THE TRANSITION TO AN INDUSTRIAL ECONOMY IN MONSOON ASIA

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by

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ABSTRACT

The paper discusses the problems encountered in moving into the industrial economy, defined as an economy in which the industrial labor force exceeds the agricultural labor force. The difficulties of the transition are ascribed to the nature of the monsoon economy of Asia whose special characteristics are described. The paper analyzes the transition for Japan, Taiwan and the Republic of Korea and the differences in the pattern of the transition of Taiwan and the Republic of Korea. This is followed by a discussion of how and where the Philippines, Thailand, Malaysia and Indonesia stand with respect to the stages of the transition. Brief discussions on how Hong Kong and Singapore were able to move from the service economy to the industrial economy, contrasting their experience with that of the giants of Asia, China and India, complete the paper.

The paper emphasizes that under monsoon conditions the need to develop agriculture sufficiently before shifting to an industrial strategy for a speedy and successful completion of the transition. The difficulties encountered during the transition with heavy processing industries are identified. The relationship of a successful transition to full employment, lower income inequalities and the demographic transition is briefly traced.

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INTRODUCTION

Transition to an industrial economy is exceptionally difficult for the monsoon countries of Asia because of the peculiar structure of monsoon paddy agriculture. In the first half of this paper, a general framework is presented in which we attempt to describe and analyze why this is so. In the second part, we examine how Taiwan and the Republic of Korea were able to move into the industrial society during the postwar decades ending in 1980. The third part is concerned with the inability up to the present of the Philippines, Thailand and Indonesia to become industrial societies and the near success of West Malaysia in achieving that status at the end of the 1970s. The fourth part deals briefly with why India and China have failed to industrialize whereas Hong Kong and Singapore have succeeded though from being service rather than predominantly agricultural societies.

The paper assumes the following definitions: the economy is divided into three sectors; an industrial economy or society is one in which the greatest part of the labor force is employed in mining, construction, manufacturing, public utilities, transport, communication and storage; an agricultural society is one in which the largest part is engaged in farming, forestry, fishing and livestock; and a service economy is one in which the largest part is engaged neither in industry nor agriculture but in modern business, personal and public services.

Such definitions may seem arbitrary but they are conceptually useful and particularly so in the first case. For when the labor force in industry begins to exceed that of agriculture, it is just about then that income inequality begins to fall and enrollment in secondary education accelerates; in other words as the demographic transition to the requirement of the definition is made, there is a corresponding acceleration in the growth of income and factor productivity (as explained below). Let us now outline the changing patterns that emerge as a monsoon economy evolves into an industrial society.

I. THE MONSOON ECONOMY OF ASIA

Certain problems of South and East Asia are closely connected with the monsoon climate which gave rise, several thousand of years ago, to a form of agriculture quite different from that based on the cultivation of wheat as in the West. This section deals with the nature of the monsoon climate, its relation to paddy/rice agriculture with its pronounced seasonality and labor intensity and the relation of that agriculture to the non-agricultural sector, so clarifying the differences between the structure and pattern of growth of monsoon Asia and non-monsoon lands. Without such an understanding the dynamics of growth in postwar Asian countries, particularly the transition from an agricultural to an industrial society, cannot be understood. Certainly that transition cannot be adequately explained by the Western theories of growth found in the Classical, Neoclassical, Marxian systems and in the Lewis/Ranis/Fei theories of dualism and unlimited labor supply.[1]

For the Monsoon economy differs from the Classical/Marxian economy of the 19th century and from the Neoclassical world of the 20th century.

East and South Asians had no choice but to evolve, over many centuries, a form of agriculture different from that of the other agricultural systems of the world, as no cereal crop other than rice was suited to the pattern of rainfall and the humidity of monsoon Asia.[2/] And once paddy rice as the basic food crop was adopted, the very nature of the science, technology and institutions of the past centuries in Asia and the world at large up to World War I, dictated that paddy-rice growing should be labor-intensive with a labor-based technology unlike the wheat agriculture of, say, Europe which from about the 18th century became increasingly labor-saving. Accordingly, monsoon Asia ended up by the end of World War II with the highest population densities and with more than one-half of the world's population of which the majority lived in China and India.

It would appear that with so many people, labor supply should have posed no problems for the industrialization of Asia; that this was not so calls for detailed explanation. In a nutshell the explanation is as follows: the pronounced seasonality of the monsoon winds brings heavy rains in one-half of the year but very little in the other. Asians developed, over thousands of years, the most labor-using type of agriculture the world has known. Rice was grown in small water-flooded plots when the rains came with large numbers of people ploughing, transplanting, and harvesting under a rigid schedule imposed by the

timing of the monsoon rains. But when the rain stopped, the densely populated farms were left with a large labor force with little to do as the farms dried up. Although such labor was available for industrial purposes during the slack months most of it had to get back to farm work when the rains came so that the rice needed to sustain so many people throughout the year could be produced. Hence, year-round industrialization using extensive mechanized equipment and a supervising staff, was greatly impeded by the scarcity of labor during the rainy months. The poverty of the densely packed Asian countries was thus partly due to the scarcity of remunerative work opportunities during the dry season for the enormous labor force, and the small size of the paddy farms which required a lot of labor during the rainy season, and therefore high population densities relative to farm land. This type of agriculture, unlike that of the West, developed a small and labor-intensive industrial and service sector structure with institutions differing from those of the West. The following discussion amplifies the foregoing summary statement.

A.   The Monsoon Asian Economy Differentiated from Western Economy

Because it is the world's largest land mass with a "vast complex of mountains and plateaus", centered near Tibet and bounded by the Himalayas, Pamirs, Sinhiang and the southeastern mountains of China, two sudden and pronounced reversals of wind pattern occur each year; during the winter months, cold, dry air blows out of the land mass towards the south, and during the summer months, moisture-laden winds from the surrounding seas flow into the continent, bringing heavy rains.[3]

The rainfall must be heavy enough during at least four months of the year for enough water to collect for rice seedlings to germinate and then, after transplanting, to grow to maturity. Where the rainfall is too heavy, as in parts of Sumatra (and also parts of Africa and Latin America), paddy rice growing is not feasible. The monsoon winds do not affect all parts of Asia but do affect what are now heavily populated regions. The monsoon countries of Asia include nearly all of Southeast Asia and the densely settled parts of China, Japan, Korea, Burma, Nepal, India, Sri Lanka and Bangladesh; they exclude Hokkaido, Manchuria, and the Mongolias in the north, Western China, Afghanistan, most of Pakistan, the southeastern islands of Indonesia, and Mindanao in the Philippines.

Chart I shows the rainfall patterns of the main regions of the world. The large mode for monsoon Asia contrasts sharply with the even rainfall patterns of Europe, North America, Latin America, and Africa. The pronounced seasonality of the monsoons limits the use of the paddies to about half the year only, unless irrigation brings water during the dry seasons. The majority of Asian peasants must look for off-farm work during the dry months (and also after the busy months of planting and before harvesting, as rice crops growing in water do not require much care, especially weeding, compared with crops grown in dry fields, such as wheat). Traditionally they took up handicraft production in addition to forestry, fishing and hunting, though with the import of cheaper machine-made products from abroad, peasants lost their urban markets, and production of handicrafts was confined to village needs. In Western

Chart 1. Rainfall Patterns

Source: Royal Meteorological Office, U.K.
See Appendix Table 1
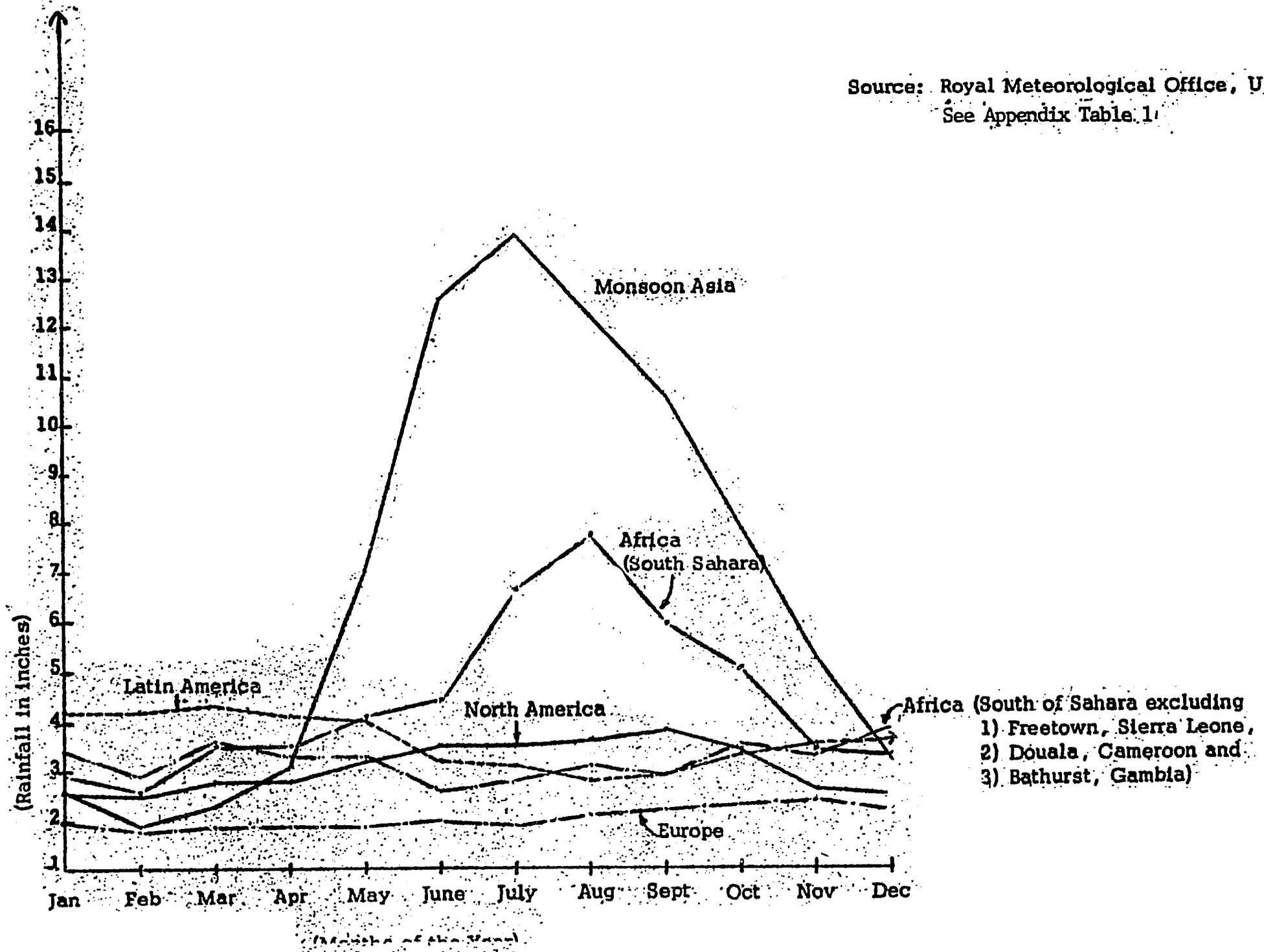
countries, the sparsely settled, low-density, rural areas, together with the relative evenness of rainfall throughout the year, permitted farmers to complement their agricultural production with livestock-raising as there was sufficient land to grow crops in addition to wheat or other cereals to feed livestock during the winter. As will be noted below the rise of capitalistic agriculture, especially in England from the 18th century, greatly hastened the separation of agriculture from handicraft production, and making it more heavily dependent on animal husbandry. Such a separation has never occurred in monsoon Asia, even up to the present, except in plantation crops, such as rubber, requiring labor all-year round. Most of the available work was marginal, intermittent, irregular, of short duration, and of low intensity, so that remuneration per day was low. I have estimated, on the basis of data from various surveys, that on average the agricultural labor force is unemployed for about a quarter to a third of the year.[4/]

The other problem in the development of monsoon agriculture was the great labor requirement per hectare during the rainy seasons. Labor requirement per hectare of paddy-rice growing varied from country to country depending mainly on the extent to which work animals (and in East Asia, machines) were used but also on the prevalence of irrigation and transplantation. In the pre-war decades about 50 man-days were required in the Philippines, 80 in Thailand and Bombay, 100 in West Bengal, and 150 in Madras, China and Japan. The lower figures for Southeast Asia (except Java) reflect the more extensive use of work animals and the limited extent of irrigation and transplantation, though

even these figures were considerably higher than for the wheat culture
of the U.S. at the beginning of the 19th century when no machines were
used.[5/] For the United States in 1900 (before widespread
mechanization), 5 man-days for wheat and 10 days for corn were
needed.[6/]

The major reasons for the heavy labor requirement of
paddy-rice as compared to wheat and other cereals were, first, the need
(in order to get high yields) to prepare seedling beds and
transplantation instead of broadcasting or drilling as in wheat, second
the time-consuming methods of harvesting with a small knife or later,
with the short-stalk variety, a sickle instead of a scythe as used in
Western wheat cultivation in the 19th century, and third, the rigid work
schedule imposed by rainy seasons, requiring concentrated labor.

Typically in Asian paddy fields, when the early rains come,
the seedling beds are plowed and harrowed several times. By hoeing,
plowing, or trampling, the soil of the seed bed is made into fine, soft
mud before sowing. In most countries, the seeds are soaked in water and
then broadcast after the water is drained. The water is replaced in the
paddy after the seeds have germinated, and after about a month, the
young rice plants are pulled out, tied in bundles, topped, and taken to
the paddies to be planted in the main fields.[7/]

During harvesting, reaping with knives and sickles requires
many workers, mainly women. The use of the large scythe employed in

wheat harvesting is not feasible due to the wet or moist paddy soil. Moisture can spoil the grain if it falls to the ground after reaping. Moreover, with the long-stalk _indica_ rice used extensively in Southeast Asia before the spread of IRRI varieties, lodging is a common problem, leading to uneven maturing so that the heads must be cut singly with small knives -- all this to avoid heavy losses due to shattering, lodging and uneven maturing. Unlike other grains, the mature rice grain readily shatters.

Extreme labor-intensity, together with the rigid schedule imposed by the rainy seasons,[8/] underlie the great population densities of monsoon Asia. In Appendix Table 2, agricultural densities are shown for the various regions of the world. Asia had the highest (1.3 persons per hectare compared to 0.4 for the world as a whole). But even these figures understate the population density of monsoon Asia, since Asia in the table includes non-monsoon Asia (the Middle East, Pakistan, western and northern China, half of India, and so on). If rough adjustments are made to exclude these areas, monsoon Asia's density rises to about 5 to 10 persons per hectare instead of 1.3. Appendix Tables 2 and 3 also present data on average area of holdings which is 2 hectares for Asia and 17 hectares for the world. Again if the non-monsoon regions are excluded the 2 hectares may fall to less than 1 hectare.

Thus, the extreme labor-intensity and population densities of the paddy rice agricultural areas of monsoon Asia have meant that farms

are tiny compared with other parts of the world. And because of small farm size and land scarcity, land for the growing of feed for livestock was so severely limited that animal husbandry could not be developed as a source of additional income during the slack season, as in the West.

In sum, a highly specialized type of agriculture very different from those of the rest of the world evolved in the course of thousands of years. Labor was abundant during the slack dry seasons but scarce during the busy, rainy months. Agriculture had to be combined with handicraft and other nonfarm occupations, and unlike in the West, never evolved into a completely specialized industry (except on plantations). Fishery instead of animal husbandry complemented farming as fish were caught in the paddies, lakes, and coastal waters. Above all, the small size of farms and the long dry seasons limited the earning power of Asians, keeping them in poverty throughout the period of the agricultural and industrial revolutions in the latter half of this millenium when the West moved far ahead of monsoon Asia. (See footnote 15 for citation.) In the next section, we discuss the impact of this type of agriculture (the overwhelmingly dominant sector of the traditional economy) on the nonagricultural sector, which also developed small units of labor-intensive production.

B. The Small Size and Labor-Intensity of Industry, Services and Homes

Agriculture's influence on nonagriculture may be described as follows. On the supply side, since most of the industries could only be operated at full capacity during the slack seasons when labor was easily

available, the use of expensive machines, large buildings, and a permanent staff of supervisors was costly and uneconomic. Moreover, the cheapness of labor during the slack seasons made labor-intensive operations in or near the home and farm feasible and economic. Land for workshops and stores was expensive because of the great population densities of the lowlands in and around the river basins, where most of population was concentrated.

On the demand side, while in the West larger farms made for longer distances between one family and another, in the densely settled low-lands of monsoon Asia, villages were large clusters of farm families which could sustain small but many workshops and stores. In the West, individual farmers had to travel to nearby towns to market their produce, purchase inputs and consumption goods. Transportation was not a problem since, with plenty of land, horses could be raised and maintained cheaply as the major means of travel. In monsoon Asia, with land scarcity, only the rich could afford horses and carriages for transport into towns, and the oxen and buffaloes could not be used for transportation. Asia never had a horse and buggy age. In the cities, the difficulties of moving from one part of the city to another promoted neighborhood stores and workshops to which the ordinary workers or consumers could walk. The cities of traditional Asia were clusters of many towns with numerous market centers in each town. Thus, before the coming of bicycles, street cars, and buses, the scarcity of grazing land precluded the extensive use of animal-drawn transport (as in the West), which therefore made the numerous centers of small neighborhood stores and workshops necessary (Appendix Table 4).

To the small units of industry and commerce may be added the small homes ("rabbit hutches" according to the OECD), closely bunched in the villages, towns and cities of monsoon Asia. Dense settlement in small dwelling units is partly due to the cost of land, houses and transport, but also to the smaller physiques of Asians in contrast to Westerners. The size of Asians may be more than just genetics. In Japan with better nutrition in the postwar decades, educational authorities are finding that the standard uniforms worn by students in each grade of primary and secondary schools are too small for the students coming in later years into each grade, as Japanese families begin to eat more Western type of foods.

It may be noted that in those parts of Asia just outside or at the edge of the monsoon territory, wheat/meat diets are prevalent and people are taller and larger than those in the rice-eating sections of these countries, (e.g., Manchuria and northern China, northwestern India, West Pakistan).[9] The nutrient value for physical growth of children in rice/fish/bean diet is said to be inferior to that of a wheat/meat/milk diet. Moreover, the lack of year-round employment in the monsoon area may have contributed to low food-intake of growing children during the months before the harvest of rice which over a long period may have been a factor in the failure of children in monsoon Asia to grow bigger. (For example, Korea was referred to as the "land of spring hunger".) And it is likely that the millennia of evolutionary selection may not have favored the larger-sized physique which requires too large a caloric intake for the metabollic functions of the body during the slack, dry season when work activity and food supplies were

low, and that during the busy seasons, height was a disadvantage in transplanting, weeding and harvesting, which require much bending down.[10/] Thus as in farming, the monsoons by keeping units of production in nonfarming small and labor-intensive contributed to the poverty of Asians. But in one respect, the influence of the monsoon economy was not negative.

C. The Impact of Monsoon Agriculture on Work Culture and Social Stability

The heavy demand for workers during the busy seasons had a favorable impact on diligence and propensity to work, particularly on housewives and young workers who had to help out with transplanting and harvesting when labor was in short supply. Thus, it became the accepted practice for most housewives and children to take part in working in the fields with adult males in Asia, unlike in most Western countries. The scarcity of crop land and the exacting and complex requirements of monsoon agriculture for high yields from small farms by thorough plowing, rigid schedules and close timing, seedling growing and transplanting, multiple- and inter-cropping, intensive reaping and threshing, good water control, irrigation and drainage all contributed to a high quality work skills and ethics, and to thriftiness as it was necessary to save for the lean months ahead and because of the general scarcity of raw materials.

Even more important was the impact of monsoon agriculture on attitudes toward cooperation, consensus, and harmonious relations in

contrast to the individualism associated with Western capitalistic agriculture. Because of the great demand for labor and the rigid schedule and timing during the busy months, villages were compelled to depend on their kinfolks and neighbors for group work; therefore ideals and traditions of working and living harmoniously evolved, strengthened in the East Asian countries by the systematic teaching of Confucian ethics.[11] In my view, the need to work in groups of a dozen or so families during plowing, planting and harvesting and to develop more than group effort in dealing with the distribution of water and the maintenance of irrigation works, underlies Asian groupism. The basic reason for group farming may be stated as follows.

