

Table 8.10. Growth of Real Monthly Earnings

Hong Kong
Index of Average Real Monthly Manufacturing Wage, 1948 = 100

1960	105
1965	157
1970	167
1975	194
1980	253

Korea
Index of Real Monthly Earnings, 1975 = 100

1966	52
1972	88
1978	154
1980	159

Singapore
Index of Real Monthly Earnings per Worker, 1970 = 100

1960	90
1970	100
1980	120

Taiwan"
Index of Real Monthly Earnings in Manufacturing, 1954 = 100

1954	100
1960	102
1970	183
1979	400

Sources: For Hong Kong, Steven Chow and Gustav Papanek, "Laissez Faire, Growth, and Equity—Hong Kong," *The Economic Journal* (June 1981), p. 475; and *Commissioner for Labour Annual Department Report,* various issues.

For Korea, Wontack Hong, "Export Promotion . . . ," pp. 377-78; and Economic Planning Board, *Korea Statistical Yearbook* (1981), tables XIV. 1, p. 407, and XIV. 12, pp. 436-37.

For Singapore, V. V. Bhanoji Rao and M. K. Ramakrishnan, *Income Inequality in Singapore* (Singapore: Singapore University Press, 1980); and *1980 Singapore Yearbook of Labor Statistics,* tables 27 and 196; Pang Eng Fong, "Economic Development and the Labor Market in a Newly-Industrializing Country: The Experience of Singapore," *The Developing Economies* (March 1981); and Linda Lim and Pang Eng Fong, *Trade, Employment and Industrialization in Singapore* (International Labor Organization, 1982).

For Taiwan, Directorate-General of Budget, Accounting, and Statistics, *Statistical Yearbook of the Republic of China, 1980,* table 18, p. 448; *Taiwan Statistical Data Book, 1980,* table 9-1, p. 165.

"Data available for manufacturing only.

Table 8.11. Changes in Relative Income Inequality in the Four Asian Newly Industrialized Countries

Hong Kong

Gini Coefficient among Households			Ratio of Income Share of Richest 20% of Households to Poorest 20%[a]	
	I[1']	IP		
1966	.487	.50	1966	10.9
1971	.411	.45	1971	9.9
1976	.435	.44	1976	9.8
1981	.447			

Korea

Gini Coefficient among Households		Ratio of Income Share of Richest 20% of Households to Poorest 20%	
1965	.34	1965	7.3
1970	.33	1970	5.7
1976	.38	1976	7.6

Singapore

Gini Coefficient among Individuals	
1966	.499
1975	.452
1980	.455

Taiwan

Gini Coefficient among Households		Ratio of Income Share of Richest 20% of Households to Poorest 20%	
Earlv 1950s	.5	1964	5.3
1968-72	.3	1972	4.5
1976-78	.27	1979	4.3

Sources: For Hong Kong:

"Steven Chow and Gustav Papanek, "Laissez Faire, Growth, and Equity—Hong Kong," *The Economic Journal* (June 1981), table 4.

[b]Ronald Hsia and Laurence Chau, *Industrialization, Employment and Income* (London: Croom Helm, 1978), 1976 and 1981 Censuses.

For Korea, Hakchung Choo, "Economic Growth and Income Distribution," in Chong Kee Park, ed., *Human Resources and Social Development in Korea* (Korea Development Institute, 1980), table 3, p. 289.

For Singapore, Unpublished materials provided by Economic Research Centre, National University of Singapore.

For Taiwan, Directorate-General of Budget, Accounting, and Statistics, *Report on the Survey of Family Income Distribution in Taiwan Area,* cited in Paul Liu, "Determinants of Income Inequality Over Family Development Cycle," *Academia Economic Papers* (March 1981), p. 100; and Council for Economic Planning and Development, *Economic Development, Taiwan, Republic of China,* p. 46.

Note: The Gini coefficient measures income inequality. A higher Gini coefficient signifies greater inequality. The Gini coefficient has the value zero when income is distributed perfectly equally. It has the value 1 when one income recipient has all the income and the rest have none.

Table 8.12. Changes in Absolute Poverty in the Four Asian Newly Industrializing Countries (%)

Hong Kong
Proportion of Households with Annual Incomes Less than HK$3,000
(in constant 1966 HK$)

1966	18
1971	11
1976	7

Korea
Proportion of Households with Incomes below a Constant Real Poverty Line[a]

1965	41
1970	23
1976	15

Singapore
Proportion of Persons with Incomes below S$200 per Month
(in 1975 prices)

1966	37
1975	29
1980	18

Taiwan
Proportion of Households with Incomes below Specified Amount in Specified Year

NT$20,000 (constant)	
1964	35
1972	10
NT$30,000 (constant)	
1964	55
1972	20
NT$40,000 (constant)	
1964	80
1972	35

Sources: For Korea, Sang Mok Suh, "The Patterns of Poverty," in Chong Kee Park, ed., *Human Resources and Social Development in Korea* (Korea Development Institute, 1980), p. 350.

For Hong Kong, Singapore, Taiwan, computed from sources cited in table 8.11.

'Poverty lines are defined separately for rural and urban households. These figures, based on dietary requirements and Engel curves, amounted to 12,930 won per person per month for urban households and 10,853 won for rural households.

2. Also in interindustry analysis in the four Asian NICs, employment growth, output growth, and export growth are related *inversely* to wage growth, apparently for market reasons.
3. In comparative analysis, high rates of wage growth, apparently for institutional reasons, *cause* low or even negative rates of growth of employment, output, and exports.