The family unit was too small to undertake the amount and diversity of tasks required during the short periods of the peak seasons, unlike in Western agriculture. The various tasks involved in land preparation and transplantation (pulling and heading of seedlings, carrying and distributing them to the transplanters, guiding and feeding the workers, and so on) require special skills, different degrees of strength and muscle-power and experience, which can best be met by specialization and division of labor between the sexes of different ages. Land-preparation can be carried out by the strongest males, while coordinating and feeding the transplanters can be done by elderly couples. The youngest workers can be pulling and distributing the seedlings with the younger adults doing most of the transplanting. Moreover, with group planting and plowing, an element of flexibility can be introduced into the schedule by staggering the days of preparation of

seedling beds and therefore transplanting to the individual plots of the participating families, so making the staggering of harvesting time possible within the rigid schedules imposed by the monsoons. And the enthusiasm generated by group work (often accompanied by singing and socializing) reduces the tediousness and arduousness of long hours of work, thereby raising efficiency.[12/]

In addition, there were other operations calling for group work; for example, the cooperation required to maintain, coordinate, distribute and expand irrigation infrastructure. Irrigation activities were necessary within the village (with tertiary and quaternary irrigation works), between the villages (with secondary irrigation) and between districts and provinces (with primary irrigation).

It may be useful at this point to distinguish between political and social stability.[13/] The network of primary and secondary irrigation works between provinces, districts and villages may be said to be related more to political stability and unity while the tertiary and quaternary may be more related to social stability within villages. It is the need to cooperate and work together on irrigation works near and within villages together with the need to work in groups of families during the heavy labor requirements during the plowing/planting and harvesting seasons within each village that seem to underlie the historic stability of Asian village society, (as demonstrated by the ability of ancient civilizations such as India and China to last so long). Of the two, I believe that it is the latter rather than the former which contributes more to social stability within

the village. Irrigation problems within villages (farms upstream vs. those downstreams or between farms in lower and higher terraces) or between villages are likely to create more conflicts and disagreements which although normally resolved one way or another, leave a residue of bad feelings and hostility between villages or sections of villages. (Thus, relations between Asian peasants in neighboring villages are generally far from being cordial.) In contrast, the tradition of working together at planting and harvesting has given rise to concepts such as gotong rojong (in Java), bayanihan (in Philippines), and "eating from the same pot of rice" (in East Asia) all of which imply group work within the village.

Moreover, where transplantation is widely practiced, as in East Asia and Java, the villages are much more cohesive and tightly structured than in parts of Thailand, Bangladesh, Burma, Cambodia and India where deep-water rice-growing (due to the over-flow of the major rivers) precludes transplantation of seedlings. In these areas population densities are low, as broadcasting or drilling does not require much labor. The anthropologist, John F. Embree, found that Thai villages were loosely structured and villagers more independent than in Japan, but it turned out after other anthropologists investigated the Embree hypothesis that he was discussing villages to the south of Bangkok where not paddy rice but deep-water rice was grown, and that in most parts of Thailand where transplantation was carried out villages were cohesive and structured. Similarly in upland rice-growing where the rainfall is insufficient for paddies, the absence of transplantation in dry-land farming may make for less groupism.

In my view, these values of Asian groupism may turn out to be valuable assets in the age of 20th century industrial technology which increasingly requires good cooperation between workers and management rather than individualistic, confrontational attitudes, more appropriate to 19th century technology.[14/] Groupism implies that within the group, members help each other in one another's work as the group has to compete with other groups. It also implies that decisions are made not in authoritarian fashion as in the modern corporation but with a high degree of participation by the main members of the group and through consensus which in turn calls for compromise. At all times every effort must be made to maintain cordial, harmonious relations within the group if the latter is to be organized and to function effectively.

D. **A Framework for Analyzing the Dynamics of Monsoon Asian Economies**

With the foregoing background, we can now proceed to outline our approach to the analysis of the transition to the industrial society. The time frame for the study must be longer than the Marshallian long-run (roughly the lifetime of a factory). It may be defined as the period long enough for substantial changes in technologies and institutions to take place in the economy as a whole; though this is not a very clearcut definition for operational purposes, it may be said that the postwar era, from the mid-1940s to the late 1970s, saw vast changes in technologies and institutions in most of the important countries of the world, and that the slowdown in the pace of

world growth and change in the early years of the 1980s may mark the end of the postwar era.

The analysis must start with the overwhelming important agricultural sector which, as noted above, was primarily responsible for various characteristics differentiating the monsoon Asian economy from the Western economy. Pronounced seasonality caused labor to be abundant in one part of the year but scarce in another, so retarding extensive mechanized industrialization. Great labor-intensities and population densities tied down large amounts of manpower in tiny farms, yielding meager returns per worker. Elsewhere I have described how seasonality and labor intensities precluded the introduction into Asia of nearly all the innovations of the agricultural revolution in the West, which raised output per worker and paved the way for the industrial revolution, which ushered in modern economic growth.[15/] Nearly all the innovations of the Western Agricultural revolution were land-using and labor-saving (animal feed crops such as clover, grasses, turnip, seed drilling, scythe/craddle reaping, crop rotation, improved fallowing, multiple-plows for teams of horses, capitalistic farming, and so on), and were either non-applicable (as in the case of drainage) or, if applicable, would cause per hectare yields to fall drastically and unemployment to rise substantially.

The Classical economists focussed on the trend of profits as they had in mind a capitalistic economy in which not only nonagriculture but also agriculture was largely operated by capitalistic entrepreneurs employing many workers and using substantial amounts of material and

equipment. In these farms and factories, capital accumulation in the form of finances for paying the work force, and purchasing the current inputs and equipment was necessary. In the small peasant farms of monsoon agriculture, the accumulation of capital of such magnitude is not a prerequisite for operation, so that the volume of capital is of limited importance in the dynamics of monsoon agriculture. It is the annual return to the peasant and his family that is of major consequence in the growth of national product and its distribution — whether in influencing the dynamics of savings and consumption, or causing structural and demographic changes. In these small, family farms where the whole family participates in productive activities during the peak seasons, as described above, it is not the individual return to the head of the family farms that matters but the collective return of the family members. (This is why the annual return to the family members is not separable individually to each member and cannot be apportioned accurately into rent, interest, proprietor's profit and wages.)

(1) Full Employment

The first task must be to solve the related problems of unemployment, underemployment, and low incomes in the rural areas of a monsoon economy. In order to do so, annual return or income per farm family should be growing faster than the labor supply and such growth must be sustained until full employment is reached. In monsoon Asia, unlike in the West or Latin America, since the overwhelming bulk of farm production comes from the small peasantry, the sustained growth of farm family incomes can take place only if the incomes of the small peasants

are raised. To raise the growth rate of annual farm family productivity, average yields per hectare can be increased but, more important, multiple-cropping and off-farm employment (during the dry seasons) must also be increased. And these affect the smaller peasants much more because surplus labor per family is more plentiful than in larger farms. When the growth rate is raised by the establishment of long-lasting infrastructure such as irrigation/drainage, rural electrification, roads, and rural industries, and institutional improvements such as farmers' associations, better tenurial conditions, agricultural extensions, rural banks, experimental stations and so on, the full employment achieved may be said to be long-run or secular, and the corresponding higher incomes of farm families are not transitional but permanent. The major obstacle imposed by the monsoon — the low incomes due to underemployment in the slack season is then overcome.[16/] As full employment in the rural areas is approached, the sustained growth of rural incomes induces the growth of demand for the output of industry and services which contribute to the expansion of employment in the urban areas.

(2) Rise in Domestic Market

Not only the land-owning peasantry's incomes rise but also those of share tenants and landless workers, long before full employment is attained. This is because as yields and multiple-cropping rise, the absolute amount received by the tenants in their contracted shares increases and the wages of landless workers rise largely because during the busy seasons there tends to be a shortage of workers in monsoon

paddy agriculture as already indicated.[17/] Similarly, as more productive off-farm work develops (such as rural, mechanized work due to rural electrification), the rise in marginal product will entail a rise in the earnings of landless workers as well as of other workers.[18/] The strong values of harmony, cooperation, and good relations among kinsfolk and neighbors in Asia dictate that equal pay for hired as well as family and exchange labor is necessary if motivated work effort is to be realized.[19/]

With higher and growing annual incomes of rural families, the home market of the vast majority of the population rises to higher levels, and the markets for domestically produced industrial products expand substantially, especially for labor-intensive products such as clothing, houseware, farm tools and equipment, etc. As noted above, the peasants were too poor to buy machine-made products, and produced their own clothing, farm inputs, etc. during their off-farm months by traditional but low productivity methods (such as hand spinning and hand-looms) but now, with rural industrialization, the peasants can find jobs in better-paying activities, the income from which is used to substitute for things they produced for themselves by traditional methods. Hence, the increase in the domestic market is even greater than the increase in incomes.

(3) Full Employment, Mechanization and Industrialization

Once full employment is approached as farm family annual earnings continue to rise faster than the labor supply, the use of

modern tools and small simple machines in monsoon paddy agriculture begins to take place, as real wages of hired workers in the peak seasons begin to accelerate. The rise in real wages in the large rural sector forces real wages in the urban sector to rise also and mechanization of industry begins to accelerate. As noted above, the domestic-market expands at first, and exports for the foreign market later begin to accelerate, as local entrepreneurs and workers gain experience in manufacturing (together with the strong work ethics of Asian workers and managers, and mechanization) raise the efficiency and the international competitiveness of local manufactures. Industrial employment begins to accelerate and soon shortages of labor in the urban sectors induce migration of young workers from the rural areas.[20/]

With the loss of young workers to the urban areas, the mechanization of monsoon paddy growing is hastened, and small, hand-operated, diesel-powered, mechanical tractors, transplanters, reapers, and threshers begin to take the place of the young men and women leaving for industries.

And the further development of the process of increased annual incomes of rural and urban families converts full employment into labor shortages, as the pool of workers from agriculture, from the over-staff services, and housewives from households, begin to disappear.

Industrialization moves increasingly to the small towns near heavily populated rural areas to take advantage of more flexible labor

markets, as higher wages offered induce more and more agricultural workers to take on full-year employment in nearby towns.

In turn, higher wages and salaries all-around motivate manpower to improve productivity, and there is an intricate interplay between increases in productivity, wages and mechanization, unlike in the static conventional theories of wage determination. As long as industries established are labor-intensive, the process of transition to an industrial society is fairly smooth and rapid.

(4) Structural Changes and the Transition to Industrial Society

The migration of workers from agriculture with accelerating mechanization comprises an absolute decline (not just a relative decline) in the labor force engaged in agriculture -- which never occurred in monsoon paddy agriculture before. This, together with the shift of redundant workers from some of the over-staffed service sectors to industries, signals the transformation of an agricultural society into an industrial society (including the shift from a rural and traditional to an urban and modern society).

Reinforcing these structural changes on the supply side are the impact from the demand side. Income elasticities in the demand for food, especially caloric foods (cereal and root crops), fall as work with machines instead of tools implies a shift from the use of food calories to mechanical energy. (These are some of the forces underlying

the fall in the Engel coefficient.) Thus, production structures change not only from agriculture to industry but also, within the former, the production of protein food, fish, livestock and poultry, fruits and vegetables, and within the latter nonfood manufacturing become relatively more important.

Occupationally, the substitution of machines for men increasingly leads to unskilled workers in agriculture and industry (and somewhat later the service industries) being replaced by semi- and skilled workers. And as wages rise, industrial structure shifts from the production of lower to higher quality and grades of product, while labor-intensive handicrafts and cottage industries tend to be eliminated unless their processes are mechanized.

(5)   Income Distribution

The cumulative impact of the foregoing changes are more favorable to families in the lower than higher income groups, thereby improving the distribution of family incomes. Income variances between the major sectors decline as yields and crops per hectare, off-farm employment and mechanization raise average peasant incomes closer to nonfarm incomes. Variance within agriculture fall as crops per hectare and off-farm employment tend to raise incomes of smaller peasants who have more surplus labor per hectare than the peasant with larger farms.[21/] Land and other agrarian reforms, besides their direct distributive impact, favorably influence small peasants' productivity through better work motivation and better distribution of government

services such as credit, water, extension, education, information, etc.,
by conferring more power on small peasants, especially if institutions
such as farmers' organizations, are established effectively.

In the nonagricultural sector, variances within industry are
reduced by the mechanization of hand-work. The demand for skilled and
white-collar workers rises faster than that for unskilled workers who
are increasingly shifted to jobs such as machine operators with higher
pay. Full employment and rising wages bring housewives and younger
workers into the factories, raising earnings per family among the
working classes. Workers in menial services (such as domestic work) and
marginal occupations (in the unorganized sector) are able to get better
paying jobs in factories, stores and shops. The reduction of cottage
industries and small, informal sector activities reduces the number of
small, underemployed proprietors. In labor-intensive industrialization,
the spread of capital over large numbers of firms tends to lower wage
and profit differentials between industries.

Accordingly, one can expect the secular decline in income
inequalities to begin around the time of the entry of the nation into
industrial society, which coincides with long-run full employment,
mechanization, and the absolute decline of the farm labor force.[22/]

(6) Personal Saving

Unlike in the West where most of the savings are from the
highest income decile,[23/] in monsoon Asia, higher incomes for the

peasants enable them to save to buy mechanized and other equipment for the busy seasons of planting/plowing and reaping/threshing as labor becomes scarce. For the urban proprietor, higher incomes enable savings to buy more and better machines and equipment, better to meet the challenge of his competitors, to expand his operations in the growing markets, and to cope with rising wages and tight labor markets.

For rural and urban workers as for proprietors, sustained growth in the use of mechanized and other technologies and higher family incomes enable increasing amounts to be saved for the education of their children, going beyond primary grades to secondary and even tertiary levels. As production technologies become more complex and the demand for unskilled work relative to skilled and technical work falls, farming and working-class parents begin to realize the need for longer years of education for their children, who have to cope with even more complex technologies in the future.

As job opportunities open up for housewives, households begin to save to purchase appliances and other consumer durables in order to reduce the time spent on house work, after which families save to purchase homes and for insurance against old age.

As noted above, urbanization and the use of mechanical power reduce the use of muscle power and hence the intake of caloric foods among laboring families. (Note that this implies that the energy costs of working are paid for by enterprises rather than the households.) With thrift-conscious Asians, this probably tends to lower the

propensity to consume and increases savings, particularly in a Confucian society. Similar impact on food consumption may have been the reduced consumption of calorie intake for basal metabolism due to full employment, relative to personal income. (See footnote 10)

In a Confucian culture, the urge to work hard and long, and to earn enough in order to save for business, for more education of the young, for home and old age is probably stronger than in many other cultures, perhaps even stronger than in the Western Protestant ethic (whose impact may be mainly on the entrepreneurs). A labor-intensive strategy emphasizing the development of small farms and other small businesses provides extensive opportunities to realize the ideals found in Confucian teaching.

(7) Family Consumption

Even though the propensity to consume is falling as noted, the growth rate of consumption (dc/c) may be rising. The fall of the former and the rise of the latter are not inconsistent as long as family income is rising as fast as family consumption, given the saving (with the changes in the two propensities cancelling out). It is the growth rate of consumption and not the propensity which is relevant to the growth of the domestic market.[24]

(8) The Relation of the Industrial Transition to the Demographic Transition

A full discussion of this is found in another paper, "Fertility Trends in Postwar East and Southeast Asia", (mimeo) February 1983, School of Economics, and too long to be even summarized here. The previous section noted that lower income groups save part of their income to send their children to schools beyond primary level, thereby foregoing incomes from teenagers working, and raising the cost of rearing children. The value of children as sources of income and as insurance for parents as they grow old declines as higher incomes permit parents to buy land and homes, health insurance, and get into pension schemes. Thus, the industrial society, by raising the cost of children and lowering their value by requiring more education, higher incomes, together with other forces (higher opportunity costs of female labor and of urban living, and so on), tend to reduce fertility. The higher incomes generated by industrial society have better uses than increasing the number of children who can be substituted for by mechanized technologies and whose value for old age can be reduced by purchasing assets and insurance.

The foregoing is a general framework, relevant for the region as a whole. When applied to specific countries, as in the following sections, we need to bring in special factors, especially historical and natural endowments, which differ from country to country. These unique forces are important, as will be seen, in the understanding of the

growth of particular countries (such as Confucianism in East Asia, plantations in Southeast Asia, the type of colonialism or its absence, and so on). (For the importance of these exogenous factors, see my papers on Japan and on the US cited in note 14/

II. TAIWAN AND THE REPUBLIC OF KOREA MOVE INTO THE INDUSTRIAL SOCIETY

Though we focus on differences in the growth pattern, the similarities are many and plentifully described in literature. A quick rundown may be useful before we begin. The annual growth rate of GNP per capita at constant prices is identical for both, 5.7 per cent, 1950-1980.. This impressive record over three decades (second only to Japan, Singapore and Hong Kong), was accompanied by rapid shifts away from agriculture; substantial falls in income disparities from prewar decades, in birth and death rates, and in unemployment; and sharp rises in total factor productivity, in educational enrollments, literacy, life expectancies, and so on -- all signs pointing to the widespread distribution of the benefits of growth (as in Japan, Hong Kong and Singapore), unlike in Mexico, Brazil and other NICs. It should be noted that the aggregate record of growth in Taiwan, Republic of Korea, Japan, Hong Kong and Singapore is quite unprecedented in the annals of modern economic growth whether capitalistic or socialistic.

Institutionally and historically, both countries have had long traditions of Confucian culture with strong work ethics. Both were colonies of Japan in the prewar decades, oppressed and exploited but

taught the rudiments of modern agriculture, the construction of modern physical infrastructure, and the operation of institutions such as cooperatives and extensions. Both started the postwar decades with extensive land reform, US government assistance (largely offsetting the huge military expenditures) and an influx of migrants, many of whom were experienced entrepreneurs and technicians. Both have been ruled by authoritarian, central governments, and both have benefitted much from their proximity to Japan (and the US). Both, above all, are monsoon economies like Japan — of a type with meager natural resources, but with ethnic and social homogeneity, unlike Southeast Asia.

But differences in historical and natural endowments should be noted. Because of subtropical climate, Taiwan was better suited for agricultural development than Korea with long severe winters. Being closer to Manchuria, Japan found Korea to be a suitable staging ground for the invasion of North China, and hence established many more industries than in Taiwan. Most important, the invasion from the north devastated much of the Republic of Korea in the early 1950s, requiring a long period of reconstruction which delayed the industrialization and modernization process. And there are important historical differences if one goes back into the 19th and earlier centuries.[25/]

The transition into industrial society of Taiwan and the Republic of Korea was preceded by that of Japan in the late 1950s; frequent references will be made to the Japanese experience insofar as it sheds light on the topic. The unusual speed of Japanese transition

was due in part to its extensive industrial experience in the pre-World War decades. Nevertheless, its agricultural labor force in the censuses of 1920, 1930, and 1940 showed no clear-cut trends and the absolute decline started from the 1950 census of population. The ambiguity of the trend is analogous to those of Taiwan and the Republic of Korea in the 1950s, 1960s and early 1970s. (These and other data on Japan referred to without citations are from my paper "Reinterpreting Japan's Postwar Growth", Economic Development and Cultural Change, October 1982, pp. 1-43, and for Taiwan and the Republic of Korea from the Appendix Tables A, B, C, unless otherwise noted.)

In Table 1 are shown data on total factor productivity (TFP) of Japan, Taiwan and the Republic of Korea. The sharp acceleration in the growth of TFP from the prewar decades to the postwar (0.8 per cent to 4.7 per cent per year for Taiwan, 0.7 to 2.2 per cent for the Republic of Korea, and 1.6 to 3.5 per cent for Japan) is rarely seen in the secular growth of nations, not even in the experience of the Western industrialized countries. John Kendrick presents a table showing that the average for the postwar decade, 1960-1979, for the nine leading industrialized countries is 2.9 per cent with Japan the highest and the UK the lowest.[26/] It is to be noted that TFP growth of the Republic of Korea is lower than that of Taiwan by about one-half. The major sources for the differences in TFP growth are: first, the much higher growth of agricultural output in Taiwan (3.6 per cent than in the Republic of Korea (2.4 per cent) and, secondly, in the growth of capital

Table 1: Average Annual Growth of Product, Input and Productivity in Japan, Taiwan and the Republic of Korea, Pre and Post War Years

				GROWTH RATE OF				
	Product (1)	Labor (2)	Capital (3)	Total Input (4)	Product per labor (5)	Product per Capital (6)	Capital per labor (7)	Total Factor Productivity (8)
Whole Economy								
Japan								
1908-38	3.5	0.8	3.4	1.8	2.7	0.1	2.6	1.6
1953-80	7.4	1.4	9.8	3.9	6.0	-2.4	8.4	3.5
Taiwan								
1911-20 to								
1931-38	3.8	1.5	5.3	3.0	2.3	-1.5	3.8	0.8
1952-80	9.1	3.1	7.4	4.4	6.0	1.7	4.3	4.7
Republic of Korea								
1920-38	3.5	0.6	7.9	2.8	2.9	-4.4	7.3	0.7
1953-80	7.0	3.0	8.9	4.8	4.0	-1.9	5.9	2.2
Agriculture								
Japan								
1901-37	1.1	-0.1	1.2	0.5	1.2	-0.1	1.3	0.6
1955-80	1.9	-4.0	7.4	-0.6	5.9	-5.5	11.4	2.5
Taiwan								
1952-80	3.6	-0.6	6.2	1.4	4.2	-2.6	6.8	2.2
Republic of Korea								
1920-39	1.4	0.5	1.5	0.4	0.9	-0.1	1.0	0.9
1953-80	2.4	0.3	7.9	2.6	2.1	-5.5	7.6	-0.2
Non-Agriculture								
Japan								
1908-38	4.5	2.0	5.5	3.4	2.5	-0.9	3.5	1.1
1955-80	9.0	2.9	9.8	5.0	6.1	-0.8	6.9	4.0
Taiwan								
(Secondary Sector)								
1952-80	12.0	5.3	11.8	7.3	6.7	0.2	6.5	4.7
(Tertiary Sector)								
1952-80	9.3	4.7	6.3	5.2	4.6	3.0	1.6	4.1
Republic of Korea								
1920-38	5.9	4.3			1.6			
1953-80	9.1	5.8	8.9	6.7	3.3	0.2	3.1	2.4

Notes and Sources:

Japan For the whole economy, prewar data were calculated from K. Ohkawa & Rosovsky Japanese Economic Growth and for postwar period, E.F. Denison How Japan's Economy Grew So Fast. Denison's data on employment and capital were used to compute conventional factor productivity. For the estimates on agriculture and non-agriculture sectors, Ohkawa and Rosovsky ibid. was used for prewar period and Ohkawa and M. Shinohara Patterns of Japanese Economic Development was used to compute for postwar data. All postwar data were updated using official estimates on product, capital and labor from Annual Report on National Accounts 1982 (for the 1970's).

Taiwan Prewar data on GNP from Mizoguchi as cited in Kuznets, labor, and product per labor from S. Kuznets in Walter Galenson (ed.) Economic Growth and Structural Change in Taiwan, (p. 22). Capital stock was estimated by using Mizoguchi's investment data quoted from Table A-2 of Samuel P.S. Ho Economic Development of Taiwan 1860-1970 (p. 286) and using R. Goldsmith's formula. Postwar data (1952-69) calculated from Shirley W.Y. Kuo The Economic Structure of Taiwan 1952-1969. 1969-80 product and employment data were official estimates taken from Statistical Yearbook of ROC 1981. Net capital stock estimates were derived by using fixed capital stock in 1975 as benchmark and extrapolated utilizing real fixed capital formation data in National Income of ROC 1981.

Republic of Korea Prewar estimates were those of the whole Korea, and were based on T. Mizoguchi "GDP and GNE Estimates of Japanese Empire", Hitotsubashi Discussion Paper No. 35, March 1981. Sung Hwan Ban's estimates obtained from Yujiro Hayami, V.W. Ruttan and H.M. Southworth Agricultural Growth in Japan, Korea, Taiwan, and the Philippines were used for prewar South Korean agriculture (1920-39). Postwar estimates were calculated from National Income in Korea 1978 (for growth of product), ILO Yearbook of Labour Statistics and UN Statistical Yearbook for Asia and Pacific (for growth of labor), p. 399 of Wontack Hong, Trade Distortions and Employment Growth in Korea, Seoul: KDI, 1979 (for growth of net fixed capital stock). All data were updated to 1980 by using The Bank of Korea Monthly Economic Statistics No. 3, 1981. Labor and capital were given shares of .7 and .3 respectively in calculating total input (as Hong did in his estimates). Because of the disastrous harvest in 1980, the Republic of Korea agriculture had negative TFP; if we eliminate that year, growth rate of real product would be 2.6 per cent and TFP would be around 0 per cent for the whole postwar period.

input the Republic of Korea (8.9 per cent) than in Taiwan (7.4 per cent), these two factors being responsible for nearly all of the differences in TFP growth of the two countries. This paper, therefore, focusses on these two aspects — i.e., the slow growth in agricultural output and the rapid growth in heavy industrialization of the Republic of Korea relative to Taiwan. (The excess of TFP growth of Japan (3.5 per cent) over the Republic of Korea (2.2 per cent) can be attributed almost entirely to the faster growth of total input in the Republic of Korea (4.8 per cent) over Japan (3.9 per cent).

These differences between Taiwan and the Republic of Korea are substantial, considering the similarities in the prewar decades. Taiwan's growth of GNP was 3.8 per cent per year (1911/1920 to 1931/1938) and that of the Republic of Korea 3.5 per cent (1920 to 1938) while total input for the former was 3.0 per cent and for the latter 2.8 per cent, leaving TFP growth only slightly higher in Taiwan (0.8 per cent) than in the Republic of Korea (0.7 per cent).[27/]

Of course, part of the explanation for the poorer performance of the economy of the Republic of Korea in the postwar decades lies in its slower start owing to the devastations of the Korea War in the early 1950s and the reconstruction aftermath. Nevertheless, TFP growth in the 1960s and 1970s was lower for the Republic of Korea (2.6 per cent) than for Taiwan (4.1 per cent) despite higher growth of GNP per capita. It will be argued below that it was the different strategy pursued by the Republic of Korea that mainly contributed to the differential growth. And there is a vital lesson to be learned in the Korean experience which

other countries in monsoon Asia interested in industrialization should know about.

A. **Agricultural Development**

As is well known, both countries started out with high unemployment in the 1950s, Taiwan in part because of the influx of Mainland Chinese as the Communist armies conquered China and the Republic of Korea because of the inflow of northern Koreans during the Korean War and immigrants in the immediate years after World War II (about 2.8 million).[28/] By the late 1960s in Taiwan and the mid-1970s in the Republic of Korea full employment was attained. How, then, was this done? Farm family incomes recovered quickly after the war, as agricultural production rose at a rate of 10 per cent per year from 1945 to 1952. Once prewar levels had been reached, farm family incomes rose at a rate of 3 per cent per year from the earlier to the latter years in the 1950s in real terms, then to 5.4 per cent in the 1960s (1961 to 1969), and 7.0 per cent in 1970-1976. These rates of growth far exceeded the growth of the labor force of 3 per cent in the three postwar decades (1.7 per cent in the 1950s, 3.6 per cent in the 1960s and 1970s). (These figures compare with Japan's 4.9 per cent in the 1950s and 6.8 per cent in the 1960s and 1970s, higher than Taiwan's farm family income growth, which enabled Japan to reach full employment about a decade earlier.)[29/]

The Republic of Korea's real farm family incomes grew in the latter 1950s to make up for the very low levels reached in the Korean

war and its immediate aftermath, but fell in the first half of 1960s by 2.8 per cent each year. Then, in the latter half of the 1960s, there was a sharp acceleration to 10.8 per cent and in the 1970s a decline to 5.8 per cent. Over-all for the period 1960 to 1979, the rate was 4.9 per cent higher than the growth of the labor force of 3.3 per cent. But because of the poor start throughout the 1940s and 1950s and the first half of the 1960s, the Republic of Korea did not reach full employment until the latter 1970s, about half a decade later than Taiwan.[30/]

Depending on the rapidity of industrial growth, the amount of excess in the growth rate of farm family incomes over that of the labor force supply, and the extent of labor surplus at the beginning of the postwar period, full employment is reached sooner or later as farm land, yields per hectare, number of crops per hectare and income from off-farm employment increase. In all three countries, new land brought into cultivation was negligible and yields rose rapidly with the use of new varieties, expanded irrigation and fertilizer use, diversification to higher-value crops and, above all, improved institutions. Irrigation permitted more crops to be grown in each country, the multiple-cropping ratio reaching a peak of 1.59 in Japan in the mid-1950s, and 1.90 in Taiwan in the mid-1960s. In the Republic of Korea, the over all ratio rose to a peak of 1.58 in the mid-1960s and declined thereafter.[31/]

Most important in raising farm family incomes, once increases in yields and cropping intensities slow down, is off-farm employment. Here too, the performance of the Republic of Korea was not as good as those of the other countries. In Japan and Taiwan once full employment

was approached, cropping ratios stopped rising, and off-farm incomes began to accelerate, amounting to one-half of total farm family incomes, in Japan by the mid-1960s in Taiwan by the end of the 1970s, but to less than 30 per cent in the Republic of Korea.[32/] Thus, both Taiwan and the Republic of Korea started the late 1940s with two-thirds of the labor force in agriculture; the decline in this share was faster in Taiwan than in the Republic of Korea. In 1980, one-fifth of the labor force was engaged in agriculture in Taiwan compared with one-third in the Republic of Korea. [In 1960, the figures were, Taiwan 56 per cent; and the Republic of Korea 66 per cent; in 1970, 37 per cent as against 51 per cent. The Republic of Korea was nearly a decade behind Taiwan and the latter a decade behind Japan (33 per cent in agriculture, 1960)]. The absolute number (not the share) of the labor force in agriculture began to fall in Japan from the early 1950s, in Taiwan from the early 1970s, and in the Republic of Korea only from the late 1970s.[33/] The problems encountered by the Republic of Korea as a result of so great a labor force in agriculture will be discussed below.

The rapid growth of farm family incomes in all three countries was achieved through physical infrastructure construction and the establishment of various institutions, so that the high levels of income and employment reached may be said to comprise a new long-long equilibrium level, not a transitional one. The network of rural roads from the prewar period was extended to cover nearly all villages besides which there was construction of additional railways, highways and harbors; the rural areas were nearly completely electrified in Japan by the early 1960s, in Taiwan by the early 1970s and the Republic of Korea by the late 1970s -- an infrastructure important for both the

mechanization of agriculture (e.g., irrigation pumps) and for rural industrialization for remunerative off-farm employment.[34/] Most strategic for higher yields and cropping intensity was the extensive construction of irrigation infrastructure, which in Japan covered 66 per cent of farm households in 1975, 50 per cent in Taiwan, and 45 per cent in the Republic of Korea.[35/]

As important as physical infrastructure was institutional development. Drastic land reform was carried out in the early postwar decades for all three countries under the prodding of the US. The greatest successes were achieved in Japan, then in Taiwan, and lastly in the Republic of Korea. The main reason for the differential impact was due to the extent to which rural institutions were improved to provide inputs, hitherto supplied by the landlords, and to improve work incentives and motivations. Elsewhere I have attempted to show how well rural institutions in Japan were developed to promote the growth of production.[36/] In Korea, unlike in Japan, the structure of agricultural and rural institutions was monolithically controlled at the top by the Central Government with little leeway for grassroot participation and initiatives. This is not only true for the various local government agencies but also for the cooperatives and other rural institutions. While in the short-run such tight controls may make for efficiencies in initiating and implementing policies, in the long run (which counts most for secular growth), policies established in Seoul are unlikely to be suitable for the varying conditions and needs at the farm level; the capabilities of peasants to make changes and improvements were therefore poorly developed. Nor was the authoritarian

control of farmers likely to lead to the optimal allocation of government development funds which appear to have been insufficient for agriculture all through the 1950s, 1960s and even into the early 1970s.[37/] The poor crop years of the late 1960s and the late 1970s may in part be a reflection of authoritarian institutions which left the peasantry lethargic and unable to cope quickly with adversities, unlike the peasants of Japan or Taiwan.

In Taiwan, below the authoritarianism of the central political apparatus, the structure and operations at all local levels were fairly democratic and participatory, not as much as in Japan but much more than the Republic of Korea. This was especially the case with agricultural institutions such as the all-important farmers' associations. The former head of JCRR (which spearheaded and guided agricultural development just as MITI did with Japanese industrialization) noted that cooperatives are "now of farmers and by farmers" and that "farmers rid themselves of landlord-centered tradition of decision-making regarding production and marketing" and are becoming more enterprising.[38/]

Nevertheless, because the upper tier of the Taiwan political apparatus was as not democratically controlled, central government institutions behaved more like those of the Republic of Korea than of Japan. The government taxed the farmers heavily (via land taxes, import duties and commodity taxes), through extremely high prices of fertilizer (monopolized by the government), and high import taxes of agricultural machinery, and charged exorbitant rents on public lands.[39/]

The funds forthcoming from the Central Government for rural roads, major irrigation works, extension services, agricultural education and research, and so on were probably as limited as in the Republic of Korea. Central Government investment expenditure (including bank loans) in agriculture during 1976-1981 in Taiwan was only 5.7 per cent compared with the Republic of Korea's 11 per cent for the same period. Even if we allow for the larger share of the labor force in Korean agriculture (34 per cent to 20 per cent) in 1980, the Taiwan agricultural investment share is somewhat smaller than that of the Republic of Korea. The percent of households covered by irrigation in Taiwan in 1975 was just 5 per cent higher than in the Republic of Korea and much of this was probably due to the efforts of local governments and farmers' associations, which were also responsible for the construction of various marketing facilities, fertilizer-mixing, health, industry, feed processing, pesticide plants, and so on, as well as most of the costs of agricultural credit, extension, education, and research services. A good case can be made for saying that the better performance of Taiwan's agriculture over that of the Republic of Korea was due not so much to the central government but to the local governments and farmers' association (with the guidance and help of the unbureaucratic JCRR). Taiwan, (I ventured to remark at a conference in Taipei in the mid-1970s) made impressive agricultural progress because there was no ministry of agriculture.

Despite the foregoing, Taiwan's farmers made greater contributions to overall growth than those of the Republic of Korea. First of all, from the earlier period, Taiwan's agriculture contributed

substantial amounts to total investment through net capital outflows while these were small in the Republic of Korea (part of these flows comprised a higher personal savings rate).[40/] (This meant that to the extent of the lesser contributions by agriculture, the Republic of Korea. had to depend on foreign borrowings to finance industrialization -- a topic discussed below.) Secondly, the rapid growth of production (and its diversification) from 1945 enabled Taiwan not only to save foreign exchange from declining food imports and eventual food self-sufficiency but to make production the main source of exports.[41/] (This meant that there was no need for frenzied promotion of industrial output exportation with various kinds of subsidies and State assistance as in the Republic of Korea, thereby putting pressures not only on the balance of payments but also on the national budget.) Also effective in reducing the need for increasing industrial exports was the larger size of the domestic market (per household) for industrial products in Taiwan. Both in 1966 and 1975 average farm family incomes (in US$) were little more than double the average in the Republic of Korea, with the Engel coefficient about 5 percentage points lower in Taiwan. The average farm family in Taiwan purchase 15 per cent more clothing in 1966 and 1975 than in the Republic of Korea, (taking clothing purchase as a proxy for the demand for industrial products by farmers).[42/] It was not so much the yields and diversity of crops which made for these differences in farm incomes but the multiple-cropping ratio and incomes from off-farm employment, both vital in monsoon-type of agriculture, as discussed above.

Finally and most important, the inadequate development of agriculture bottled up a larger share of the labor force in the farm sector of the Republic of Korea (34 per cent in 1980 compared with 20 per cent in Taiwan as noted above). Mechanization of operations in the busy months of the year spread more slowly in the Republic of Korea; in Taiwan by 1975 there were 50 power tillers per 1,000 farm households and 160 rice threshers but in the Republic of Korea 36 tillers and 53 threshers. The need to squeeze more workers out of agriculture to stop the acceleration of industrial wage rates during the latter 1970s forced the authorities in the Republic of Korea to supply more power tillers and threshers - more than to catch up with Taiwan by 1981 - but they failed to supply machines for the most labor-intensive phases of monsoon paddy cultivation, namely, transplantation and reaping (as noted in Part I above). (To reduce its agricultural labor force from 33 per cent in 1970 to 12 per cent in 1980, Japanese peasants had to go beyond the purchase of power tillers and threshers and buy power transplanters and reapers which were found in every third farm household by 1981. In Taiwan there was only one power transplanter to 33 families.)[43/] Note must be taken that in Taiwan through the farmers' associations joint and cooperative use of machines appears to be much more extensive than in the Republic of Korea or in Japan where the more affluent farm families assisted by subsidies insisted on individual ownership.[44/] But it was the all-around backwardness of the agriculture of the Republic of Korea relative to Taiwanese agriculture, particularly in the institutional aspects, that mainly accounted for the slow rate of reduction in its labor force. Excessive preoccupation with industrialization throughout most of the 1960s and 1970s and not enough attention to agriculture

resulted in a slow-down in migration from the rural areas in the first half of the 1970s over the second half of the 1960s.[45/]

B.   Industrial Development

It has been said that the Republic of Korea had to turn quickly to rapid industrialization because by 1970, "Korea was one of the most advanced farming nations (Table 4)... and nearly a match for Japan's heavily subsidized rice farmers. One of the main reasons for this high land productivity, of course, was that the Republic of Korea had very little land and a considerable supply of farm workers. In terms of acreage per person in the farm sector, in fact, the Republic of Korea's arable land endowment was probably the smallest in the world, if one excludes city-states like Singapore (see Table 5)". The hasty and massive shift to heavy industrialization in the latter 1970s had been supported when necessary because of the limits of further growth in labor-intensive exports.[46/] Hindsight permits a different perspective on both aspects.

Tables 4 and 5 referred to above are somewhat misleading. Table 5 shows the Republic of Korea with the lowest area of arable land per head of agricultural population — lower than that of Japan. This is because the data for Japan pertains to 1968/1970 when the massive rural-urban migration was all but completed. For the purpose of the argument, the data for the early or mid-1950s should be used for Japan and when this is done the density is about the same. In the Table, density measured as arable land per capita in Korea is also low, next to

that of Japan but if Taiwan is included in the table, its per capita density is seen to be somewhat lower than that of the Republic of Korea for 1968/1970. (.064). In brief, arable land (per capita or per agricultural population) was about the same in the Republic of Korea as in Japan or Taiwan (with which comparison is most relevant).[47/]

Table 4 shows the Republic of Korea's rice yields per hectare in 1970 to be 4,550 kilogram/hectare of harvested acreage, about 20 per cent lower than Japan's 5,640 and about 10 per cent higher than Taiwan's 4,160. The harvested area includes rice land used twice (or thrice) during the year for paddy-growing; this is a very common practice in Taiwan though not in the Republic of Korea. (This is why despite the higher yields in the Republic of Korea, Taiwan's rice production per agricultural worker is substantially higher than that of the Republic of Korea.) When two crops of rice are grown on one piece of land, short-duration (early maturing) varieties must be used in order to harvest the first crop of rice and quickly plant the second crop; this necessarily entails a trade-off with yields since the early maturing varieties are not the highest-yielding.

As to Japanese rice yields, one must keep in mind that by the 1970s production was largely carried out by what may be designated as marginal labor (females, and older men) as other men found jobs off-farm. The low yields in Southeast Asia on the other hand are in large part the result of a much larger share of rice production coming from rain-fed, poorly irrigated, and flooded rice farms.

That there was enough room for further agricultural development in Korea is indicated by the fact that by the end of the 1970s agricultural production increased by 50 per cent from the 1970 level. If, instead of putting so much into heavy industries, greater amounts had been invested in agriculture and its institutions improved (as was the case in Japan from the 1950s), the 50 per cent increase could have been accomplished in half a decade, and increased output of grains, vegetables and fruits would have made unnecessary a large part of the $5 billion of imported food (comprising one-third of the excess of imports over exports in the 1970s). It may be plausible to argue, as some did, that Korea's strategy of developing industrial exports can substitute for a strategy of more balanced development as long as exports are booming as they were in the 1960s and 1970s. But such a boom is not likely to be repeated in the rest of the 1980s.[48/] Moreover, the costs of Korea's type of strategy must take into account the various problems which came to the surface towards the end of the 1970s. (These are discussed toward the end of Part II.)