Growth of Output, Exports, and Employment by Manufacturing Sector

There can be no doubt that the improvements in employment, wages, and income distribution in the four Asian NICs were due to economic growth. In particular, if we wish to relate employment expansion to growth of output and growth of exports, the natural starting point is to identify those industries that are major employers and/or those that have experienced major changes in employment. The three industries that stand out in this regard, based on the data in table 8.13, are:

Metal Products.[14] This sector is noteworthy because it is the largest employment sector in Singapore and Taiwan and the second largest in Hong Kong and Korea and because it is the fastest-growing sector of employment. Metal products increased in importance in all four economies, its share of manufacturing employment rising from 13 percent to 27 percent in Hong Kong, from 12 percent to 28 percent in Korea, from 20 percent to 55 percent in Singapore, and from 20 percent to 33 percent in Taiwan.

Textiles and Garments. This sector is noteworthy because of its large size. It is the single most important employment sector in Hong Kong and Korea, and the second most important in Singapore and Taiwan. In Singapore, textiles employment increased at an annual rate of 20 percent during the sixties and seventies, resulting in a quadrupling of textiles' employment share. The textiles sector held its own in the other three countries, keeping pace with employment growth in the rest of manufacturing.

Food, Beverages, and Tobacco. This sector is noteworthy because of its declining importance. Its shares of manufacturing employment fell from 14 percent to 3 percent in Hong Kong, from 16 percent to 9 percent in Korea, from 19 percent to 5 percent in Singapore, and from 13 percent to 7 percent in Taiwan.

14. The metal products industry includes such items as metallic products, machinery, parts, appliances, electronics, electrical machinery, shipbuilding, motor vehicles, and precision instruments.

In sum, relative employment shares are large and growing in metal products, large and steady in textiles and garments, and small and declining in food, beverages, and tobacco. And as I shall now show, these employment patterns accord with the growth of output and of exports in each sector in the four economies.

Take the case of the metal products industry first. Metal products was a growth industry in employment terms in every country. As shown in table 8.14, the structure of manufacturing production also shifted in favor of metal products in each case. When these increases in the metal product share of manufacturing production are combined with the rising importance of manufacturing production in total national product, the growth of production in that sector is all the greater.

To a large extent, the metal products sector expanded output for export purposes. Direct evidence on this is available for two of the countries. In Hong Kong, the share of metal product output that was exported nearly doubled, rising from 37 percent to 66 percent. In Singapore, the situation was nearly identical: machinery and transport (the closest category to metal products) exported 33 percent of its production in 1960, 69 percent in 1979.[15]

The same is true of the volume and composition of exports. In all four countries, the value of machinery and transport exports increased enormously from 1960 to the late seventies: from US$77 million to $9,314 million in Hong Kong, from US$0.9 million to $2,587 million in Korea, from US$15.5 million to $5,068 million in Singapore, and from US$2 million to $4,500 in Taiwan. As a result of these increases, the shares of machinery and transport exports in total exports grew rapidly: from 3 percent of the total to 17 percent in Hong Kong, from 2 percent to 20 percent in Korea, from 8 percent to 28 percent in Singapore, and from 1 percent to 28 percent in Taiwan.

It is apparent that foreign trade was a driving force underlying the expansion of employment in the metal products sector in each country. All took advantage of export opportunities and increased the value of metal products exports enormously. As firms increased output for the export market, they also expanded employment. The result was a trade-induced increase in metal products employment, offering hundreds of thousands of new modern-sector jobs that did not exist previously.

The situation was similar in textiles, though the precise figures are different. In brief, textile employment grew at rapid rates as did textile production and exports. In Taiwan, for example, in the sixties and seventies, textile employment grew at an annual rate of 8.3 percent, textile

15. These percentages are for domestic exports, excluding entrepot.

Table 8.13. Changes in the Structure of Employment by Manufacturing Sector

	Percentage Distribution of Employment										
	Hong Kong"		Korea			Singapore[b]			Taiwan[c]		
Sector	1961	1977	1961	1970	1979	1960	1970	1979	1966	1975	1981
Food, beverages, & tobacco	14.2	2.6	15.7	13.6	8.8	19.1	10.0	5.2	12.7	10.1	6.7
Textile, garments, leather & footwear	45.2	47.8	35.4	31.1	30.4	4.0	15.8	15.6	21.5	25.2	21.9
Wood & furniture	6.3	2.2	6.0	5.2	3.6	8.8	8.8	6.3	6.0	5.4	6.7
Paper & printing	5.4	4.2	7.4	5.7	4.4	13.7	7.7	5.7	5.6	4.5	4.8
Chemicals, petroleum, rubber, & plastics	12.0	11.9	12.1	11.8	12.1	23.7	11.8	7.8	13.1	16.2	13.2
Nonmetallic minerals	1.9	0.5	6.0	5.9	4.8	7.3	3.8	1.6	14.9	8.3	4.3
Basic metals	1.7	0.5	2.5	3.7	4.3	1.5	1.2	0.8			3.0
Metal products	13.4	27.1	12.5	17.4	28.2	20.4	34.5	54.7	20.1	26.0	33.4
Miscellaneous		3.1	2.2	5.6	3.5	1.5	6.5	2.2	6.1	4.3	5.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Annual Rate of Growth of Employment by Manufacturing Sector