In contrast to the growth of Taiwan, one of the most unfortunate consequences of the haste with which the export of industrial output was pushed in the Republic of Korea was the concentration of industrialization in a few centers, thereby preventing the growth of off-farm income and the employment of farm families. (It has been argued in Part I that in the tiny farms and pronouncedly seasonal nature of monsoon agriculture, beyond a certain level of yields and multiple-crops, the growth of farm family incomes tends to slow down relative to urban incomes, if off-farm incomes of farm families do not

increase rapidly as they did in Japan and Taiwan.) Kim and Sloboda have shown that migration in the Republic of Korea has taken place in a "narrowly circumscribed area", attributing this to the fact that the "rural industrialization that has occurred has been concentrated in the rural hinterlands of the metropolitan cities", and that off-farm incomes up to 1975 have not increased much, remaining at about one-fifth of farm incomes, or less than one-half those of Taiwan. G. Ranis and S. Ho have shown that Taiwan's industrialization has been extensively regionalized, as a result of its labor-intensity, a good road network, rural electrification, and so on. A more balanced regional growth pattern would not have left Korea as, to use Vincent Brandt's term, a country of "rural isolation". Brandt found the degree of isolation closely correlated with variations in regional farm per capita income.[49]

The shift to heavy industrialization from the early 1970s in Korea was unprecedented for a small country, exceeded in speed and size only by China in the early 1950s and India in the latter 1950s.[50] (Elsewhere I have discussed the problems of heavy industries.)[51] We briefly note here that leaders of the Republic of Korea have now arrived at a consensus that the building of so much capacity in the petrochemical, ship-building, heavy machinery (mainly transformers and generators), automobile and pulp/paper industries, etc. was a major mistake. These industries now face the problem of extensive under-utilization which may not be wiped out even with world recovery in the coming years.[52] Even in the iron/steel industry which is at present operating at full capacity, the subsidies required amount to 20

to 30 per cent of the value of output, and as the years elapse, with the plants becoming technologically obsolete (as the neighboring Japanese iron/steel technologies change), the subsidies for export may have to be enlarged.

It is hazardous to assume that heavy industries in the 20th century are subject to the infant industry argument. Their technology is very much more complex and dynamic than in the 19th century when the infant industry concept emerged. The huge amount of Research and Development (R & D) expenditure and the large number of sophisticated R & D scientists needed are beyond the capacity of all but the large and more advanced industrialized countries. Moreover, they are highly risky industries entailing large investments not only in plant and equipment but also in supporting and facilitating infrastructure (roads, harbors, storage, piers, ships, rails, land development and so on). The risks are not only due to technological changes but also to changes in fuel costs (since the heavy processing industries -- blast and electric furnaces, cement, aluminum and other smelters -- are highly energy-intensive), and changes in raw material prices and supplies (natural gas in petrochemicals, oil in refineries, metallic ores in smelting, pulp in paper, etc.). Design and quality changes are important in heavy machinery industries which require a large group of good subcontracting firms to be internationally competitive, as the Korean electric generator/transformer manufacturers have found to their chagrin. And it takes decades (not years) to build up high quality, sophisticated subcontractors.

These costly industries are not easily junked nor can they be sold readily. (Taiwan and Japan have been trying to sell their aluminum smelters and Taiwan and Korea would like to sell their petrochemical plants, with no takers in sight.) They must, therefore, be utilized in one way or another if annual losses are to be minimized. Some part of the output must be sold to domestic, lower-stream industries, lowering their competitiveness through cost/quality "cascading" and the rest must be dumped abroad with large subsidies. Or as currently discussed in Korea, some of the excess capacities in petrochemicals may be used for munition manufacturing, in ship building for constructing destroyers, and in heavy machinery for army tanks -- part of these to be sold abroad. It is difficult for an economist to say much on military and defense requirement, except to note that when development expenditures become diverted to military purposes, the trade-off with growth is likely to be unfavorable, as in the case of India and China.

Fortunately, the leaders of the Republic of Korea have reversed their strategies and are now in favor of supporting agriculture, raising the quality of light industries and moving forward in the engineering industries such as electronics, small and medium machinery, parts and components, and lower-stream fabrication in metals and petrochemicals where the bulk of employment and value added is usually found in 20th century manufacturing (not in the risky primary, basic heavy industries). Here are the industries where Republic of Korea's manpower with strong work ethics (among the strongest in the world, perhaps stronger than in Taiwan) has a chance to display its prowess to

produce for the export market. And with the same vigor and courage as in the past both the people and the government have set out to overcome the mistakes of the late 1970s.

C. Implications of Differing Growth Strategies

Before the onset of the world recession in 1979, both countries succeeded in moving into the industrial society as the industrial labor force exceeded the agricultural labor force. This industrial transition was accompanied by a demographic transition in which birth and death rates fell substantially, and income disparities were lowered from prewar decades. Personal consumption grew rapidly and at the same time the propensity to save rose. Nevertheless, it is difficult to avoid the conclusion that in all these aspects, Taiwan seems to have done better than Korea as the comparative data compiled in the appendix tables tend to show. (The Gini in Korea had been rising in the 1970s and recently there has been an upturn in the agricultural labor force which is likely to be transitional.) And if we return to the data cited at the beginning of Part II, namely, the substantially slow growth of efficiency as measured by the overall total factor productivity in the Republic of Korea as against Taiwan, it can be concluded that the higher growth of capital input was due to heavy industrialization and that insufficient development of agriculture was responsible for the slow growth of farm output.

In one respect, further inspection is called for in the evaluation of the different strategies pursued by the two nations. It

was noted above that the failure to release enough workers from farming produced labor shortages in the industrial sector during the latter 1970s. In the period 1976 to 1979, labor productivity grew at 11.4 per cent annually but real wages exceeded it with a rise of 19.6 per cent (32.9 per cent rise in nominal wages with consumer prices rising at 14.5 per cent). After 1976 the unemployment rate in the Republic of Korea fell below the 4 per cent level. In Taiwan, labor productivity rose faster than real wages in the same period (11.1 per cent as against 9.6 per cent). A devaluation was carried out in 1980, in an effort to correct the outpacing of the wages of the Republic of Korea over those of Taiwan the levels of which were 20 per cent above Republic of Korea levels in 1976 but fell 20 per cent below by 1979.[53/]

For the three decades of the postwar period, Taiwan's consumer prices rose at an annual rate of 9.8 per cent as against the Republic of Korea's 22.5 per cent, with the index of foreign exchange rates rising at 4.7 per cent as against the Republic of Korea's 19.6 per cent (Appendix Table). The greater long-run instability of the wages and prices of the Republic of Korea originates in a number of factors but one of the major sources must have been the slow development of the agricultural sector relative to the industrial sector.

The surplus in current account of the central government in Taiwan was 5.4 per cent of GNP as compared to 0.4 per cent in the Republic of Korea in the three postwar decades. This was because of the higher levels of subsidies needed to foster industrial exports in the

Republic of Korea, the outcome of higher contributions by Taiwan's peasantry, the various forms of assistance extended to heavy industries by Republic of Korea government enterprises (public utilities, transport, banks, etc.), and also the generally higher income levels in Taiwan.

Taiwan's surplus on current transactions in the external sector of the system of national accounts averaged -0.3 per cent of GNP during the three decades compared with the Republic of Korea's -3.4 per cent. It has been noted above that Taiwan's agriculture made major contributions to the excess of exports over imports, besides supplying larger markets for industrial exports. The need to find markets abroad to compensate for the thinness of the domestic market drove Republic of Korea industry to borrow heavily (in part due to low savings) to purchase equipment and current inputs (with consequent low value added in export goods).[54/] Accordingly, the Republic of Korea found itself at the end of the period with an external public debt outstanding (and disbursed) twice as large as that of Taiwan (28.8 per cent of GNP as against 13.1 per cent) and with debt servicing of 15.0 per cent of exports (as against Taiwan's 4.5 per cent), and with a costly collection of heavy industries whose future was uncertain.

One may conclude that, though a part of the poor performance can be attributed to start-up delays caused by the Korean War in the early 1950s, most of it must be attributed to the different strategies pursued by the two countries. Already before the Korean War, the

Republic of Korea leaders were neglecting agriculture and this continued into the latter 1950s and 1960s, in contrast to Taiwan. In the industrial field, the Republic of Korea could have pursued a policy -- to which it fortunately returned in the early 1980s -- of gradual increase in capital-intensity with emphasis on the lower-stream processing industries and the more labor-intensive engineering industries, instead of jumping so quickly into the basic and primary heavy industries for which the Republic of Korea had neither the capital resources nor the technological experience.

The comparison of the Taiwan and the Republic of Korea growth strategies underscores the need for "fine tuning" in sector development in monsoon Asia where rigid crop schedules and tight labor requirements in paddy-growing do not permit much flexibility. This, in turn raises the question of whether authoritarian methods of deciding growth strategies and agricultural/industrial policies are suitable, either in East Asia or elsewhere. Major mistakes were made in the Republic of Korea in large part because strategies and policies were selected by a small group of businessmen and academics, and the military leaders. Taiwan's central government was also authoritarian but in economic matters decisions seem to have been made on a much broader basis. Political democracy is not at issue here. India under Nehru was a democracy but in economic matters there was no greater consultation with representatives of peasants, workers and small businesses when Nehru decided in the latter 1950s on a heavy industrialization strategy than when Mao made the same decision in China during the early 1950s.

Japanese postwar experience (in contrast to prewar) points to the success of broadly based consultation and participation in the selection of growth strategy and policies (similarly with Taiwan's success in agricultural development). The choice of growth strategies and policies is likely to become much more complex as an economy begins to move rapidly away from agriculture and into industry, and the long-term issues of agricultural diversification and industry/technological choice become crucial. It seems to me that it is high time Taiwan, as well as Korea, began to widen the base of participation and consultation in policy determination, as Japan did in the postwar decades.[55/] Particularly to be deplored is the excessive role of the military in growth policies in Korea, (as well as in countries like Indonesia and prewar Japan). It appears that military considerations played a major role in Nehru's decision in India's Second Plan. The mistakes made by the Republic of Korea in the 1970s, no matter how much justification there might have been from a military point of view, have produced opposition and unrest among the populace and disruption of national consensus -- hardly the best way of building up the defense of a country. And in areas such as industrial relations, good quality work besides diligence is required in the engineering and assembly industries, on which Taiwan and the Republic of Korea are beginning to concentrate, and this cannot be obtained by authoritarian and purely materialistic methods. Better ways of motivating manpower at all levels must be found in higher technology shops and factories. Japan succeeded in reducing the disutility of work (for which wages are paid) by making the work an attractive activity. The more the worker is motivated to

work for itself rather than for wages, the less the dependence on
material means.[56/]

III. Industrial Transition in Southeast Asia, the 1980s

After seeing how East Asia moved into the industrial society,
we can turn to Southeast Asia (excepting Singapore which is treated in
the next section). We now ask: what have been the sources of, and the
circumstances for, the acceleration in economic growth in Thailand, West
Malaysia, the Philippines and Indonesia in the 1970s, and do they imply
that these countries will move into the industrial society in the near
future? In particular, how close are these countries to being
industrial economies in which the labor force engaged in industry is
beginning to exceed the agricultural labor force? The present writer
visited all these countries for the first time in the early 1960s. At
that time, the socio-political environment was so shaky in all these
countries (including Singapore) that one wondered how they were ever to
get going. Development economists at that time were interested in the
rapidly growing economies of Japan, China and India and were hardly
aware of Southeast Asian countries (except for the Philippines). At
that time, few would have thought that the situation would soon be
reversed and that the 1960s and 1970s would witness South Asia and China
being replaced by Southeast Asia as the focus of interest in the
development debate.[57/]

The Appendix tables present the basic growth data for
Malaysia, Thailand, the Philippines and Indonesia (to be referred to as

the ASEAN Four, excluding Singapore which may be regarded as part of East Asia from the cultural point of view). For the three decades (1950-1980), the unweighted simple average growth of GDP per capita was about 3.2 per cent, lower than East Asia's 6.0 per cent (including Japan, China, the Republic of Korea, Taiwan, Hong Kong and Singapore) but better than the growth of the industrialized countries in the past century of about 2.0 per cent, and far better than that of South Asia's 1.5 per cent (including India, Bangladesh, Burma, Sri Lanka and Nepal, leaving out Pakistan as a predominantly wheat-eating country and largely outside the zone of monsoon Asia).[58/] Most important, there has been an acceleration of growth in all the four from the 1950s into the 1960s (except the Philippines) and from the 1960s into the 1970s at a time when there was deceleration in most countries of East and South Asia, especially from the 1960s into the 1970s -- a feat which led many to hope that the ASEAN Four would duplicate the East Asian Four (Taiwan, the Republic of Korea, Hong Kong and Singapore) by moving swiftly into the industrial economy in the 1980s. That it may take a longer time than hoped for is indicated by the following considerations.

The East Asian Four were fortunate that the industrialized countries in the postwar decades were growing at rates substantially higher than the historic 2 per cent trend rate and also with their domestic markets wide open. And the two giants of Asia, China and India, preoccupied with the difficult task of heavy industrialization, sacrificed the efficiency of their light and labor-intensive industries and were unable to put up much of a competitive fight. Elsewhere I have

argued that these favorable conditions are not likely to be repeated in the 1980s.[59/] Increasingly, the ASEAN Four will have to contend with the formidable efficiency of the East Asian Four in higher valued exports and with China's growing competitive power in lower-value exports.

Internally, the labor force engaged in agriculture is far greater than in industry and it will take some time, even under moderately favorable external conditions, before it begins to exhibit an absolute decline, with the exception of Malaysia which is most likely to be the first to move into the industrial economy, as may be seen from the data below. The figures may overstate the size of the agricultural labor force in Malaysia as many of the workers in the processing factories of the rubber and palm oil estates may be better classified in the industrial sector. But just how many, it is difficult to say. The low figure for the Philippines may reflect mechanization in the plantations and on the larger farms. The high share in Thai agriculture is due to the broader definition of the female labor force in farming; this is shown by the share of income originating in agriculture which is 25 per cent for Thailand, 23 per cent for the Philippines, 24 per cent for Malaysia, 26 per cent for Indonesia, 16 per cent for the Republic of Korea, and 20 per cent for Taiwan.

Food consumption levels in the late 1970s show that the non-plantation agriculture of the ASEAN Four has some way to go before reaching the levels of the Republic of Korea (at about the time when the latter moved into the industrial economy) -- perhaps one decade behind for Malaysia and nearly two decades for the rest.

Employment by Major Sectors, 1980

	Agriculture		Industry		Services		Total	
	No. (1000)	%	No. (1000)	%	No. (1000)	%	No. (1000)	%
Malaysia	2067.0	40.6*	1403.9	27.5	2638.5	31.9	5105.0	100.0
Philippines	6889.4	51.6	2779.0	20.8	3694.3	27.6	13362.7	100.0
Thailand	16566.7	74.4	2188.1	9.8	3503.5	15.7	22258.3	100.0
Indonesia	28040.5	55.5	7855.6	15.6	14582.6	28.9	50478.7	100.0
Rep. of Korea	4658.0	34.0	3974.7	29.0	5071.2	37.0	13706.0	100.0
Taiwan	1277.0	19.5	3161.0	48.3	2110.0	32.2	6548.0	100.0

Source: For Malaysia from the Fourth Malaysian Plan 1981-1985, Table
4-6, Kuala Lumpur; 1981; for Philippines from 1980 Population
Census (unpublished worksheet); for Thailand from Advance
Report of 1980 Census; for Indonesia from Results of the
Sub-sample of the 1980 Population Census; Republic of Korea
from ·IBRD World Development Report 1982; for Taiwan from
Statistical Yearbook of ROC 1982.

Note :   *Share of employment in A Sector in Malaysia is much higher in
IBRD World Development Report 1982 (50 per cent than our data
here.

1977-1979	Intake per capita, per day of: Calorie	Protein	Paddy Yields kg/ha	Electricity supply: KWH per capita	Per Capita dollar GDP 1980
Malaysia	2560	47	2600	595	1620
Philippines	2210	41	2100	272	690
·Thailand	2180	40	2000	280	670
Indonesia	2200	42	3300	28	430
Rep. of Korea	2840	69	6000	859	1520
Rep. of Korea (1961/63)	2100	42	2200		

Source: paddy yields from FAO Production Yearbook 1978 to 1980;
electricity data from Electric Power in Asia and the Pacific, 1979
and 1980, data for Malaysia for Peninsular Malaysia and for 1979,
dollar figures from IBRD World Report.

Thai food consumption may be understated in the above table, and also the Philippines' per capita incomes due to the overvaluation of the peso; if these are corrected Thai development levels are about the same as those of the Philippines in 1980. In any case, by 1982 with the Philippines per capita GDP growing on average at 3.4 per cent in 1981 and 1982, compared with Thailand's 5.8 per cent, the latter's level surpassed that of the Philippines ($750 to $740). The lower income of the Republic of Korea compared with that of Malaysia is due partly to the severity of the depression. Despite these and other limitations of the data, the table above shows how far behind the ASEAN countries are, compared with the Republic of Korea which had entered the industrial society in the late 1970s as shown in the previous sections. Social indicators confirm the foregoing. Crude birth and death rates in the ASEAN Four are significantly above those of the Republic of Korea and life expectancy below, although Malaysia comes close to the Republic of Korea in all three. (See Appendix Tables) Moreoever, the income inequalities in all four countries are high, with no sign of downward trend.[60/] They are far from the completion of the demographic transition, with total fertility rates still high. And underemployment is by no means wiped out with the possible exception of Peninsular Malaysia. Evidently, Malaysia is closest to the industrial economy and Indonesia the furthest with Thailand and the Philippines just about mid-way between the two. Having looked at the record of growth we now turn to the comparative analysis of the growth of the ASEAN Four, starting with agricultural development, then proceeding to industrial development, and finally to institutional development.

A. Agricultural Development

The impressive performance of the ASEAN Four in the 1960s and 1970s was mainly due to the rapid growth of agriculture which registered growth rates of about 4.6 per cent in the 1960s and 1970s -- nearly double the rate of South Asia and slightly less than the rate for Taiwan and the Republic of Korea in their best agricultural decades, the 1950s and 1960s, but higher than the industrial 1970s. The best performances were in Malaysia and Thailand, with a record 5.3 per cent for the 1960s and 1970s. These are extremely high growth rates for agriculture by any standard and are partly the outcome of the inability of Burma's paddy fields and Indonesia's nationalized plantations to regain their prewar output and export levels, (similar to the poor showing of Bombay and Shanghai textile manufacturers who were unable to buy the most modern machines from the West, making it possible for East Asia's Four to expand their textile industries.) But largely it was the result of the successful agricultural development program launched by the Malaysian Government in the late 1950s and early 1960s and sustained throughout the 1970s. In Thailand, it was less the government and more the self-reliant peasants who were able to respond quickly to new opportunities, information about which was brought by efficient private traders. The superb response of Thai and Malaysian agriculture was made possible by the plentifulness of new lands, unlike in Java, and the absence of a powerful landed oligarchy, unlike in the Philippines.[61/] In the Philippines and Indonesia, agricultural development programs were weak and ineffective in the 1950s and 1960s and not until the 1970s were these programs strengthened and expanded, including moderately successful agrarian reform efforts in the Philippines.

It is thus to be expected that real farm family incomes in Peninsular Malaysia would grow rapidly, 5.8 per cent a year in the 1960s and real rural family incomes in the 1970s by 6.6 per cent, rates which were double the growth of the labor force (2.9 per cent).[62/] By the latter 1970s with the rapid rise in rural family incomes, the expansion of industrial exports, and the migration of Malay peasants to Singapore, full employment was approached in most parts of Malaysia, requiring an influx of workers from nearby Sumatra to take the low-paying jobs on the estates. With wage rates rising, rice-farming became mechanized but there were no available mechanized technologies to substitute for labor in the most labor-intensive operations in rubber-growing (tapping) and in palm oil harvesting. Since in Malaysia, rubber, palm oil and coconut take up about four times the area under rice, the inability to mechanize these operations (as in the Republic of Korea's rice farms before the latter 1970s) has become the major stumbling block to the further rise of real farm incomes and the smooth shift of the labor force to industry. New technologies take time to be invented and even more time to become viable and efficiently produced, altogether perhaps about a decade (as was the case of the Hawaiian sugarcane harvester in the postwar decades).[63/]

The sources of the rapid rise in rural incomes in the 1970s were increases in yields, extension of crop area through resettlement, diversification into higher-valued crops, mechanization of paddies, and so on; but particularly important in monsoon farming were multiple-cropping and off-farm employment which helped to reduce underemployment during the slack seasons. Data supplied by the

Statistics Department of Malaysia indicate that off-farm incomes were 14 per cent of farm incomes in 1973 increasing to 28 per cent in 1979. The rise in family incomes enabled rice-growing peasants (supplemented by liberal credits) to purchase equipment and machines to substitute for labor whose wages were rising rapidly in the 1970s as young workers moved to the towns and cities. Malaysia by the end of the 1970s was ready to step into the industrialized society along with the Republic of Korea except for the fact noted above that its vast rubber and palm oil plantations and farms did not have the technology to mechanize the most labor-intensive operations, tapping of rubber and harvesting of oil palms. (There are no plantations in the Republic of Korea.) This meant that labor from Indonesia had to be brought in to replace the Indian workers moving out to the urban sectors.

Whereas in Malaysia, the Government was effective in bringing about sustained increases in farm family incomes, the role of government was minimal in Thailand, where rapid rise in GNP per capita was also largely propelled by the high growth rate of product per worker in agriculture, 3.5 per cent as compared with 3.7 per cent for Malaysia, 2.8 per cent for the Philippines, and 2.2 per cent for Indonesia. But farm family incomes rose more slowly than in Malaysia, 3.1 per cent as against 4.2 per cent in the 1960s and 1970s, (particularly in the 1970s, 1.8 per cent as against 2.7 per cent).[64/] These figures do not include off-farm income, data for which is available only from the 1978 Agricultural Census. In Thailand where there are no industrial estates and industrialization is concentrated in and around Bangkok, the 1978 Agricultural Census reports off-farm income to be only 9.5 per cent (p. 97). Although these rates of growth of farm family income exceed the

growth of the labor force of 2.5 per cent, 1960 to 1980, and unemployment has been reported to be very low, there is still much underemployment during the dry months of the year. The Population Census for 1980 taken in the dry month of April reported only 2.2 per cent looking for work but 18.5 per cent of the labor force waiting for the agricultural season to begin.

The large size of the seasonally underemployed labor force is in part due to the high propensity of Thai women to work (75 per cent) especially in farming, for plowing as well as for planting and harvesting. (This is one reason for the higher growth of output in Thai agriculture over that of the Philippines and Indonesia with about only 40 per cent female participation rates.) It is also due to the insufficient increase in irrigated area and multiple cropping which in the 1970s rose by only 3.3 per cent a year compared with the Philippines' 4.8 per cent and Malaysia's 4.5 per cent.[65/] But it is mainly due to the low level of off-farm incomes compared with Malaysia and the Philippines.

In the Appendix table, note that net output originating per hectare for most major crops grew very slowly in Thailand, this being particularly so for rice and cassava. The major reason for the slow growth of yields was the rapid expansion of output through land clearing by peasants especially in the Northeast region where growing conditions for rice and cassava were not as good. (The area planted to arable and permanent crops nearly doubled in Thailand in the postwar period.)[66/] Extensive expansion of output through cultivation of new lands generally

implies an increase in seasonal underemployment in monsoon agriculture, at least in the short-run when irrigation facilities for second crops and transport and rural electrification for off-farm jobs are not available. Hence, farming families moving out to the new lands cannot earn high annual incomes. This is the disadvantage of Thailand's expansion in the postwar decades (compared with Malaysia's); it was carried out mainly on the strength of peasant initiatives with very little help from the public authorities; in Malaysia the Government, through various types of rural development program (resettlement, multiple cropping, rural electrification, construction of industrial estates), assisted farming families to increase their incomes through more work throughout the year, besides helping to increase yields per hectare by providing new varieties of seed, credit, mechanization, etc., and establishing larger farms through resettlement. Accordingly, though Thailand ended the period with the highest growth rate of per capita GDP, it did not succeed as well as Malaysia in wiping out seasonally underemployed labor, and in raising farming family incomes to levels where mechanized equipment could be purchased. Thus, Thailand has some way to go in rural development before it can move into the industrial society.

The slow growth of agricultural product per worker underlies the slow growth of the GDP per worker in the Philippines. In part this was the result of the preoccupation of the government with policies (and financing) related to the development of industrialization; moreover deteriorating agrarian relations caused by bitter disputes between

landlords and tenants affected work motivation. The peasantry in the Philippines emerged from the prewar decades in difficult conditions compared with their counterparts in the other countries of East and Southeast Asia, and had to contend with a landed oligarchy in control of the government. (The Philippines has a long history of peasant uprising and in the postwar decade, was the only country among its neighbors to have a full scale peasant rebellion, in the form of the Huk movement.) The situation called for land reform (as in Japan, Taiwan and the Republic of Korea) but it was not until the early 1970s (under martial law) that land reform for the rice and corn farms could be launched, and followed up with rural development programs; these eased the tensions in the rural sector and the Philippines became self-sufficient in rice by the late 1970s. But tensions remained in the plantation sectors, especially in sugar and coconut, where yields were stagnant throughout the three decades.[67] (Also in the banana and other plantations in Mindanao where land was taken over from peasants without compensation.)

Available data on agricultural family incomes show that they rose 0.2 per cent each year between the family income and expenditure surveys of 1961 and 1971. For the 1970s, we have no appropriate data except to take as a proxy the growth of product per worker in agriculture which in the Appendix tables is 1.5 per cent. While the data for the 1960s include off-farm incomes, the proxy for the 1970s does not. Since the growth in industrial and service product in the 1970s was lowest in the Philippines (about 7 per cent compared with 9 per cent for Thailand and Malaysia and 10 per cent for Indonesia), it is

not likely that off-farm incomes increased significantly. Thus, the increase in real farming family incomes was substantially lower than the growth rate of the labor force (about 3.5 per cent) and both unemployment and underemployment were substantial by the end of the 1970s.

The low growth of farm incomes may be traced not only to the slow growth of off-farm incomes but also to the slow growth of the multiple cropping ratio, 1.24 in 1948, 1.46 in 1961, and 1.40 in 1971. There is no reason why, in a tropical country like the Philippines (unlike Japan and the Republic of Korea), this ratio should not rise to 2.0 as it did in Taiwan in the mid-1960s provided that sufficient funds are provided for irrigation and other infrastructure.[68/]

Also when real income or net product originating from each of the major crops (data from the national accounts for 1967-1980) is divided by the harvested area, the growth rates for coconut and sugarcane are low (0.3 per cent and 1.4 per cent respectively), much lower than banana (8.7 per cent), other crops (4.7 per cent), rice (3.5 per cent) and corn (3.3 per cent). The low growth may be indicative of poor management by the big land owners who failed to introduce new varieties, unlike the owners of the banana plantations, and the Malaysian rubber, palm oil, and coconut growers.[69/] In the noncrop sector of agriculture, fishery, forestry and livestock, there are signs of low productivity growth, especially in fishing where the large fishing groups have been increasingly taking over the traditional

fishing grounds from the small fishermen in coastal, river, and lake fishing.[70/] The slow growth of farm family incomes of 1 to 2 per cent is far below that of the labor force which has accelerated from 3 per cent in the 1960s to over 4 per cent in the 1970s.

Indonesia's agriculture appears to have been stagnant or growing slowly during the Sukarno period -- the 1950s and most of the 1960s. In the 1970s, it began to grow as a result of extensive efforts by the Suharto Government. Having started much later than the others, and with extreme shortages of land in densely packed Java, Indonesia has a long way to go in agricultural development before it can approach the industrial society. In the meantime, its policy of putting large sums in big, capital-intensive projects in the industrial sector has not created sufficient jobs to absorb the growing numbers of landless workers in the rural areas where simple changes in the technology of cultivation, such as the replacement of the knife by the sickle in rice harvesting, are cutting down the manhours required. With labor force growth accelerating from 1.5 per cent in the 1960s to 2.8 per cent in the 1970s and even higher in the 1980s, a growth rate of agricultural product per worker of 2.4 per cent in the 1970s implies increased unemployment, and without sufficient off-farm incomes, increased underemployment, particularly for the growing class of landless workers. There are recent reports that voluntary transmigration from Java to the other islands has begun to take place but if funding for infrastructure on a large scale is not made available, the transfer to the other islands is not likely to take place on a scale sufficient to absorb the growing rural labor force.

B. Industrial Development

As may be seen from the appendix tables, Thailand led in the growth of industrial product with a 10 per cent growth for 1950 to 1980, followed by Philippines 7.3 per cent, then Malaysia with 6.8 per cent and then Indonesia (if the 1950s are included). These figures, spanning three decades, take into account in an approximate way the rapid growth of the initial import substitution decade and the slowdown in the later decades for the Philippines, and for Malaysia and Indonesia the slow growth in the pre-import substitution phase. But note that Thai growth rates are consistently high for the three decades. This may be mainly due to the fact that, unlike the other three where in the colonial era, the establishment of modern buildings, roads, harbors, and public utilities had begun, uncolonized Thailand had to start almost from scratch where most of these industrial facilities were concerned. Thus, the high overall industrial growth was due to rapid growth of construction, public utilities, and transport and communication facilities in the first and second decades and then import-substitution in manufacturing in the later years. The industrial facilities mentioned above are necessary before import-substitution in manufacturing can begin. In contrast, the Philippines inheriting a large stock of such facilities from the colonial period, was able to plunge into import-substitution in the later years of the 1940s, and this may have been true also of Malaysia. Accordingly, the growth rates for these industrial facilities in Thailand during the 1950s and 1960s were nearly double those in the Philippines.[71/] The high growth rates in Indonesia for the 1970s are the result of the first decade of import-substitution.

The foregoing suggests that the high growth of industrial product in the 1970s in these countries, except for the Philippines, mainly reflected the "easy phase" of import substitution; this phase is likely to come to a stop soon at various times in the 1980s. In anticipation of this all the countries have taken steps to move into a more capital-intensive phase of import-substitution, following the example of Taiwan and the Republic of Korea. This may be premature and difficulties are encountered as such risky industries are beyond the technological levels of these countries. As noted in Part II, the Republic of Korea has already found this to be the case and likewise Taiwan — both now shifting back to more labor-intensive but higher technology industry strategy. One problem with the Philippines' poor industrial performance in the past two decades is that despite two decades of experience the up-stream, capital-intensive industries (such as steel products, chemicals, paper/pulp, and so on) have failed to improve their efficiency and have obstructed the growth of the labor-intensive industries through "costs and quality cascading", making export expansion difficult (e.g., the high costs and low quality of paper and ink for printing have prevented the development of printing and publishing, an industry in which the Philippines excels in manpower; the high costs and poor quality of cans for canning have caused difficulties for the food manufacturing industries in exporting; the poor quality of textiles, leather and dyes for the garment and shoe industry have hampered export expansion).

Both Taiwan and the Republic of Korea underestimated the technological requirements of the heavier industries, reasoning that if

the Japanese could successfully establish them, they could do likewise. This failed to take into account the long experience of Japan in the prewar half century with the technologically simpler heavier industries of prewar vintage and, later, with the more complex technology of the postwar heavy industries leading to success, because of a unique system of institutions for industrialization, in industrial policy, industrial relations, and management, which no country has been able to emulate.72/ We shall see in the next section that even India and China with much greater manpower, capital and market resources than Taiwan and the Republic of Korea have not been able to develop a system of capital-intensive industries which do not handicap the labor-intensive industries from exporting, despite three decades of experience, thereby obstructing their entry into the industrialized economy.

One encouraging aspect is the rise in manufacturing product per worker in the 1960s and 1970s of about 5.4 per cent a year for Thailand and Malaysia, compared with 1.7 per cent for the Philippines. These figures may indicate that the import-substitution industries are becoming more efficient, despite distortions introduced by protective measures. Instead of shifting resources to dubious capital-intensive industries, these countries should begin to dismantle the structure of protection before it becomes counter-productive and promote increased efficiencies in ways conducive to their further development, e.g., by specialization and concentration on a few lines. There is no doubt that the prolongation of a structure of protection has dealt Philippine

industrialization a blow from which it will take some time to recover; note the low rates of product per worker not only in manufacturing but in the other sectors of industry which are not directly protected. (Appendix tables) But this calls for long range industrial planning within an over-all industrial policy which takes into account not only foreign exchange savings but the role of industrialization in the over-all growth of the economy, including the need to regionalize industrialization in order to create job opportunities for farm families as they exhaust the potentialities for improving earnings from farming — something which is crucial for monsoon Asia in the transition from an agricultural to an industrial economy, as we found in the case of the Republic of Korea. (For further discussion, see below.)

In this regard, Malaysian manufacturing is in the best position to expand in the 1980s as compared to the others. In the 1950s and 1960s it extended and modernized its physical infrastructure from British days so that amongst the ASEAN Four it has the best infrastructure for industrialization with an extensive network of good roads, nearly complete rural electrification, and a score of industrial estates, besides efficient public utilities and communication facilities. After a strong effort at capital-intensive industrialization in the 1960s (including the first integrated iron/steel complex at Penang in ASEAN), it has been pushing labor-intensive industries in the 1970s. The prospects are weakest for the Philippines saddled as it is with a lot of inefficient industries from the late 1940s. A recent study shows that between 1956 and 1974 the growth of product per worker in most of the capital-intensive

industries has been slow (paper/pulp, chemicals, basic metals) or negative (non-metallic mineral, steel, electrical machinery, transport equipment); some of the labor-intensive industries have been doing poorly with negative growth of productivity (textiles, apparel, leather and wood products).73/ Indonesia's prospects may be somewhat better if the resource-based capital-intensive projects coming on stream (petrochemicals, liquefied gas, aluminum, etc.) earn enough foreign exchange to assist with the development of light industries. Unfortunately, Indonesia, Philippines, and Malaysia, misinterpreting the experience of Taiwan and the Republic of Korea in the 1970s and ignorant of the problems of heavy industrialization in India and China in the 1950s and 1960s, have begun to advocate the establishment of heavy industries in the 1980s. This goes contrary to the main argument of this paper which is that Japan in the 1950s, Taiwan in the 1960s and the Republic of Korea in the 1970s moved into the industrial society without the heavy industries, and that the latter were obstacles to the transition in Taiwan and particularly in the Republic of Korea.

C. Institutional Development

When one looks back over the postwar decades it is puzzling to find Malaysia and Thailand, (and the East Asian Four) doing so well. One would have expected the Philippines which started so strongly and ahead of every country in Asia in the latter 1940s (except Japan) to come out on top by the beginning of the 1980s. (Instead Thailand, with about half the per capita income of the Philippines in the 1950s, was able to catch up.) While the other countries were struggling with problems of independence, rebellion, ethnicity, religion, etc. (the

civil war continues in Burma after nearly four decades), the Philippines plunged ahead with extensive industrialization in the 1950s endowed with the largest educated manpower, modernized institutions, and "special relations" with the world's leading economic power. To understand this unexpected outcome -- perhaps not unusual in the economic history of the growth of nations as may be seen by the rise and decline of Spain in the 16th century, of the Dutch subsequently, of the British in the 19th and of the US in the 20th -- we need to step back into the prewar past the circumstances of which had a great influence when independence was being achieved by many nations after the war. As in the case of Taiwan and Korea, behind the similarities crucial differences existed during those formative decades.

The Philippines was not only occupied by the West longest but also by a medieval colonial power which was influenced very little by the modernizing influences of the Reformation and the Renaissance, the liberalism, egalitarianism and humanitarianism, and mercantile and industrial capitalism, that developed in countries like the Netherlands and England in the 17th, 18th and 19th centuries. More interested perhaps 'dolce vita' would be better than in productive activities, and without the benefit of experience in mercantile of industrial entrepreneurship, the Spaniards left the establishment of modern enterprises in trade and production largely to others unlike the Dutch in Indonesia or the British in Malaysia. Thus, when the upsurge in the demand for tropical produce occurred in Europe in the 19th century, it was not the Spaniards who took the lead in establishing plantations, estates, and trading companies. This was left to the Filipino mestizo

elite which grew into a rich and powerful landed oligarchy, unlike in Indonesia and Malaysia where the Dutch and British organized the plantations. When World War II ended, the Philippines had a full-blown indigenous elite with power rooted in large land holdings ready to push out the colonialists and take over the destinies of the nation.

No such indigenous oligarchies emerged in Indonesia and Malaysia. The expulsion of the Dutch and the nationalization of the estates left a power vacuum and different interests in different regions contended for power under Sukarno for nearly two decades, ending in 1966 in an unprecedented bloodbath of one of the two main contenders of power. Thus, in the two decades of confusion there was not much that could be done to develop the economy. Unlike Indonesia, Malaya (later part of Malaysia) gained independence in an evolutionary and constitutional manner. The communist challenge of the 1950s and early 1960s was contained by the Government of the then Federation of Malaya (before 1957 under British control). After independence estates were not nationalized. This contrasts sharply with the situation in Burma which gained independence shortly after the war and nationalized the estates. The Dutch (like the British in Burma) were expelled and their estates nationalized mainly because of the extremely exploitive character of the organization of the estates, especially the forced labor demanded of the Indonesian peasants, unlike in Malaysia where the British at the height of their industrial power in Europe were able to pay for the establishment of the estates. Left to develop the planta-

tions, British managers succeeded in making them one of the most efficient enterprises in postwar Asia even more efficient than prewar decades. This contrasts with the degeneration of the nationalized Indonesia estates.

Contributing to the power of the indigenous oligarchy was the Spanish policy of permitting the alienation of peasant land, much of which eventually found its way into elite hands, unlike the British and Dutch who not only forbade the sale of peasant land but also prevented the aristocracy from exploiting the peasantry. In this, the Dutch rulers were under heavy pressure from the home country undergoing the pressure of liberal and humanitarian thinking in the 18th and 19th centuries, while Spain remained largely feudalistic. Thus, in the Philippines, the oligarchy became powerful both by taking over the land of the colonial rulers and by assuming power over the peasants many of whom became tenants and laborers on their estates. In Indonesia and Malaysia, the peasant community remained largely intact and largely free from the unreasonable demands of the upper classes. This may partly account for the higher productivity of rice farms in these countries.

In contrast to these three countries, the Thais were not occupied by the Western powers, even though British advisers exerted strong influence in the court and bureaucracy (and eventually forced the Thais to open up their domestic market completely to Western industrial exports). This meant that land in Thailand was not preempted by plantation owners; but the tardiness of the commercialization of

agriculture in turn meant that physical infrastructure such as roads was slow to be established. Thus, Thailand started out at the beginning of the era with the most traditional infrastructure and institutions among the ASEAN Four.

Unlike the Philippines and Indonesia where the pressure of the expanding plantations for larger work force accelerated the growth of population in the 19th and early 20th centuries, and unlike Malaysia where there was no flooded-rice culture, Thailand was sparsely settled without plantations and with large areas of flooded-rice fields where labor-demanding transplantation could not be practiced.

Without foreign intervention, Thai land tenure and agrarian institutions were permitted to evolve in their own ways. In the conflicts between the monarchy and the nobility in the latter half of the 19th century, slave and corvee labor demanded of the peasantry by the nobility to cultivate its land was gradually abolished in the closing decades of the century. This in turn weakened the power of the nobility who, without such labor, could not lay claim to the use of large tracts of land. (This land reverted to the nation in the King's name.) Accordingly, when the demand for rice in the other countries rose such as Indonesia and the Philippines (as more and more rice land was converted into plantations for commercial crops), the peasants were free to respond. Rice production and exports expanded, and the peasants, unencumbered by the requirements of bondage and corvee and motivated by higher rice prices and profits, cleared the forests and

jungles, especially after the turn of the century. The expansion of rice production in the 1950s and 1960s was a continuation of this trend. Thailand started the postwar era without a strong landed oligarchy, but with a self-reliant peasantry free to expand its holdings into new territories; however, its infrastructure and institutions were outmoded. The situation was therefore unlike that of the Philippines where most of the uncultivated land had been alienated by families and public institutions.[74]

With their countries under the complete and unified control of their own elites, the Philippines and Thailand were able to start their march into modern development far ahead of the others, the former through industrialization and the latter through export agriculture. Despite frequent military coups, the strength of the Thai monarchy based on its success in emancipating the peasantry from the nobility served as the rallying point for national unity and social cohesion (similar to the role of the Meiji Emperor in the freeing of the Japanese peasantry from feudal obligations, especially in land tenure). The powerful Philippine elite with the cooperation of the US was able to achieve national independence quickly and peacefully in 1946. Impressive growth rates of GDP per capita of 3.6 per cent in the Philippines and 2.8 per cent in Thailand for the 1950s resulted, compared with 1 to 2 per cent for Indonesia and Malaysia (and also Singapore). Spearheading the growth in the Philippines were the American traders and industrialists and the Filipino entrepreneurs with decades of experience in agriculture and commerce (together with the accumulated wealth from land and trading), unlike the Thai, Malay, and Javanese elites.