Sector	Hong Kong 1961-77	Korea 1961-79	Korea 1970-79	Korea 1961-70	Singapore 1960-79	Singapore 1970-79	Singapore 1960-70	Taiwan[c] 1966-75	Taiwan[c] 1975-81
Food, beverages, & tobacco	-7.5	8.4	5.3	11.7	4.4	1.4	7.1	3.7	4.7
Textile, garments, leather & footwear	3.3	11.0	10.2	11.9	20.1	8.8	31.3	8.3	9.5
Wood & furniture	-3.7	8.8	5.9	11.8	9.8	5.0	14.3	5.1	16.1
Paper & printing	1.4	8.8	7.3	10.4	6.7	5.4	7.9	3.8	13.4
Chemicals, petroleum, rubber & plastics	2.9	12.0	10.9	13.2	5.4	4.2	6.5	8.9	8.3
Nonmetallic minerals	-4.7	10.5	8.0	13.1	3.2	-1.0	7.2	I -0.3	9.7
Basic metals	-4.0	15.2	12.3	18.2	8.1	4.3	11.6		
Metal products	[8.3	17.2	16.6	17.7	17.7	14.7	20.5	9.5	16.9
Miscellaneous		19.9	5.0	25.6	14.1	-3.1	32.1	2.2	18.4
All products	2.9	12.0	10.5	13.5	11.7	9.0	14.3	6.4	12.1

Sources: For Hong Kong, *Census 1961,* table 231, *The Commissioner for Labor 1977 Departmental Report,* table IB.

For Korea, Bank of Korea, *Economic Statistics Yearbook, 1972,* table 111; *1963,* table 182 and Economic Planning Board, *Korea StatisticalYearbook 1981,* table V.2, pp. 162-63.

For Singapore, *Report on the Census of Industrial Production,* 1979, table 13; 1960, table 2.1.

For Taiwan, Walter Galenson, "The Labor Force, Wages and Living Standards," in Galenson, ed., *Economic Growth and Structural Change in Taiwan* (Ithaca, N.Y.: Cornell University Press, 1979), table 6.4; and Directorate-General of Budget, Accounting, and Statistics, *Monthly Bulletin of Labor Statistics, Republic of China* (October 1981), table 1.6.

[a]Data for 1977 covers only registered establishments (about 90% of all employment in manufacturing); data for 1961 is from Population Census.

[b]Rubber processing is included in chemicals, petroleum, rubber, and plastics; this activity accounted for 16.7% of manufacturing employment in 1960, 3.7% in 1970, and 0.7% in 1979.

[c]1975 and 1981 figures are derived from different sources and so may not be directly comparable.

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Table 8.14. Changing Structure of Manufacturing Production

Hong Kong"

	Output (HK$ millions)	Sales (HK$ millions)		% Distribution			Exports/ Output (%)[b]	
	1960/61	1971	1978	1960/61	1971	1978	1960/61	1971
Food, beverages, & tobacco	486.1	1,058.0	2,837	10.9	5.9	4.5	37.0	25.1
Textiles & clothing	1,910.0	8,726.4	27,883	42.9	48.3	43.8	81.0	71.6
Wood & furniture	162.4	379.4	1,031	3.6	2.1	1.6	22.6	45.4
Paper & printing	202.3	676.2	2,585	4.5	3.7	4.1	19.9	12.0
Leather & rubber	70.9	239.7	534	1.6	1.3	0.8	83.1	75.1
Chemicals & plastics	203.3	2,016.9	5,726	4.6	11.2	9.0	26.0	76.6
Nonmetallic minerals	66.4	118.7	898	1.5	0.7	1.4	29.0	24.4
Basic metals	26.3	337.0	1,042	0.6	1.9	1.6	80.0	16.9
Metal products	877.9	3,356.5	18,882	19.7	18.6	29.6	36.7	65.9
Miscellaneous	721.1	1,140.1	2,312	16.2	6.3	3.6	67.0	82.1
Total	4,452.5	18,048.9	63,729	100.0	100.0	100.0	62.0	65.0

Korea

	Value Added (billion won)			Distribution		
	1961	1970	1979	1961	1970	1979
Food, beverages, & tobacco	4.2	141	1,523	19.3	25.6	16.5
Textiles & leather	6.4	94	1,807	29.4	17.1	19.6
Wood & furniture	1.4	19	218	6.4	3.5	2.4
Paper & printing	1.7	28	399	7.8	5.1	4.3
Chemicals, oil, coal, rubber, & plastics	2.9	121	1,607	13.3	22.0	17.5
Nonmetallic minerals	2.0	33	530	9.2	6.0	5.8
Basic metals	0.5	22	731	2.3	4.0	7.9
Metal products, machinery, & equipment	2.3	76	2,225	10.6	13.8	24.2
Others	0.4	16	169	1.8	2.9	1.8
Total	21.8	550	9,208	100.0	100.0	100.0

Table continues on the following pages, notes to table are on page 363.

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Table 8.14. Changing Structure of Manufacturing Production (Continued)

Singapore

	Value Added[c] (US$ millions)			% Distribution			Direct Exports as Proportion of Value of Production		
	1960	1970	1977	1960	1970	1979	1960	1970	1979
Food, beverages, & tobacco	44.1	136.0	369.9	31.0	12.4	5.5	28.1	28.3	44.9
Textiles, leather, & footwear	4.4	56.3	397.8	3.1	5.1	5.9	29.8	53.5	62.3
Wood products & furniture	11.4	71.1	278.2	8.0	6.5	4.2	46.4	41.5	55.2
Paper & printing	26.4	63.5	288.2	18.6	5.8	4.3	22.2	14.0	14.7
Chemicals, petroleum, & plastics	13.0	292.0	1,692.1	9.1	26.7	25.2	51.4	45.2	71.1
Nonmetallic mineral products	5.5	33.3	167.8	3.9	3.0	2.4	60.2	28.1	23.3
Basic metals	1.9	22.2	128.3	1.3	2.0	1.9	57.4	21.1	41.6
Machinery & electrical products	33.6	390.4	3.274.3	23.6	35.7	48.8	32.6	41.9	68.5
Miscellaneous	1.8	28.9	106.8	1.3	2.6	1.6	3.7	30.5	42.1
Total	142.1	1,093.7	6.703.4	100.0	100.0	100.0	35.0	39.1	64.1
Rubber-processing	42.9	35.0	87.7	23.2	3.1	1.3	73.6	72.1	59.9
Total	185.0	1,128.8	6,791.0	100.0	100.0	100.0	63.2	44.3	63.4