Philippine economic growth, however, slowed down in the 1960s and the 1970s as overall productivity grew much less than those of its neighbors (1.7 per cent per year as against 4.1 per cent for Malaysia, 4.2 per cent for Thailand and even higher for the East Asian Four; see data on growth of GDP per worker in Appendix). The industrial base laid down in the 1950s and the first half of the 1960s instead of conferring infant industry advantages was proving to be a drag on the overall growth of the Philippines. Industrial productivity per worker in the 1950s was growing more slowly than that in neighboring countries (0.8 per cent as against 2.0 per cent for Thailand and even more for the East Asian Four, see Appendix). Under these circumstances, it was not to be expected that Philippine industry could forego protection and subsidies and begin exporting, as did industry in Taiwan and Korea in the early 1960s. There might have been more than just the debilitating effects of the structure of protection on efficiency in the failure of Philippine industry to be able to strike out into the international markets in the 1960s.

We hypothesize that the US import-substituting industries, which in large numbers rushed into the Philippines in the 1950s and early 1960s (in appliances, pharmaceutical, and other consumer products), had no intention of exporting and when protection was extended into the 1960s, the motivations to improve efficiency was substantially blunted. Why then did the Philippine oligarchy, who controlled not only the enterprises but also the legislative body, insist on continuing the structure of protection into the 1960s? The

data cited above on industrial productivity per worker in the 1950s permit one to speculate that perhaps the failure of efficiency to improve (as much as the neighbors of the Philippines) made it hazardous for Philippine industry to liberalize, especially in areas such as textiles. And the reason for this may be in the entrepreneurial philosophy or style in the Philippines.

Economists often think of entrepreneurial behavior, as shown in the neoclassical theory of the firm and industry, to be more or less universal, holding true for countries across the board, whether developed or not. But this theory, strictly speaking, applies largely to the Western developed countries and even among the developed countries there can be differences depending on the historical circumstances and background. John Maurice Clark, a leading student of competitive theory, used to insist in his lectures at Columbia University that we actually do not know why the theory works out so well in US industry, and that the institution's mores and historical background need to be studied. Japanese firms put more emphasis on long-run profits, foregoing short-run profits in order to expand market shares and to spend more for in-service training of new employees who are generally employed as they come out of schools and universities. This is possible in Japan because of the values of Japanese workers, who are willing to commit themselves to permanent employment with a given firm, compared to the more individualistic workers in the West who opt for mobility. Thus, Japanese entrepreneurs do not act as in the theory of the firm, i.e., attempt to hire the most efficient workers but to

hire the younger workers and train them (paying seniority wages), and employing them until retirement.

In the Philippines entrepreneurs put more weight on personal instead of efficiency considerations in hiring, firing, and promoting employees than in the West or in the neighboring countries of Asia. Compared with the Japanese, they are much more interested i : windfall, short-term profits which are drained cut of the enterprise.[75/] Entrepreneurship in the Philippines may have been influenced in large part by the centuries of association with Spanish administrators and Hispanic values where self-interest and pleasure were much more important than in the capitalistic West where the impact of the Protestant Reformation was strong or the Confucian East Asia, where emphasis on diligence, hard work, frugality, and groupism was far greater. If so, the low growth of efficiency in the 1950s (and also in the 1960s) must be attributed to poor c .trepreneurship which during the 1950s could not bring the efficiency of manufacturing up to the levels of Taiwan, Korea and ·Hong Kong and therefore could not libera'ize and compete in the world markets. And even before the adoption of comprehensive import-substitution measures, the Bell Commission reporting to President Truman in 1948 concluded that "the basic economic problem in the Philippines is inefficient production and very low incomes". In agriculture, it pointed to the low returns of tenant farmers and low wages for agricultural workers which failed to motivate cultivators to higher productivity. In industry, "from statistical data and from direct inquiry ... no noteworthy change seems to have taken place in industrial production or in industrial efficiency.[76/]

In short, the differences in historical circumstances and experience in the ASEAN Four produced different sets of institutions and social values which in turn meant that the response to opportunities opening up in the postwar decades were different. The higher growth rates for Malaysia and Thailand in three decades ᴄ _ stwar growth were in part the outcome of historical differences, as was the case noted above for Taiwan and the Republic of Korea. These are the historical legacies and incubuses which have affected the development of institutions which, more than technologies, are the product of many decades and centuries of the past. It is mainly through institutions (defined broadly as ways of doing and thinking) that the past affects present-day economic growth. For example, the efficient functioning of government in Singapore and Malaysia is the result of many decades of experience under the UK which before World War I had developed the best bureaucracy for economic growth. This, however, does not explain the better performance of the Singapore Government over that of Malaysia. Perhaps for this we must refer to the stronger influence of Confucian teaching on the authorities and civil servants of Singapore, as against Islam in Malaya.

A key element in neo-Confucian ideals emphasized the role of the government in the operation of society. When troubles in society occur, the Confucian believed that "only the wise and learned" ruling benevolently and humanely and with integrity and self-discipline can solve them. The high place accorded to government led to nation-wide competitive examinations of candidates with long years of training in the Classics in the search for the best — centuries before the British began civil service examinations. Part of the explanations for the

far better performance of governments in the East Asian Four as a whole over the ASEAN Four is the political culture of Confucianism which affects not only the rulers but also the ruled who expect and demand rulers to act with integrity and discipline.[78/]

Although the efficiency and effectiveness of most governments in the ASEAN Four have improved in the postwar decades, much has still to be accomplished. This is true not only in the formation of adequate industrial policies and their effective implementation but also in the routine functions of public institutions which involve the generation of external economies so important for private enterprises (gas and electric power, water supplies, roads, transport and communication, regulation, law and order, justice, education, training). Contributing to the slowdown in Philippine growth in the latter portions of the postwar era may be the failure of the government to improve as a generator of externalities.

IV. THE INDUSTRIAL TRANSITION IN THE MINI AND GIANT COUNTRIES OF ASIA

By way of contrast, we may briefly note the postwar experience of the city-states, Hong Kong and Singapore and the giants, India and China, the purpose being to obtain some insight and a better perspective in viewing the growth of the ASEAN Four, which came somewhere in between the giants and the mini countries. The city-states have a small agricultural sector and a small domestic market while the giants are saddled with a huge agricultural sector and a large domestic market.

These are basic differences compared with the ASEAN Four and they are important in the dynamics of their postwar growth. Because of the shortage of crop land and other natural resources it is imperative for Singapore and Hong Kong to import most of their food and other basic necessities (including water). This compels them to export -- to earn foreign exchange to purchase at least food and other primary necessities. To improve their living standards and keep on growing, exports must expand and for this the labor force must become increasingly efficient. In contrast, the giants of Asia have nearly all the varied basic needs within their borders. The need to export is not compelling, and strategies to develop scale-economic heavy industries and the corresponding lower-stream capital-intensive industries to cater to the demand of the vast domestic market become more attractive than to develop industries that can earn foreign exchange. For foreign exchange is not important for the giants which together contain nearly two billion people compared with city-states with little more than 2 and 4 million. As a Chinese emperor told a foreign monarch, there is no need to trade as "we produce everything we need".

Before the 1950s, Singapore and Hong Kong were trading centers, subsisting mainly on the food purchased from the proceeds of the entrepot trade. But with the emancipation from foreign control of China and the independence of Indonesia, the era of the entrepot trade was over, as trading with the villages and towns along the coasts of China and Indonesia became difficult or impossible. Without enough land for agriculture and markets for trading, there was no alternative but to shift to industrialization, no easy matter for two cities without a

large industrial entrepreneurial class. Fortunately for Hong Kong, industrialists with capital and technicians, especially highly experienced Shanghainese textile manufacturers arrived from China fleeing from the communist armies in the late 1940s, many of them were ready to set up factories as the textile machines they had ordered from the West prior to their departure from China had arrived in Hong Kong.79/ Singapore after a brief interlude with import-substitution found this was too slow a way to create enough jobs for its rapidly growing workforce and flung open its doors to foreign enterprises. Both countries had no need for a costly import-substitution period to develop indigenous entrepreneurship and industrial capital in order to initiate their industrialization. They were also fortunate in having a predominantly Chinese labor force with Confucian traditions of diligence in work and frugality in consumption. Thus, these city-states had all the advantages of a monsoon economy but without the disadvantages of slow-growing, highly demanding traditional agriculture with pronounced seasonalities, rigid schedules, and great densities.

Nevertheless, the demands on industrial efficiencies, the most critical factor for city-states, were severe. To export manufactures, the imported food and other necessities for workers and materials for processing had to be kept cheap, and tariffs could not be levied. With free trade, industries in city-states were on their own and had to be efficient to survive. Manpower development was advanced by government policies to promote housing, health facilities, education, and training; there was also an incessant drive to increase external economies by improving the varied services of government-utilities, transport/

communication, construction and so on. The role of government was also strategic in the formulation of appropriate industrial policies and their effective implementation.

With increasing efficiency in services, tourism (an export sector) expanded, tourist purchases rising as the free import of finished manufactured goods kept prices low compared with those of neighboring countries. The free flow of funds and finance opened up opportunities for the two states to develop as financial centers. Thus both Singapore and Hong Kong, with small agricultural sectors, had to strive to improve their service sector not only to generate external economies for manufacturing but also to develop a modern export sector. Not being constrained by the need to finance the development of paddy agriculture they could instead put their funds into manpower and infrastructure development for industrial and service efficiencies.

In the Appendix Tables, the rise in GDP per capita for both countries is the same, about 6 per cent, with Singapore rates lower in the first half of the period but higher in the second half than those of Hong Kong, which it has been noted, was able to start much earlier. The service product per worker rose substantially for both countries in the 1960s even though from the beginning of the period it was already high. There was an absolute decline of the labor force in the service and agricultural sectors as the labor force in industry surpassed the total in services for Hong Kong in the 1960s and for Singapore in the late 1970s, thus completing the passage into the industrial society (though from a traditional service, not an agricultural society). As

productivity and wages rose in industry and services (and also in agriculture), the low paying tiny stores, shops, stalls, hawkers, and others in the informal sector began to disappear; mechanization spread not only to industry but also to the services, increasingly replacing unskilled workers. With full employment, housewives found jobs easier to get and their participation rates rose.

These and other forces contributed to falling trends in family income inequalities.[80/] Nevertheless, the level of over-all income inequalities remained higher than in East Asian countries with rural sectors because of the much greater variance of income within the service sector in contrast to the agricultural sector in monsoon Asian economies. The great population densities and small size of farms do not permit large variations in size of farms in monsoon paddy agriculture in contrast to wheat farming holdings in the West. In the service sector, proprietors and managers do not employ large numbers of blue collar workers as in industry or in service units in the West, so that the number of blue collar workers per proprietor or manager or skilled worker) is small. Thus the income distribution pyramid is a long, sharp, narrow one compared to a flat one in agriculture or industry.

Birth rates fell as the demand for more skilled and educated labor rose relative to unskilled workers. Parents found it necessary to send their children to school longer to help them get jobs in the future; thus secondary education accelerated. Full employment opened up

greater opportunities for housewives to enter the labor market and participation rates rose, increasing the opportunity costs of raising children. The income to buy health and life insurance, opportunities of buying apartments in public housing projects, and the spread of schemes for pension and retirement allowance, meant that there was less need for children to provide for the future of parents as they got old. In all this the changes were similar to those in Japan, Taiwan and the Republic of Korea, when they moved into the industrial society. But note that Singapore's total fertility rate is substantially lower than Hong Kong's, 1.8 per cent against 2.2 per cent in 1980 (much lower than those of Taiwan, the Republic of Korea, and Malaysia and as low as that of Japan). Part of the explanation may be that more than any country in Asia the Singapore Government has provided the types of social welfare assistance which provide security and insurance for aging parents (housing and pensions), even though it has spent less than Sri Lanka's welfare program.[81/]

One other lesson from the success of the city-states' transition may be noted. Their industrialization, propelled initially by outside entrepreneurs with capital and technicians is gradually being taken over by locals as their institutions of higher learning and technical schools turn out the managers, technicians and skilled workers and as they gain experience in the operation of the enterprises of outsiders. Moreover, the growth of Singapore (where so many of the world's leading multinationals having established themselves) demonstrates that national governments, however small, need not succumb

to foreign control if the state's authorities are strongly dedicated to national (instead of personal) interests. It takes a strongly independent government to eliminate overnight the car assembly industry of some of the world's largest multinationals, as Singapore did recently. In all this, the city-states took advantage of, and put to good use, a highly diligent labor force and a dedicated class of entrepreneurs, managers, professionals, and politicians; these advantages of monsoon Asia were not offset by the high costs of developing monsoon paddy agriculture — contrary to the experience of the giants of Asia who ended the postwar decades with about 70 per cent of the labor force in agriculture with a long way to go before they could move into the industrial society.

In their haste to leap into industrialization, enormous waste was incurred in India and China, in the form of large amounts of unused capacity in costly heavy industries and in the production of poor quality or high cost industrial products for downstream industries. It is now acknowledged that the heavy industrial strategy was a grave mistake, and in recent years, efforts to shift to a more labor-intensive industrialization and greater emphasis on agriculture have made for improved growth performance. But the costs sunk into heavy industries and the damage to light industries over the span of two or three decades are not easily wiped out. The tragedy is that a heavy industry strategy cannot be lightly or easily abandoned.

In the Appendix Tables, most of the data show that China's performance was far better than that of India with national product per

capita three times greater. Nevertheless the level of income in China is $290, not very much higher than India's $240 in 1980. With such a large discrepancy in growth rates, one would expect a larger discrepancy in levels of per capita income in 1980. There may be various reasons for this. China's concept is net material product which is a narrower total than GDP, excluding a large portion of the service sector. Since the excluded portion may have grown more slowly than the included portion, there may be an upward bias. This accounts in part for the smaller size of the S sector (in terms both of employment and value added).

The growth of efficiency in China measured by the growth in product per worker is only one-half that of the growth in product per capita. The reason is that, as in all communist countries, China has promoted the higher participation of housewives in the labor force. Thus, although the population growth rate is about the same for the two countries (2.0 per cent for China, 2.1 per cent for India), China's growth in the labor force is 2.7 per cent compared with India's 1.6 per cent.

There is another explanation. China's food consumption is much larger than India's, 2,400 calories per day per capita as compared with 2,000 in 1980.[82/] This is mainly the result of the extreme egalitarian and full employment aims pursued by China, keeping the Gini ratio very low (.33) and idleness virtually nil. With income inequalities so low, the lowest income groups in China can eat much more

than in India. The higher level of social welfare in China is shown by the substantially higher life expectancy, energy consumption levels, adult literacy, much lower fertility rate (2.9 as against 4.9).

Finally, recent discussions in the Chinese press have revealed the prevalence of gross inefficiencies in commune agriculture, especially in motivating families to maximize productive efforts; it was only after 1980 that the commune system was abolished. Note that the product per worker grows more slowly in agriculture than in industry or services. Rice yields per hectare increased slower than in India (2.1 and 2.5).

The slow growth of overall product per worker in both China and India (much slower than East Asia and Southeast Asia) was one of the major reasons for the large work force needed in agriculture. China did better than India largely because of the drastic land reform undertaken after 1948. Tenants and small peasants were motivated to produce more; product per worker rose to 2.6 per cent in the 1950s. But changes since then (such as the commune system), went too far and became counter-productive, and the growth of productivity fell in the 1960s and for most of the 1970s.[83/] India's land and agrarian changes were too restricted and inadequate to have much impact.

The slow growth of agriculture in the giants was mainly the outcome of the development strategy policies of giving top priority to heavy industrialization adopted by Mao in the early 1950s and by Nehru

in the mid-1950s, leaving insufficient resources for light industries, agriculture and infrastructure (besides institutions of Communism in China and caste in India). China began to invest about 48 per cent of the total capital construction fund from the First Plan (1953-1957) leaving only 8 per cent for agriculture and 6 per cent for light industry, increasing it to about 58 per cent in 1958-1975. India decreased its outlays on agriculture in the development plans from 11 per cent in the First Plan (1951-1955) to 6 per cent in the Second Plan while increasing the amount for industry from 5 per cent to 23 per cent, with heavy industry receiving 16 per cent of the total. These shares for heavy industry were decreased in China from the 1976-1980 Plan from 58 per cent to 48 per cent, and in India during the 1974-1979 Plan from 15 per cent to 12 per cent.[84/]

The meager amounts allocated to agriculture made it impossible to develop such physical infrastructure as irrigation, roads, and electricity supply for agricultural development in the different parts of the two vast countries. In China, irrigation was only highly developed in certain parts of the country so that uneven development of agriculture contributed substantially to income inequality — "between variances" even though highly egalitarian methods of remuneration made for amazingly low "within sector" variances. For the regions without irrigation and rural industry, multiple-cropping and off-farm incomes were negligible and yields low.

Light and labor-intensive industries shunted aside received meager help from the government. Forced to buy obsolete and inefficient

machines from the heavy engineering sectors, and expensive or poor-quality materials from the heavy processing sectors (petrochemicals, steel, copper, pulp/paper, chemicals, and so on), they were unable to produce efficiently, and further constrained by the slow growth of the vast domestic markets as peasant incomes were virtually stagnant much of the time.

Above all, these industries were unable to expand their exports rapidly. Economists in India tend to shrug this off with the remark that India's home market is so vast, that there is no need to export. Although this is true, I believe that such a view overlooks the point that the function of exports is not only to serve as an extension of (or a complement to) the domestic market but as a source of the foreign exchange earnings needed to purchase goods not available internally, especially machines and equipment and processed materials. Exports, as a share of GNP, need not be large since, unlike the city-states, they need not import large amounts of food and other necessities. But to buy machinery, equipment and manufactured products from abroad, as the country becomes more industrialized and the agriculture more modern, exports do need to grow as rapidly as those of any country.

At the end of World War II, there were highly efficient industries in both countries at a time when there were no such industries in East and Southeast Asia, except in Japan, e.g. the textile industry of Bombay and Shanghai, but they were not able to progress with locally made machines and/or materials. Unable to export labor-

intensive industrial products (nor services nor agricultural products), both countries had to expand their production into every conceivable form of equipment and materials whether they had the capabilities or the primary materials or not. At the outset, this was welcomed as a necessary step on the road to self-reliance in technology and self-sufficiency in industry, the cherished goals of the heavy industrialization strategy. Specialization was for smaller countries, it was argued -- a modern version of the Chinese emperor's boast.

But the enormous range and complexities of modern industrial technologies, especially in the second half of the 20th century, make it impossible for any one country to be able to produce all the varied equipment and materials needed by modern industries properly. This is true even for the larger and richer industrialized countries; even the US does not have such vast resources (capital, raw materials, and technical manpower) as to be able to be efficient in the production of even half of its industrial output, particularly in machinery. The R & D resources needed to keep improving machines require all industrialized countries to specialize, to sell each other new technologies, to exchange information and keep in close contact. If this is true of the large industrialized countries, it is doubly true of the small industrialized countries (Switzerland, Sweden, Belgium, Netherlands, and so on) without the wide range of industries in the large countries. Such countries were able to enter the industrial society through specialization in a few industries. For countries like China and India, without any experience in modern industry except textiles, it was a grave mistake to plunge into the most complex and costly set of

industries, hoping to short-cut their way into industrialization through self-reliance in technology. Planners may argue that India has the third largest scientific manpower in the world, but most of that manpower consists of teachers in colleges and secondary schools and is not scientific manpower as such; in reality it is the highly specialized and experienced technicians on the factory floor and in research laboratories who improve the technologies of existing machinery. The dream of self-reliance and self-sufficiency has now been given up but it is difficult to shift quickly to specialization and concentration, since the broad range of the obsolescent heavy industrial plant cannot be abandoned but must be refurbished at great cost while it takes time to restructure the light industries to improve their exporting capabilities. With labor productivity growing slowly in agriculture the labor force continued to rise absolutely and to decline slowly, relative to the other sectors, and with industrial productivity slowing down in the 1970s, the pace of industrial expansion fell in both countries. The movement into the industrial society began to stagnate.

In my talks in Delhi and Beijing (1982), I encountered the argument that despite everything India and China have established a set of highly sophisticated industries which only Japan possesses in Asia. Undoubtedly this is an achievement that should not be neglected in assessing the industrialization of the giants. Nevertheless, it can be added that as long as India is so far from the industrial society, its average living standards will be low with large sectors of the populace in dire poverty, large disparities in income distribution, high birth and death rates, low levels of literacy, educational attainment and life

expectancy, and so on. And how valuable are these sophisticated industries (except to the small handful who work in them and receive high incomes) if they cannot be made efficient, producing goods which help the other industries to grow healthily?

Under China's socialism, some of the undesirable aspects of a pre-industrial economy such as poverty, inequality, and insecurity, unemployment, and so on prevailing in India are not seen. (It was one of the most heartening things to see in Beijing streets the populace riding in bicycles, wearing shoes, neat uniforms with hats, looking well fed and healthy; it was most distressing to see in the Delhi streets Indians cooking, sleeping and practically living on the sidewalks, in rags and without shoes.) One can readily grant that this is a substantial achievement of a socialist economy. On the other hand average living standards are low, far below those of Indonesia (the lowest in ASEAN) and the question arises: has low income inequality and economic security been achieved at too high a price, i.e., in trade-off with growth, a process of levelling downward to low incomes? If growth were faster, under a strategy of less egalitarianism and less employment security and greater emphasis on agricultural and light-industry development during the past decades, the lowest income groups in China today might be earning much more than they are, while the Gini of income distribution (.33 per cent) would be no higher (as the "between variances" will lower, offsetting the higher "within variances"). I believe that these questions are pertinent to the discussion going on among China's economists as they debate the wisdom of excessive

egalitarianism and job security in the growth of Socialist countries. The lesson from the postwar experience of the giants of Asia is that the sheer size of a country cannot get around the imperatives of a monsoon economy nor can they be easily pushed aside under a socialist economy.

SUMMARY AND CONCLUDING REMARKS

The passage into the industrial society is a major milestone in the growth of monsoon economies, as it frees them from the constraints imposed on agriculture by the monsoons, and opens up opportunities to take full advantage of the strong work ethics of the labor force for industrialization. Approximately around the point when the labor force in industry rises to equal and then exceed the declining agricultural labor force, the distribution of household incomes begins to improve, the completion of the demographic transition is approached, and efficiency starts to accelerate with factor productivity rising, with favorable impact on the propensity to save and the growth rate of consumption, as the experience of Japan, Taiwan, and the Republic of Korea (and in somewhat different manner, Hong Kong and Singapore) demonstrates.

To reach this Asian "golden age", however, monsoon economies must go through a difficult period of adjusting to the pronounced seasonality, the great labor demand during the peak months, and the rigid schedules of monsoon paddy agriculture. If this is successfully carried out, (through construction of roads, transport, irrigation/drainage, and rural electrification, and improvements in

rural institutions pertaining to agrarian relations, associations, extension services, credit distribution, research and rural industry), farm family incomes begin to accelerate and soon exceed the growth of the labor supply. When the excess is sustained, full employment is eventually approached and wages begin to rise. With rising farm incomes, domestic demand for industrial and service output in the urban areas increases and this expands the demand for labor and young workers from the rural areas who leave for jobs in the cities. Peasants find it necessary to mechanize farm operations in the peak season, and rising wages also induce industries to mechanize; in both instances the technology of small electric/gas machines and equipment are readily available from abroad. Total factor productivity begins to accelerate and growing industrial efficiencies enable entrepreneurs to expand exports. The shift of workers from agriculture to industry accelerates.

The distribution of income tends to fall as incomes of small peasants rise faster than the larger ones with fuller use of surplus labor in multiple-cropping and off-farm incomes, and as the poorest peasants move out to the cities for more remunerative work. Mechanization and the greater use of labor in the slack season raise incomes in the agricultural sector as a whole. In the cities, increasing mechanization and efficiency enable workers to improve their productivity and earnings with full employment, more housewives in lower income groups are able to obtain jobs and expand family incomes. The same forces increase the costs of raising children who now must obtain additional education to qualify for more complex occupations when they grow up, and as children stay in school during their teens, instead of

going to work, the incomes forgone rise. Increasing family incomes enable parents to purchase security in their old age (in the form of investments in housing, health insurance and pensions), lowering the value of children.

Japan was the first to go through these processes in the 1950s. It was relatively easy and swift with its long experience in agricultural and industrial development in the prewar half century. Taiwan, starting early in the 1950s, followed Japan into the industrial society about a decade or so later. Starting much later, the Republic of Korea tried to leap into industrialization before its agriculture had overcome the monsoon constraints. It stumbled into the industrial society in the late 1970s but with a host of problems created by its undue haste, especially in the premature establishment of a costly complex of heavy industries. Despite vigorous and valiant efforts to undo the damage by accelerated agricultural mechanization and emphasis on high technology but labor intensive industries, the investment in heavy industries cannot be written off and the Republic of Korea ended the 1970s with a huge foreign debt.

Among the ASEAN Four, only Malaysia is close to the industrial economy. Two decades of rural development plus the expansion of its efficient plantations have enabled Malaysia to approach full employment in the rural areas. With industrialization growing as the domestic market expands and as labor-intensive exports accelerate Malaysia should be able to enter the industrial society — all the sooner if mechaniza-

tion of labor-intensive rubber tapping and palm oil harvesting can be achieved. But this entry will be delayed if Malaysia goes ahead with the heavy industry projects. Thailand is the next possibility but many years behind Malaysia. The Philippines, starting out very strongly in the 1950s slowed down in the later decades, and was the only country in ASEAN to experience stagnation in the growth of per capita GDP, in the early 1980s. There are serious problems of slow progress in efficiency in many sectors of the economy including the most important, the public sector.

Dependent on efficiency as a life and death matter, the city-states of Singapore and Hong Kong have striven for and achieved high levels of efficiency in all segments of the economy, including the public sector. In contrast, Asia's giants, India and China have, like the Republic of Korea in the 1970s and (to a certain extent) the Philippines from the 1950s, opted for a capital-intensive industrialization which has slowed down the growth of labor-intensive industries and agriculture. They are now belatedly turning to these sectors without whose development, no monsoon economy with its great labor-intensities and population densities can ever move into the industrial society, unlike in the sparsely settled West where capital-intensive growth in agriculture and industry will not leave a large segment of the labor force idle.

(It may be added that countries in Latin America, the Middle East, and elsewhere have little difficulty entering the industrial

society. Argentina and Uruguay made it before 1950, Venezuela, Chile and Cuba in the 1970s. Also Libya, Israel, Iran, Portugal, South Africa, Algeria, Lebanon, Jordan, Syria and Tunisia. But the transition in these countries outside of monsoon Asia does not necessarily signify a fall in income inequalities, demographic transition, and high growth of per capita GDP.)

The question arises: how soon will the countries discussed above other than Malaysia make it into the industrial economies? As far as India and China are concerned, the share of the labor force in agriculture is so large that it is unlikely they can do so before the end of this century, as it will take at least a couple of decades to raise farm family incomes high enough to meet the requirements of an industrial economy. At rates of growth of the industrial labor force in the 1960s and the 1970s, it is unlikely that Thailand, the Philippines and Indonesia can complete the transition by the end of the 1980s and probably not even in the early 1990s. But this assumes that present policies continue unchanged into the rest of this century. With policy changes, the deceleration in the growth of the agricultural labor force and the acceleration in the growth of the industrial labor force can quickly bring all three into the industrial society, as was the case in Japan in the 1950s, Taiwan in the 1960s and Republic of Korea and Malaysia in the 1970s. What, then, are the policies suggested by the experience of these four countries (as well as those of Singapore and Hong Kong)?

First of all, we believe that the development of agriculture must continue at an undiminished pace for all countries of ASEAN. It is not sufficient just to look at data on imports (and exports) of agricultural products and conclude that saturation in demand for this or that food is being approached. In such cases, plans for diversification of agricultural production should be drawn up, since the East Asian experience shows that with rising incomes shifts toward higher valued foods (such as fruits, vegetables, meats, and poultry) are certain to take place. Moreover, even in seemingly saturated foods such as rice, the growth of family incomes is likely to increase substantially the consumption of foods in the lower income groups with fuller employment and shifts to higher elasticity foods (see [4]). As noted in the table above on caloric and protein consumption, the intake levels of the ASEAN Four are about a decade behind that of the Republic of Korea. Finally, farming family incomes in all the ASEAN Four are about one-half or less of non-farming family incomes. This gap needs to be cut down substantially if the domestic market is to expand further and income distribution is to improve. For Japan, Taiwan and the Republic of Korea, farming family incomes can be increased by a transformation of small-scale mechanized farming, and eventual liquidation of part-time farming imposed by the monsoons.

Malaysia has some ways to go in rice self-sufficiency through further increases in yields, multiple-cropping, and improved irrigation/drainage systems. Moreover, with rising incomes, diversification into poultry, vegetables and fruits may become necessary in order to cut down their imports. Above all, the mechaniza-

tion of rubber tapping and palm oil harvesting is essential if the labor force in the commercial crops is to be shifted to industries and the productivity of those remaining is to rise. Most worrisome is Malaysia's sharp turn to industrial capital-intensity recently. It may be repeating the same mistake that the Republic of Korea made in the latter 1970s.

It is in Thailand that government assistance in the intensification of farming is urgently needed to raise annual farm incomes. This calls for greater spending on irrigation facilities, rural electrification, road construction, and increased credit for the 1980s, besides improvements in rural institutions. Thai peasants have performed well in the past decades but infrastructure construction is beyond their means.

The Philippines and Indonesia are facing the problem of improving productivity in their important estate sector at a time when world markets are shrinking with the slowdown in the growth of incomes in industrialized countries. This appears to be mainly a problem of poor management, and not much can be done by government, except perhaps in matters such as encouraging re-planting of trees, as Malaysia did in rubber and coconut. Both countries, while intensifying efforts to raise efficiency in the small rice farms through more and better physical infrastructure, (especially in the outer islands for Indonesia), need to pay closer attention to the improvement of rural institutions, especially farmers' associations, and in the development of light and labor intensive industries.

For all of the ASEAN Four, the costs of these policies will be considerable, and the lessons of the giants and of the Republic of Korea (and even Taiwan) are that they should take priority over the establishment of capital-intensive industries. None of the ASEAN Four has industrial/technological experience comparable to that of India and China, nor even of Korea and Taiwan; moreover, the scattered capital-intensive industries now operating in the Four have not been doing well even though these are jointly operated with multinationals. If the objective is to save foreign exchange (via second-stage import-substitutions), why not establish them cooperatively as regional projects, spreading the costs of their establishment and reducing the risks of unused capacities? These industries are difficult to operate smoothly in small markets with insufficient numbers of experienced managers, engineers, technicians, and skilled workers and inadequate supporting infrastructure (roads, harbors, storage, power and water supplies, etc.).

The priority need for the ASEAN Four aspiring to move into the industrial economy for the 1930's is for decentralized and regionalized small industries which can provide employment for the rural labor force available during all but the busiest weeks of planting and harvesting. This can become the major factor in the rise of farm family incomes, as shown by the cases of Japan and Taiwan, and becoming increasingly evident in Malaysia and the Republic of Korea. For the larger, more capital-intensive industries, as well as for even the labor-intensive industries, long-range plans for specialization in particular lines of industries should be made. Without such planning, it is difficult to

plan for the allocation of scarce resources for construction of plant, equipment, infrastructure and training facilities. And both the ASEAN Four and the East Asian Four simply do not have the skilled manpower to get into many industries. These brief remarks lead to the issue: how do countries go about the formation and implementation of industrial policies?

One reason for the postwar successes of the Japanese economy is the unique industrial policy which evolved in the postwar decades, with the Ministry of International Trade and Industry (MITI) assuming the coordinating role and scores of committees and councils, involving the participation of large number of experts and interested individuals, spending a great deal of time studying the industries to be selected for concentration in the long-term future. Instead of laws and regulations most of the decisions and policies arrived at by consensus are implemented through coordination and persuasion by MITI. (The assumption is that a larger group of experts make less mistakes and a larger group of interested institutions facilitate the implementation of policies agreed upon.) We are not raising here the issue of whether the Japanese system is suitable for other countries in Asia. Rather the issue is: how did countries such as India, China, and Korea come to the decisions which committed the people of these countries to such enormous, unrecoverable expenditures? What little we can find on this issue points to a small group with limited time and knowledge (and with consultations here and there) making the decisions. Similarly in recent years announcements by ministers of industries and heads of governments in the ASEAN Four do not seem to be the outcome of long and careful

deliberations (which require extensive visits and investigation of industries abroad) by a large group of qualified experts in and out of governments. They appear to be ad hoc announcements and declarations that this or that industry is to be supported. For Asian countries to succeed in industrialization, a much better method for the selection and implementation of over-all, long-range industrial policy is needed, if costly mistakes are to be avoided and if implementation is to be efficient and effective.[85/]

Industrial policy, unlike trade policy, should not just focus on the short-term needs of the balance of payments, but on the long-range development of industrialization in which economic and technological elements are at the core but not the only considerations. For many other interests are involved: labor in employment creation, the peasant in cheap and good quality inputs for farming and off-farm employment and likewise the consumers who must buy the final products of industry. Only by taking into account the needs of these groups can an industrial policy serve to maximize the long-term growth of industries (and minimize the balance of payments and government deficits in the future). The adoption of good industrial policies and their effective implementation, however, can only go hand in hand with improvements in the functioning of the government as a whole.[86/]

Appendix Table 1

RAINFALL PATTERNS FOR MAJOR REGIONS OF THE WORLD

Region: Cities in	Yearly Average	Average Monthly Rainfall (Inches)											
		January	February	March	April	May	June	July	August	September	October	November	December
Monsoon Asia	82.0	2.5	1.9	2.3	3.1	7.0	12.5	13.8	12.1	10.5	7.8	5.2	3.2
Africa (South of Sahara)	52.9	2.9	2.6	3.5	3.5	4.1	4.4	6.6	7.7	5.9	5.0	3.4	3.3
Africa*	38.5	3.4	2.9	3.6	3.3	3.3	2.6	2.8	3.1	2.9	3.5	3.3	3.8
Latin America	43.2	4.2	4.2	4.3	4.1	4.0	3.2	3.1	2.8	2.9	3.3	3.5	3.6
North America	36.8	2.6	2.5	2.8	2.8	3.2	3.5	3.5	3.6	3.8	3.4	2.6	2.5
Europe	24.6	2.0	1.8	1.9	1.9	1.9	2.0	1.9	2.1	2.2	2.3	2.4	2.2

* Africa excluding (1) Freetown, Sierra Leone; (2) Douala, Cameroon; and (3) Bathurst, Gambia. These are (except for Cameroon) small countries in West Africa where torrential summer rains make for rain forests and not paddy agriculture.

General notes and sources: Data from various publications of Royal Meteorological Office, United Kingdom and are simple unweighted average of cities in each region. Monsoon Asia's rainfall pattern is the average of (1) Sandakan, North Borneo; (2) Amoy, China; (3) Nagasaki, Japan; (4) Tokyo, Japan; (5) Shanghai, China; (6) Cochin, India; (7) Akyab, Burma; (8) Rangoon, Burma; (9) Quang-Tri, Vietnam; (10) Aparri, Philippines, (11) Darjeeling, India; (12) Bangalore, India; (13) Mandalay, Burma; (14) Saigon, Vietnam; (15) Allahabad, India; (16) Lashio, Burma; and (17) Hanoi, Vietnam. Africa (south of Sahara's) rainfall pattern is the average of (1) Barumbu, Republic of Congo; (2) Nouvelle-Anvers, Belgian Congo; (3) Freetown, Sierra Leone; (4) Port Nolloth, South Africa; (5) Kimberley, South Africa; (6) Port Elizabeth, South Africa; (7) Goree, French West Africa; (8) Mombasa, Kenya; (9) Ibadan, Nigeria; (10) Wary, Sudan; (11) Nova Lisboa, Angola; (12) Beira, Mozambique; (13) Kasempa, Northern Rhodesia; (14) Doula, Cameroon; (15) Bathurst, Gambia; and (16) Walvis Bay, Southwest Africa. Latin America's rainfall pattern is the average of (1) Medellin, Colombia; (2) Santos, Brazil; (3) Manaus, Brazil; (4) Rio de Janeiro, Brazil; (5) Coquimbo, Chile; (6) Puerto Montt, Chile; (7) Santiago, Chile; (8) Buenos Aires, Argentina; (9) Mar del Plata, Argentina; (10) Tucuman, Argentina; (11) Lima, Peru; (12) Cababozo, Venezuela; (13) Gzayaquil, Ecuador; and (14) Asuncion, Paraguay. North America's rainfall pattern is the average of (1) Miami, Florida; (2) Goodland, Kansas; (3) San Diego, California; (4) Phoenix, Arizona; (5) Cairo, Illinois; (6) New York, N.Y.; (7) Washington, D.C.; (8) San Antonio, Texas, (9) Montgomery, Alabama; (10) Sitka, Alaska; (11) St. Paul, Minnesota; (12) Albany, New York; (13) Dubuque, Iowa; and (14) Duluth, Minnesota. Europe's rainfall pattern is the average of (1) Astrakhan, USSR; (2) Turin, Italy; (3) Trieste, Italy; (4) Paris, France; (5) Dublin, Ireland; (6) Reykjavik, Iceland; (7) Frankfurt am Main, West Germany; (8) Edinburgh, Scotland; (9) Athens, Greece; (10) La Coruna, Spain; (11) Granada, Spain; (12) Lisbon, Portugal; (13) Bucharest, Romania; (14) Odessa, USSR; (15) Oslo, Norway; (16) Moscow, USSR; (17) Stockholm, Sweden; (18) Tromso, Norway; (19) Archangel, USSR; and (20) Vardo, Norway. Java and Malaysia have been omitted from the table. Their monsoon rains come in the last and the first quarters of the year, just the opposite of other parts of Asia.

Appendix Table 2

AGRICULTURAL DENSITIES AND AVERAGE SIZE OF FARMS IN VARIOUS PARTS OF THE WORLD

Region/Continent	Agricultural Population / Agricultural Land (Persons per Hectare)	Agricultural Population / Arable Land (Persons per Hectare)	Total Agricultural Holdings (Million Holdings)	Area of Holdings (Million Hectares)	Average of Holdings (Hectares Per Holdings)
World	0.4	1.4	138.5	2,387.6	17.2
Monsoon Asia	1.3	3.1	92.3	201.2	2.2
Africa	0.3	1.4	7.3	227.8	31.0
North and Central America	0.1	0.2	7.0	710.0	102.0
Latin America	0.1	1.0	6.8	544.2	80.0
Europe	0.2	0.4	24.7	221.3	9.0
Oceania	0.01	0.1	0.4	483.1	1,316.1

Source: FAO Production Yearbook (1972), based on 1960 and 1970 agricultural censuses of each country.

Notes: Arable land as defined by FAO refers to land under temporary crops (double-cropped areas are counted only once), temporary meadows for mowing or pasture, land under market and kitchen gardens (including cultivation under glass), and land temporary fallow or lying idle. Land under permanent crops refers to land cultivated with crops which occupy the land for long periods and need not be replanted after each harvest, such as cocoa, coffee and rubber, it includes land under shrubs, fruit trees, nut trees and vines, but excluded land under trees grown for wood or timber. Permanent meadows and pastures refers to land used permanently (five years or more) for herbaceous forage crops, either cultivated or growing wild (wild prairie or grazing land).

Agricultural Land = Arable land + Land under permanent crops + Permanent meadows and pastures

Agricultural holding as defined by FAO refers to all land which is used wholly or partly for agricultural production and is operated by one person - the holder - alone or with the assistance of others, without regard to title, size or location (livestock kept for agricultural purpose without agricultural land is also considered as constituting a holding.