Taiwan

	Manufacturing GDP (NT$ millions)				Percentage Distribution			
	1951	1960	1970	1979	1951	1960	1970	1979
Food, beverages, & tobacco	505	3,016	8,685	30,252	33.4	31.8	16.5	8.5
Textile & apparel	288	1,530	9,489	55,332	19.0	16.1	18.1	15.5
Wood & furniture	64	495	2,494	16,103	4.2	5.2	4.7	4.5
Paper & printing	114	811	2,600	18,445	7.5	8.5	4.9	5.2
Leather & rubber	37	145	649	10,745	2.4	1.5	1.2	3.0
Chemicals	236	629	6,419	40,841	15.6	6.6	12.2	11.4
Petroleum & coal	56	512	4,760	16,038	3.7	5.4	9.1	4.5
Nonmetallic mineral	64	760	2,737	14,382	4.2	8.0	5.2	4.0
Basic metal	6	387	1,301	26,754	0.4	4.1	2.5	7.5
Metal products & machinery, electrical products	79	1,073	11,251	93,421	5.2	11.3	21.4	26.1
Miscellaneous	63	138	2,162	34,952	4.2	1.5	4.1	9.8
Total	1,512	9,496	52,547	357,265	100.0	100.0	100.0	100.0

Sources: For Hong Kong, 1960/61: Laurence C. Chau, "Estimates of Hong Kong Domestic Product, 1959-1969," *Hong Kong Economic Papers* 7 (1972), p. 18; 1971: Census and Statistics Department, *1971 Census of Manufacturing Establishments.* 1978: *Hong Kong Monthly Digest of Statistics* (January 1981), p. 88.

For Korea, Bank of Korea: *Economic Statistics Yearbook* (1963), table 183, pp. 300-01, and *Economic Statistics Yearbook* (1972), table 111, pp. 216-16.

For Singapore, *Census of Industrial Production,* various issues; *Economic Development Board Report* (1972).

For Taiwan, Directorate-General of Budget, Accounting, and Statistics, *National Income of the Republic of China* (December 1980), ch. 4, table 2.

"Data based on Mining & Manufacturing Census, which excludes establishments with fewer than 5 workers.

[b]Data for 1978 are not available.

[c]Establishments with ten or more employees.

output grew from NT$1,530 million to $55,332 million, and textile exports grew from US$28 million to $5,226 million in value and from 17 percent to 33 percent in share.

On the other hand, in food, beverages, and tobacco, the growth rates of employment, output, and exports were all much lower. In three of the countries (Korea, Singapore, and Taiwan), employment in that sector grew but at below-average rates; in the fourth (Hong Kong), absolute employment actually fell. In all four, production in food, beverages, and tobacco increased absolutely but fell in relative terms. The situation is similar with respect to exports: the absolute value of food, beverage, and tobacco exports increased but relative shares declined in all four countries.

We may conclude from this evidence that economic growth of the rate and character realized in the four Asian NICs had large direct effects on employment. By tapping export markets, these NICs succeeded in raising output in key sectors of the economy at rapid rates. Because this export-led growth was of a labor-intensive character, employment also grew rapidly. Employment growth rates varied directly with the growth rates of output and exports in these three industries.

Wage Growth and Employment Growth: Market Forces

In contrast to the positive relationship between employment growth, output growth, and export growth, if we look at wage change in the same three industries (see table 8.15), we find a clear inverse relationship between the rates of employment growth and real wage growth:

Metal products: Employment growth in each country has been at above-average rates compared to manufacturing as a whole. Wage growth, however, has been at a rate less than or equal to the rate of wage increase overall.

Textiles, garments, leather, and footwear: The story here is similar to metal products but the numbers are slightly different. Employment growth in textiles has been at average or above-average rates: equal to employment growth in Korean manufacturing as a whole, twice as high as the average in Singapore, and one-third higher than the average in Taiwan. Wage growth in each country has been at a rate below the rate of wage increases in manufacturing as a whole.

Food, beverages, and tobacco: This sector presents the opposite picture from metal products and textiles. Employment growth has been at average or below-average rates. In each country, however, wage growth has been at average or above-average rates.

Table 8.15. Changes in Employment and Wages by Manufacturing Sector, Three Countries (excluding Hong Kong because of noncomparability)

w en	Korea*				Singapore[13]				Taiwan[0]			
	Employment		Wages		Employment		Wages		Employment		Wages	
Manufacturing	Structure 1977	Growth 1961-79	Structure 1978	Growth 1960-78	Structure 1979	Growth 1960-79	Structure 1978	Growth 1960-78	Structure 1975	Growth 1966-75	Structure 1979	Growth 1960-79
Food, beverages, & tobacco	8.8	8.4	1.15	10.2	5.2	4.4	1.11	3.7	10.1	3.7	1.05	8.0
Textiles, garments, leather, & footwear	34.3	11.0	0.75	7.5	15.6	20.1	0.64	1.3	25.2	8.3	0.82	7.5
Wood & furniture	3.7	8.8	1.02	8.2	6.3	9.8	0.88	1.1	5.4	5.1	0.90	8.5
Paper & printing	4.4	8.8	1.34	9.7	5.7	6.7	1.05	2.1	4.5	3.8	1.13	6.5
Chemicals, petroleum, rubber, & plastics	12.4	12.0	1.14	9.6	7.8	5.4	1.36[d]	5.1[d]	16.2	8.9	1.15	8.1
Nonmetallic minerals	4.0	10.5	1.27	10.5	1.6	3.2	1.26	4.1	•8.3	1-0.3	1.02	6.1
Basic metals	3.7	15.2	1.51	9.9	0.8	8.1	1.51	5.0			1.34	9.0
Metal products	24.4	17.2	1.09	9.1	54.7	17.7	1.05	1.8	26.0	9.5	1.05	7.0
Miscellaneous	4.2	14.9	0.76	8.3	2.2	14.1	0.77	3.0	4.3	2.2	0.83	7.0
Total	100.0	12.0	1.00	9.0	100.0	11.7	1.00	2.5	100.0	6.4	1.00	8.0

Note: Employment structure: percentage distribution.
Employment growth: annual rate of growth.
Wage structure: ratio of wages to average.
Wage growth: annual rate of growth of real earnings.

"Monthly earnings of regular employees; Bank of Korea: *Economic Statistics Yearbook* (1972), table 159; (1979) table 138. Employment: see table 8.5.

[b]Annual employee renumerations: *Report on the Census of Industrial Production* (1960), table 5.1; (1970) tables 1 and 12; (1978) tables 22 and 26. Employment: see table 8.5.

'Earnings Data: Computed from *Statistical Yearbook 1980,* table 181. Earnings within each sector are an unweighted average of subsectors. Employment: See table 8.5.

[d]Includes rubber-processing.

How is the inverse relationship between employment growth and wage growth to be explained? Take first the metal products and textile industries: I infer that relatively low wage growth in those industries permitted high employment growth in each country. Relatively low wage growth, however, still meant that wage increases ranged from 1.3 percent per annum in Singapore textiles to 9.1 percent in Korean metal products. And remember that these are real wage increases. That is, growing demand for labor pulled up real wages; workers already in those industries benefited, plus large numbers of additional workers were employed at higher wages.

On the other side of the coin, how can the high rates of wage increase in food, beverages, and tobacco be reconciled with the below-average growth of employment in that industrial group in each country (and, for that matter, with the below-average growth of output and exports of food, beverages, and tobacco products)? One is tempted to look for some sort of institutional force that pushed wages up prematurely, leading firms to reduce their rates of employment, export, and output expansion, if not actually to cut them all back. But the actual cause appears to be quite different: capital-labor substitution.

The success of the four Asian NICs with labor-intensive, export-led growth has led to full employment and even labor shortages. The tight labor market situation has generated stiff competition for labor. In metal products and textiles as in most industries, firms responded by raising wages in order to hold their existing labor forces and attract new workers. But some firms, especially in food, beverages, and tobacco industry, responded to rising wages by shifting to more capital-intensive production methods (e.g., automated bottling plants), the technology for which could readily be obtained in the United States, Japan, and elsewhere. This capital-intensive growth was accompanied by a shift in the skill mix of employment in food, beverages, and tobacco, as skilled labor was hired and unskilled workers trained to man the machines. This claim is based on case studies. No figures are available on educational qualifications of various industry work forces. In support of this claim of a higher skill mix in food, beverages, and tobacco than in textiles or metal products, however, figures on production and employment may be combined to give indices of "productivity" (see table 8.16). Workers in food, beverages, and tobacco exhibit higher productivity, in part because they are thought to be better skilled. Since firms have to pay skilled workers more than unskilled workers, wages are even higher. As physical and human capital replaced unskilled labor in production, total costs increased. This provides a consistent market explanation for the relatively rapid growth of wages and the relatively slow growth of employment, exports, and output in food, beverages, and tobacco.

Table 8.16. Index of Productivity in Selected Industries Around 1979

(Food, Beverages, and Tobacco in Each Country = 100)

Industry	Hong Kong"	Korea[b]	Singapore[b]	Taiwan[0]
Food, beverages, and tobacco	100	100	100	100
Textiles	53	34	35	60
Metal products	64	40	85	18

Source: Computed from tables 8.13 and 8.14.
"Sales per worker.
[b]Value added per worker.
[C]GNP per worker.

We may conclude that wage growth was inversely related to growth of employment, output, and exports because of market forces. Where substitution of capital for labor could take place, it did. Labor was redeployed to areas of greatest need. And because other sectors of the economy needed workers in order to grow, full employment of labor in the economy was maintained.

The Importance of the Wage-Setting Process

Wage and employment growth are high in the four Asian NICs, higher than elsewhere. How can these differences be explained? One possible explanation—that the differences in their labor market experience are due to their respective macroeconomic experience—is far too superficial. Although it is accurate in an accounting sense, it is not an explanation. It only pushes the question one step further back and leads us to ask: why were their growth experiences different?

Some analysts explain the four Asian NICs' successes in terms of cultural differences (i.e., the Confucian ethic). Clearly, cultural factors do have a role to play, but can they be *that* important? Political economists would point elsewhere: to the willingness of the major capitalist powers to permit and even aid the development of other capitalist economies. Others would focus on the character of foreign trade and foreign investment. The Asian NICs have relied on exports for a major part of their economic growth and their exports have two key attributes: they are produced using labor-intensive methods, and the export industries have strong linkages with the rest of the economy. Contrast this with countries which rely on land-based or mineral-based export industries. Often, these industries are highly intensive in capital and energy and have few intersectoral linkages. Another factor that bears mention is the relatively equal distribution of assets, both physical and human, that characterized these economies at the beginning of their take-offs into rapid economic growth.

While all these factors undoubtedly contribute to explaining why the four Asian NICs have been more successful than other countries, I would like to call attention to one other difference that has been largely overlooked: differences in the wage-setting process between these NICs and the rest of the world. The key sector to focus on is manufacturing, since growth of manufacturing exports is the driving force behind the four Asian NICs' economic growth. The manufacturing wage in those four countries is about 20 percent higher than the agricultural wage. By contrast, throughout Latin America, the Caribbean, and Africa, wages are more than twice as high in manufacturing as in agriculture.

The difference has to do with the wage-setting mechanisms at work. Four institutional forces, singly or in combination, have potent influences on manufacturing wages outside of East Asia.[16] Minimum wage laws are commonplace and when enforced cause wages to be higher than they otherwise would be. Labor unions often are very strong. At times, this is because of the close association between organized labor and the political party in power. At other times, it is because labor unions are encouraged as a means of achieving higher wages for workers. Government pay policy often sets the pattern of wages for the rest of the economy, and those in charge have a propensity to pay high wages to all government workers (including themselves). Lastly, multinationals often pay high wages, partly to maintain parity between expatriate and local employees, and partly (in some instances) to appear to be good corporate citizens and thereby to avoid expropriation or expulsion.

The striking feature about wage-setting in Hong Kong, Korea, Singapore, and Taiwan is the absence of such institutional forces. Economic development in the four Asian NICs has been based on low labor costs.

16. Among the relevant studies of wage structure and institutional aspects of wage setting in less developed countries are Elliot Berg, "Major Issues of Wage Policies in Africa," in A. M. Ross, ed., *Industrial Relations and Economic Development* (New York: Macmillan, 1966); Elliot Berg, "Wage Structure in Less Developed Countries," in A. D. Smith, ed., *Wage Policy Issues in Economic Development* (London: Macmillan, 1969); Lloyd G. Reynolds, "Wages and Employment in a Labor Surplus Economy," *American Economic Review* (March 1965); Lloyd G. Reynolds, "Relative Earnings and Manpower Allocation in Developing Economies," *The Pakistan Development Review* (Spring, 1969); Michael P. Todaro, "Income Expectations, Rural-Urban Migration and Employment in Africa," *International Labour Review* (November 1971); Michael P. Todaro, *International Migration in Developing Countries* (Geneva: International Labour Office, 1976); David Turnham, *The Employment Problem in Less Developed Countries* (Paris: Development Centre of the Organization for Economic Cooperation and Development, 1971); Gene M. Tidrick, "Wage Spillover and Unemployment in a Wage-Gap Economy: The Jamaican Case," *Economic Development and Cultural Change,* 1975; John B. Knight and Richard H. Sabot, *Why Wages Differ* (Washington: World Bank, 1980); and Gary S. Fields, *Analyzing Income Inequality in Colombia: A Micro Perspective,* mimeo, 1981.

These countries recognized that if they were first to penetrate and then to hold their positions in the world markets, they would have to do so on the basis of price, taking advantage of their abundant supplies of labor. Accordingly, they pursued a variety of policies which had the effect of restraining wage growth. The four institutional forces causing higher-than-market-clearing wages elsewhere—trade unions, minimum wage laws, government pay policy, and multinational corporations—do *not* interfere with market wage setting in the four Asian NICs. Although trade unions bargain over wages, only in Hong Kong do they do so free of government restraint. Minimum wage laws are on the books in some of the countries, but the minimum wage is below the market wage and is therefore irrelevant. Government pay policy in each country is to follow the private sector, not to lead it as it does in other developing regions, especially Africa. And multinationals, too, follow market forces.[17] The result is that wages increase in the four Asian NICs if, and only if, firms find it in their profit-maximizing interest to raise them, after taking full account of the need to hold costs down to internationally competitive levels.

I see these differences in wage-setting processes—supply and demand in the four Asian NICs, institutional wage determination elsewhere—as a major reason for the differential rates of economic success between the four Asian NICs on the one hand and the rest of the developing world on the other. For obvious reasons, higher wages raise input costs, and this is likely to result in reduced exports and hence lower output, unless either (1) higher wages cause higher productivity, and/or (2) the wage bill increases so much that domestic demand increases faster than foreign demand falls off.

Consider next the employment effects of the different wage-setting mechanisms. Simple supply-and-demand analysis suffices to show that a higher-than-market-clearing wage causes employment to be less than it might otherwise be if wages were set at market-clearing levels, because employers hire fewer workers when wages are greater. The wage elasticity of demand for labor would be especially high in an open economy because higher costs (unless accompanied by higher productivity) may result in large losses of export sales.

Next, consider inequality. Quite simply, if everyone in the labor force is employed at a market-clearing wage, inequality is less than if some are employed at higher-than-market-clearing wages and others are unemployed and earn nothing. So unless this is offset by losses of profits among those at the top of the income distribution, inequality will rise.

Finally, what about poverty? Clearly, some people are poorer than

17. In Taiwan, for example, multinationals pay the same wages as indigenous firms.

before: those who would have been employed when the wage is at the market-clearing level but are not employed when the wage is higher. But those who remain employed are less poor than before, and may even escape from poverty altogether. The income gap between the poorest of the poor and everyone else has increased. Most poverty indices would give heavy weight to the increasing number of zero-income people, and so would register an increase in poverty resulting from a higher-than-market-clearing wage, but this is not an unambiguous result.

I conclude that the functioning of labor markets, especially the wage-setting mechanism, is a *cause* of a country's macroeconomic growth rate and export experience as well as an *effect* of its macroeconomic conditions. The macroeconomic success of the four Asian NICs is caused in part by the reliance on market-wage determination in each of their economies.

Development economists and planners who hold out the export-oriented development strategy of the four Asian NICs as a model perceive that a policy package is needed for successful export-led growth. The measures usually mentioned are realistic exchange and interest rates, lowering of tariff barriers and other trade restrictions, and the pursuit of comparative advantage. Less frequently mentioned, but equally important to sound policy formulation, is reliance on supply and demand in labor markets to determine wages. Whether success is gauged in terms of output growth, export growth, or employment, an outward orientation in a regime of artificially high (or low) wages must be given very little chance of succeeding.

Lest any misunderstanding arise from my calling attention to the advantages of market-wage determination, I should make three important points. The first is that the goal of any economic system is to provide more real purchasing power to more people, and higher employment at higher rates of pay is the primary way income gains are realized. Too often, in the pursuit of macroeconomic objectives, this fundamental truth is overlooked. Second, market-wage determination need not lead to wage stagnation or to a shift in the functional distribution of income against labor. Quite to the contrary, market-wage determination has led to increases in wages and employment in the four Asian NICs, even in Singapore, where wage growth was repressed for most of the seventies. And this leads to the third observation: that it is one thing to discourage wages from rising above market-clearing levels and it is quite another to hold wages below market-clearing levels. The first has many attractive features; the second does not.

The record of the four Asian NICs in the last 20 years is clear. Production for world markets through labor-intensive methods financed in part by foreign investment resulted in full employment and wage increases at high rates for the bulk of the labor force. If these gains are to take place

elsewhere, premature and excessive wage increases must be avoided. Other pertinent conditions are discussed in the conclusion.

Conclusions and Discussion

For the last two decades, Hong Kong, Korea, Singapore, and Taiwan have pursued policies of export-led growth financed by high rates of domestic savings and with active participation of foreign investors. The labor market and income distribution experiences during this growth phase have been overwhelmingly favorable. Six measures register clear improvement:

1. Increases in total employment, reductions in unemployment rates, and increased employment-to-population ratios.
2. Shift of employment out of agriculture and into manufacturing, a relatively higher-paying activity.
3. Upgrading of employment composition by activity status, occupation, and education.
4. Rising real earnings.
5. Constant or falling relative income inequality.
6. Diminishing absolute poverty.

Unemployment rates fell from 8 to 10 percent to less than 4 percent in all four countries. Real wages rose by as much as a factor of four. Inequality levels have fallen to low to moderate levels. In Taiwan, for example, it is estimated that the Gini coefficient fell from .5 to .3 over a 20-year period. The employment mix also has been upgraded. The share of employment in agriculture, the lowest-paying economic sector in each country, fell by more than half in Korea and Taiwan. In those two economies, the share of manufacturing to total employment increased several-fold. The composition of employment by activity status improved, so that the proportion of unpaid family workers was cut by at least 50 percent in all four countries, while the proportion of workers engaged as employees as much as doubled. The occupational mix improved, reflecting in part the higher levels of education attained by the labor forces; in Hong Kong, for example, the proportion of workers with post-secondary or university education more than doubled. That such large increases could have taken place within a single generation is an enviable achievement.

An important force contributing to improvement in labor market conditions and income distribution is the expansion of foreign trade and foreign investment. It has been estimated in Korea, for example, that the fraction of employment linked directly or indirectly to the export sector increased from 3 percent to 30 percent. The need for more workers in the export sectors was a major factor responsible for increases in aggregate employ-

ment in each of the four countries. In part, these workers were drawn into the export sectors from other sectors of the economy; in the process, their incomes rose. In addition, the expanded employment opportunities attracted new workers into the labor force—this might be called an "encouraged worker effect." Employment-to-population ratios rose as a consequence, raising family incomes and lowering dependency ratios. Also, when coupled with the end of the labor-surplus phase, the need to attract new workers to the export sectors bid up wages and permitted further improvements in standards of living.

The shift of employment into manufacturing reflects, of course, the shift of production into manufacturing as a result of foreign investment in manufacturing industries and the export of manufactured goods. What is impressive is the sheer volume of these increases. Take the case of Taiwan. In the sixties and seventies, while real national income per capita increased by a factor of four, the contribution of manufacturing to national income nearly tripled, and the value of manufacturing exports increased more than a hundredfold! What employment consequences resulted? Manufacturing employment tripled and its share of total employment doubled, reflecting the choice of labor-intensive production methods for export goods. Similar patterns, though on a lesser scale, are recorded in Hong Kong, Singapore, and Korea.

The labor intensity of exports is central to "modern-sector enlargement," that is, the process whereby the creation of more jobs with relatively good pay attracts workers from other, lower-paying sectors of the economy. Modern-sector enlargement results in enhanced economic status of workers, as reflected in the statistics presented above on upgrading of employment by industry, occupation, activity status, and education.

Labor-intensive development has been made possible by market-wage determination in the export sectors. Products of the four Asian NICs have remained competitive in world markets because wages have risen only when competitiveness would not be undermined. And indeed, real wages have risen: by 300 percent in Taiwan from 1954 to 1979; by 190 percent in Korea from 1966 to 1980; and by 150 percent in Hong Kong from 1960 to 1980. Singapore is different. There, real wages per *worker* stagnated between 1966 and 1975; but because full employment was achieved and many more jobs were created, real earnings per *household* increased by about 40 percent over the same period. Since 1975, real wages per worker have risen by about 20 percent. Thus, in each of these countries, in addition to "modern-sector enlargement" referred to earlier, we have ample evidence of "modern-sector enrichment," (increases in real incomes for those already employed in the modern sector).

When high rates of modern-sector enlargement and high rates of

modern-sector enrichment both take place, as in the four Asian NICs, the result is that the benefits of growth are widespread. Income inequalities in these four countries are low to moderate by world standards. Inequality has fallen in Taiwan in Singapore and is largely unchanged in Hong Kong.[18] This, combined with rising real incomes, implies rapidly declining absolute poverty, as indeed was the case in all four economies.

Can export-led growth have similarly favorable effects on labor market conditions and income distribution in other Less Developed Countries (LDCs) in other parts of the world? The answer, I suggest, depends on five factors:

1. The ability of other LDCs to penetrate world markets under current conditions.
2. The asset distribution and infrastructure in those LDCs.
3. The role of private enterprise and the free market.
4. The labor intensity of their export goods.
5. Wage-setting behavior.

Protectionism: It is common these days to hear fears expressed about the future of world trade. Protectionist sentiments are growing as developed countries react to domestic economic difficulties. Many fear that LDCs may be unable to penetrate world markets to the same degree in the future as the four Asian NICs were able to in the past. This prospect is a worrisome one, and only time will tell whether these fears prove to be well founded.

Asset Distribution and Infrastructure: For a variety of reasons, each country of the four Asian NICs started on its recent development epoch with a well-developed infrastructure, with a relatively (by LDC standards) well-educated population, and without great inequalities in the distribution of land or other assets. These initial conditions made it more likely that economic growth would have widespread effects throughout the economy, improving labor market conditions and income distribution. Absent these initial conditions, might it not be expected that the primary gainers from free-market growth would be large landowners and industrialists?

The Private Sector and the Free Market: The governments of Hong Kong, Korea, Singapore, and Taiwan regard private enterprise and multinationals as partners in development. These countries are widely thought to have created an environment that allows the private sector to flourish. But private-sector development does not always enhance social welfare.

18. Excluding Korea because of an unreliable data base.

One of the most chilling demonstrations that free market systems may be unjust under some circumstances is Amartya Sen's recent book, *Poverty and Famines.*[19] Most of us believe that famines are the result of lack of food production owing to an excess or a deficit of rainfall, a pest infestation, or some other natural cause. But Sen shows that in a number of recent famines the case was otherwise. Production of food in the famine regions actually increased, yet people starved to death by the tens or even hundreds of thousands. This tragic circumstance came about because food was being exported out of the famine areas, where people had lost their purchasing power and food prices were relatively low, and sent into other regions of the country or even abroad, where food prices were higher. Sen's thesis is that it was a breakdown in the system of market entitlements to food, and not a breakdown in the production of foodstuffs, that was responsible for mass hunger and starvation. The private sector did what it was supposed to do, at least at one level—sell its products for the greatest return—but at another, more human level, in these instances, reliance on market forces failed the people miserably. We must recognize that whether the effects of private-sector development of the mass of the population are beneficial or not depends on other structural conditions of an economy. The desirable features of market systems must be preserved without the system's being allowed to run to excess.

Labor Intensity: One structural feature on which the desirability of a free market system depends, and one that is particularly characteristic of the Asian NICs, is the labor intensity of exports. These countries were successful in achieving full employment, rising real wages, and favorable income distribution outcomes, because their current export phases were preceded by the development of export industries intensive in unskilled labor, in which they had a comparative advantage. The more typical experience in Latin America, the Caribbean, and Africa is to try to export land-based or capital-intensive products, even under conditions of labor abundance. Labor market conditions and income distribution would be expected to improve little, if at all, from an expansion of such export activities. Export growth cannot be relied upon to raise employment, improve wages, and satisfy income distribution goals if the export sector employs relatively few people, if the export sector has few linkages with the rest of the economy, or if both situations obtain, as is often the case elsewhere. Only when labor is a productive resource—a resource that is employed with both technological and economic efficiency—can export expansion in a private economy be counted on to raise employment and wages for large numbers of

19. Oxford: Clarendon Press, 1981.

workers. But when conditions are suitable, as they were in the four Asian NICs, the ability of the mass of the labor force to benefit from further economic expansion through export-led growth is very large indeed.

Wage Setting Behavior: Full employment was achieved and wage rose substantially in real terms in the four Asian NICs. This happened, I argue, because wages were pulled up by supply and demand rather than being pushed up above market-clearing levels by a variety of institutional forces. In most other parts of the world, the situation is just the reverse; that is, what is common elsewhere is that wages are set at higher-than-market-clearing levels. Such wage-setting behavior hampers employment and output growth wherever it occurs. But if it takes place in export sectors, which must be competitive in world markets if the goods are to be sold, the adverse effect is even greater. The economies of South Asia, Africa, and Latin America and the Caribbean cannot be successful exporters unless wage growth is restrained and wages are allowed to reach market-clearing levels. Otherwise, whatever policies these countries might follow to promote economic development, the pursuit of export-led growth ought not to be among them. The interrelationships between industrialization and trade strategies on the one hand and the functioning of labor markets on the other is a largely unexplored area, but one that holds much promise for future analysis.