Appendix Table 3

CORRELATION BETWEEN MONSOON RAINS, AREA PLANTED TO RICE AND
POPULATION DENSITY IN REGIONS OF SELECTED ASIAN COUNTRIES

	Population Density per Arable Land (persons per hectare)	Average Rainfall per year (inches)	Area planted to rice as % of total cultivated land
JAPAN			
Hokkaido	4.9[1]	43.7	24%[1]
Japan, excluding Hokkaido	25.4[1]	71.8	65%[1]
INDIA			
Northwest India[2]	1.9[3]	29.4	16%[4]
Rest of India	3.9[3]	64.0	55%[4]
INDONESIA			
Sumatra	4.7[5]	108.9[6]	37%[7]
Java-Madura	13.4[5]	89.5	77%[7]
PHILIPPINES			
Luzon	9.9[8]	98.2	54%[8] [10]
Mindanao	6.0[8]	89.4[9]	29%[8]
PAKISTAN AND BANGLADESH			
Pakistan	3.1[11]	13.7	17%[12]
Bangladesh	7.7[11]	100.0	98%[12]

(1) 1979; (2) Northwest India is composed of Uttar Pradesh East, Uttar Pradesh West, Punjab, Himachal Pradesh, Jammu Kashmir, Rajasthan, Madhya Pradesh West, Gujarat, and Saurashtra and Kutch; (3) 1961; (4) 1959-60, area planted to rice as % of area planted to total cereal; (5) 1973, population density per total agricultural land (which consists of farm agriculture and estate); (6) rain forest; (7) 1973; (8) 1971; (9) rainfall pattern for Mindanao is evenly distributed throughout the year unlike that of monsoon Luzon area; (10) Philippines, excluding Mindanao; (11) 1970; (12) 1976, area planted to rice as % of area planted to all cereals.

Sources: Japan — Japan Statistical Yearbook 1981; India — Statistical Abstract of the Indian Union 1961; Indonesia — Agriculture Census 1973 and Statistical Yearbook of Indonesia 1979; Philippines — NEDA Philippine Yearbook 1978, and Census of Agriculture 1971; Pakistan and Bangladesh — Area Handbook for Pakistan, Area Handbook for Bangladesh, and FAO Production Yearbook 1976.

Appendix Table 4

PERCENTAGE OF TOTAL EMPLOYMENT IN FIRMS
ENGAGING LESS THAN 10 PERSONS

UNITED STATES

    (1947)   Manufacturing 16*
    (1954)   Manufacturing   8**

JAPAN

    (1964)   Manufacturing 28
    (1964)   Manufacturing 50*

SINGAPORE

    (1966)   Manufacturing 45

SOUTH KOREA

    (1966)   Manufacturing 43

THAILAND

    (1970)   Manufacturing 70

TAIWAN

    (1961)   Manufacturing 46
    (1961)   Commerce 95
    (1961)   Transport 58
    (1961)   Services 93

PHILIPPINES

    (1961)   Manufacturing 76
    (1961)   Construction 93
    (1961)   Commerce 94
    (1961)   Transport and 64
              Communication
    (1961)   Private 95
              Services

*   as % of employment in firms engaging less than 50 persons
** as % of employment in firms engaging less than 20 persons

Sources and notes: See Oshima, H.T. "Labor Force "Explosion" and the Labor-intensive Sector in Asian Growth" in Economic Development and Cultural Change, Vol. 19 No. 2, January 1971 for the various economic and industrial censuses and surveys from which data are taken. United States data from Statistical Abstract of the United States 1979. Percentages were derived by subtracting from sector employment figures taken from the labor-force sample surveys the number employed in firms with more than ten persons engaged as reported in the economic or industrial censuses. The residual was assumed to be approximately the size of the sector comprising firms with fewer than ten employees. The percentage is upwardly biased because there is a tendency for many firms with ten or more employees to be omitted in the economic or industrial censuses, which are establishment censuses based on lists of addresses. On the other hand, part-time employees and part-year employees tend to be included in establishment censuses.

A. **Statistics of Comparative Growth Rates in Taiwan and the Republic of Korea**
Growth Rate in Constant Price, Geometric Rates per Year 1950 to 1980

	TAIWAN				REPUBLIC OF KOREA			
	1950s	1960s	1970s	Whole Period	1950s	1960s	1970s	Whole Period
Overall Growth Rates in								
1. GDP market prices	7.6	9.6	8.8	8.7	5.1	8.6	9.5	7.7
2. GDP per capita	4.0	6.3	6.7	5.7	3.1	6.0	8.0	5.7
3. Employment	1.1	4.2	4.7	4.5	3.2	2.8	4.5	3.7
4. GDP per worker	6.5	5.4	4.1	4.8	1.9	5.8	5.0	5.4
Sector Growth Rates in								
5. Agricultural product	4.8	4.1	1.6	3.5	5.5	4.4	3.2	4.4
6. Industrial product	10.7	14.7	12.5	12.6	12.3	17.2	15.4	15.0
7. Service product	10.0	9.1	8.3	9.1	3.7	8.9	8.5	7.0
8. Agriculture product per worker	4.6	3.2	4.1	3.6	2.1	1.8	3.2	2.5
9. Industrial product per worker	7.9	6.6	4.8	5.7	(0.9	7.9	5.8	6.9
10. Service product per worker	6.7	2.4	3.7	3.0		5.2	4.8	5.0
Subsector Growth of Product Per Worker in								
11. Mining and quarrying		-2.4	9.9	3.9		0.8	3.5	2.2
12. Construction		0.8	4.1	2.6		4.1	3.8	4.0
13. Electricity and public utilities		8.3	14.9	11.7		12.2	11.2	11.7
14. Transport, storage and communication		7.2	9.4	8.3		10.4	6.5	8.4
15. Manufacturing		7.8	3.3	5.4		5.0	7.5	6.2
Services								
16. Commerce		0.7	4.4	2.7		2.1	1.5	1.9
17. Personal and others - also includes government service		4.3	3.1	3.6		3.9	1.9	2.9
18. Population	3.5	2.6	1.9	2.7	2.0	2.5	1.7	2.1
Labor Force								
19. Total		2.4	2.3			3.0	2.8	
20. Public consumption	6.0	4.5	5.4	5.3	3.0	5.5	8.3	5.6
21. Private consumption	7.8	8.3	6.8	7.6	5.8	7.0	7.5	6.8
22. Gross domestic investment	13.7	16.2	8.2	12.7	-	23.6	13.4	18.5
23. Exports (constant)	9.3	23.7	9.3	14.1	7.1	34.1	23.0	21.4
24. Imports (constant)	11.0	17.9	9.1	12.7	2.9	20.5	11.8	11.7

Notes and Sources: Unless otherwise indicated, all data are taken from various issues of IBRD World Development Report and IBRD World Tables, 1980. Employment data used in computing lines 3, 4, 8-10, and 11-17 mainly from ILO Yearbook of Labor Statistics. In computing lines 11-17 various issues of official publication on national accounts are used. Lines 3, 4, 8-10 for 1950s calculated from Shirley W.Y. Kuo, The Economic Structure of Taiwan 1952-69 (for Taiwan) and Wontack Hong, Trade Distortions and Employment Growth in Korea, Seoul, KDI (for Republic of Korea).

B. Statistics of Comparative Percentage and Absolute Changes, Taiwan and the Republic of Korea, 1950 to 1980

	TAIWAN				REPUBLIC OF KOREA			
	1950s	1960s	1970s	% Change	1950s	1960s	1970s	% Change
Percentage of labor force in								
1. Agriculture		56	30	-46.4		66	34	-48.5
2. Industry		11	41	272.7		9	29	222.2
3. Service		33	29	-12.1		25	37	48.0
GDP Originating in								
4. Agriculture	32	28	10	-68.8	45	37	16	-64.4
5. Industry	28	29	48	71.4	17	20	41	141.2
(a) Manufacturing	17	22	38	123.5	9	14	28	211.1
6. Service	40	43	42	5.0	38	43	43	13.2
Debt service as % of								
7. GNP			2.0				3.5	
8. Exports			4.5				15.0	
External public debts as								
9. % of GNP		10.6	13.1	23.6		20.9	28.8	37.8
No. enrolled as % of age group in								
10. Primary schools		95	103	8.4		94	111	18.1
11. Secondary schools		33	78	136.4		27	76	181.5
12. Higher education		4	13	225.0		5	12	140.0

	1950	1960	1970	1980	Ave.	1950	1960	1970	1980	Ave.
Absolute Magnitudes										
13. Population (millions)	7.98	11.21	14.60	17.64	12.86	20.36	24.70	31.37	38.12	28.64
14. Per capita $ GNP	106	141	412	2150	702	60	80	242	1520	476
15. Life expectancy at birth (years)		64	68	72	68		54	59	65	59
16. Energy consumption per capita, kg. of coal equivalent (1980 data is for 1979)		512	1052	2431	1365		208	815	1473	832
17. Crude birth rate per 1000		40	27	23	30		43	30	24	32
18. Crude death rate per 1000		7	5	5	6		13	10	7	10
19. Total fertility rate		5.8	4.0	2.3	4.0				3.0	
20. Working age pop. (15 to 64 years) million persons	4.5	5.6	8.4	11.3	7.5	11.9	13.8	17.1	20.3	15.8

	1960s	1970s	Ave.	1964	1970s	Ave.
21. Gini coefficient	.323	.292	.301	.367	.382	.375
	(Shirley Kuo's estimates)			(Hakchung Choo's estimates)		

	1960s	1970s	Ave.
22. Number of tourists millions	23.6	472.5	1393.3 / 629.8

Notes and Sources: Data from IBRD World Development Reports, various issues except otherwise noted. In line 1, force shares in 1960, 1970, and 1980 are as noted in the text for Taiwan and Japan.

C. __Comparative Financial, Fiscal and Other Data, Taiwan and the Republic of Korea, 1950 to 1980__

	TAIWAN				REPUBLIC OF KOREA			
	1950s	1960s	1970s	Whole Period	1950s	1960s	1970s	Whole Period
__Savings as % of GNP, in averages__	3.0	8.4	13.0	8.1	2.7	3.3	6.8	4.3
1. Personal saving	2.2	3.5	4.0	3.2	0.5	2.1	3.3	2.0
2. Corporate saving	4.0	2.9	7.8	4.9	2.8	6.1	4.9	4.6
3. Government saving								
4. Surplus on current account (-deficits)	-1.5	-1.0	1.6	-0.3	-1.4	-4.4	-4.3	-3.4
__Private Consumption Expenditures as % of GNP, in averages__								
5. Total consumption	71.2	62.0	52.1	61.8	83.0	78.5	70.5	77.3
6. Non-food	32.8	32.1	30.7	31.9	29.9	35.3	36.6	33.9
7. Clothing and household	15.7	15.1	13.0	14.6	15.6	15.8	16.2	15.9
__Central Government Revenue and Expenditures as % of GNP__								
8. Total Current Revenue	24.5	22.8	24.6	24.0	14.3	15.7	16.2	15.4
9. Direct and Indirect taxes	15.4	16.3	19.5	17.1	7.0	10.4	13.1	10.2
10. Subsidies	0.1	0.1	0.1	0.1	0.4	0.1	1.4	0.6
11. Net lending (-borrowing)	4.2	3.8	8.2	5.4	1.1	0.9	-0.8	0.4
__Prices, growth rates__								
12. Consumer prices	14.3	2.9	12.1	9.8	36.5	13.9	17.0	22.5
13. Implicit prices (GNP)	13.3	4.1	11.5	9.6	45.7	17.5	22.4	28.5
14. Foreign exchange	14.5	0.1	-0.4	4.7	38.5	17.1	3.3	19.6
__Money supply, growth rates__								
15. Currency & demand deposits		14.8	24.5	19.7	18.6	29.5	30.5	26.2

Sources: Lines 1-11 from National Income of the Republic of China 1981 (for Taiwan) and The Bank of Korea National Income in Korea 1978 updated by Korea Statistical Yearbook 1980 (for the Republic of Korea); lines 12-14 from IBRD World Tables 1980 and ADB Key Indicators (April 1982); line 15 from various issues of Taiwan Statistical Data Book and Korean Statistical Yearbook.

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Statistics of Comparative Growth Rates in Thailand and Philippines
Growth Rates in Constant Price, Geometric Rates per Year 1950 to 1980

	PHILIPPINES				THAILAND			
	1950s	1960s	1970s	Whole Period	1950s	1960s	1970s	Whole Period
Overall Growth Rates in								
1. GDP market prices	6.4	5.1	6.3	6.0	5.7	8.4	7.2	7.1
2. GDP per capita	3.6	2.2	3.4	3.1	2.8	4.7	5.1	4.2
3. Employment	3.9	3.7	4.2	3.9	3.6	4.0	3.2	3.7
4. GDP per worker	2.5	1.4	2.1	2.0	2.1	4.4/	4.0	3.4
Sector Growth Rates in								
5. Agricultural product	5.2	4.3	4.9	4.2	3.8	5.6	4.7	4.7
6. Industrial product	7.2	6.0	8.7	7.3	8.0	11.9	10.0	10.0
7. Service product	6.9	5.2	5.4	5.8	6.1	9.1	7.3	7.5
8. Agricultural product per worker	4.4 (1)	2.6	1.5	2.8	0.7	4.3	4.5	3.5
9. Industrial product per worker	0.8 (1)	1.0	2.8	1.5	2.0	4.4	3.3	3.2
10. Service product per worker	0.6	-1.9	-0.7	-0.7	3.0	5.1	1.6	3.3
Subsector Growth of Product Per Worker in								
11. Mining and quarrying	-4.3	4.1	-0.3	-0.2	-9.3	4.9	10.7	2.1
12. Construction	-6.8	-2.7	13.6	1.9	-3.2	1.1	-0.7	-0.9
13. Electricity and public utilities	-3.0	-0.2	4.3	0.4	4.3	17.6	6.2	9.4
14. Transport, storage and communication	0.4	-0.7	3.7	1.1	6.7	1.4	2.8	3.6
15. Manufacturing	1.5	1.6	1.8	1.6	-0.01	7.0	4.1	3.7
Services								
16. Commerce	-0.3	-0.8	-0.3	-0.5	5.8	6.6	-1.9	3.5
17. Personal and others	4.3	-0.4	0.1	1.4)	-1.7	1.3	5.4	1.7
18. Government service	1.3	-3.7	-0.1	-0.9)				
Output originating per hectare in								
19. Rice			3.3		0.9	1.8	-1.9	0.3
20. Maize			1.9		6.6	2.9	-3.3	2.1
21. Coconut			0.3					
22. Sugarcane			1.4		7.0	1.3	0.1	2.8
23. Cassava					-3.1	-2.5	-2.7	-2.8
24. All others			4.7		-0.2	-1.3	-1.9	-1.1
25. Population	2.7	3.0	2.7	2.8	2.8	3.0	2.5	2.8
26. Public consumption	4.5	5.0	7.2	5.6	6.0	9.7	9.2	8.3
27. Private consumption	6.x	4.7	5.0	5.4	6.8	7.0	6.3	6.7
28. Gross domestic investment	7.0	8.2	10.5	8.6	4.9	15.8	7.7	9.5
29. Exports (constant)	3.9	2.2	7.0	4.4	5.4	5.2	11.8	7.5
30. Imports (constant)	3.7	7.1	3.4	4.7	11.3	11.2	5.4	9.3

(1) In calculating product per worker of I Sector in 1950s for the Philippines, employment in 1950 is obtained as the average of two estimations: one based on the trend line of 1948 and 1960 censuses, and the other the trend line of 1960 and 1970 censuses. It is done because of the extremely low level of I employment in 1948.

Sources: Unless otherwise indicated, all data are taken from various issues of IBRD World Development Report and IBRD World Tables 1980. Employment data used in computing lines 3, 4, 8-10 and 11-18 mainly from ILO Yearbook of Labour Statistics. Real income originated from crops for Thailand obtained from various issues of National Income of Thailand, area harvested from various issues of FAO Production Yearbook and FAO World Crop Statistics; Area, Production and Yield 1948-64. Official national income publications (National Income of Thailand and NEDA Philippine National Accounts) were used in computing lines 11 to 18.

B. Statistics of Comparative Percentage and Absolute Changes, Philippines and Thailand, 1950 to 1980

	PHILIPPINES				THAILAND			
	1950s	1960s	1970s	% Change	1950s	1960s	1970s	% Change
Percentage of labor force in								
1. Agriculture		61	46	-24.6		84	76	-9.5
2. Industry		15	17	13.3		4	9	125.0
3. Service		24	37	54.2		12	15	25.0
GDP originating in								
4. Agriculture		26	23	-11.5		40	25	-37.5
5. Industry		28	37	32.1		19	29	52.6
(a) Manufacturing		20	26	30.0		13	20	53.8
6. Service		46	40	-13.0		41	46	12.2
External public debt as								
7. % of GNP		9.0	18.2	102.2		5.0	12.4	148.0
No. of enrolled as % of age group in								
8. Primary schools		95	98	3.2		83	82	-1.2
9. Secondary schools		25	63	142.3		13	29	123.1
10. Higher education		13	27	107.7		2	7	250.0

	1950	1960	1970	1980	Ave.	1950	1960	1970	1980	Ave.
Absolute Magnitudes										
11. Population (millions)	20.9	27.4	36.9	48.3	33.4	20.0	26.4	35.7	47.0	32.3
12. Per capita $ GNP			280	690				270	670	
13. Life expectancy at birth (years)		53	57	64	58		52	57	63	57
14. Energy consumption per capita, kg. of coal equivalent (1980 figure is for 1979)		147	301	329	259		60	247	353	220
15. Crude brith rate per 1000		46	43	34	41		44	42	30	39
16. Crude death rate per 1000		15	11	7	11		17	12	8	12
17. Total fertility rate				4.6					4.0	
18. Working age population (15 to 64 yrs.) million persons					22.4					
19. Number of tourists (millions)		0.05	0.1	1.0	0.4		0.1	0.7	2.2	1.0

Sources and Notes: Data from IBRD World Development Reports, various issues, except otherwise noted.

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C. Comparative Financial, Fiscal and Other Data, Thailand and the Philippines, 1950 to 1980

	THAILAND				PHILIPPINES			
	1950s	1960s	1970s	Whole Period	1950s	1960s	1970s	Whole Period
Savings as % of GNP, in averages								
1. Personal savings		10.6	12.1	11.4	8.3	8.8	7.9	8.3
2. Corporate saving		1.7	2.0	1.9	1.3	2.3	3.6	2.4
3. Government saving		3.5	1.9	2.7	1.6	1.4	3.9	2.3
4. Surplus on current account (deficit)		-1.1	-4.6	-1.9	-0.0	-0.3	-3.1	-1.1
Private Consumption Expenditures as % of GNP, in averages								
5. Total consumption	74.2	70.0	67.5	70.6	81.3	76.0	68.1	75.1
6. Non-food	34.4	35.0	37.1	35.5	26.0	26.6	27.9	26.8
7. Clothing and household	16.6	17.5	18.6	17.6	15.0	15.2	15.8	15.3
8. Food as % of Private Consumption Expenditure	49.0	47.5	44.3	46.9	59.0	58.2	56.3	57.9
Central Government Revenue and Expenditures as % of GNP								
9. Total Current Revenue		13.9	14.7	14.3	10.1	11.5	15.4	12.3
10. Direct and Indirect taxes		12.9	13.6	13.3	9.3	10.1	13.6	11.0
11. Subsidies			0.2	0.1	0.3	0.4	0.4	0.4
12. Net lending (borrowing)		3.5	1.9	2.7	-0.2	-0.1	-0.2	-0.2
Prices, growth rates								
13. Consumer prices	3.7	2.2	10.5	5.5	0.7	5.1	15.0	6.9
14. Implicit prices (GNP)	1.7	1.9	10.2	4.6	0.7	5.8	15.5	7.3
15. Foreign exchange	0.1	-0.1	-0.1	-0.03	0.2	6.8	7.0	4.7
Money supply, growth rates								
16. Currency & demand deposits		5.3	13.8	9.6	4.3	9.7	16.7	10.2

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Sources: Lines 1-12 computed from various issues of National Income of Thailand and NEDA Philippine National Accounts; lines 13-15 from IBRD World Tables and Key Indicators of DMCs of ADB (April 1982); line 16 computed from NEDA Philippine Statistical Yearbook 1982 and various issues of Statistical Yearbook of Thailand.

Statistics of Comparative Growth Rates in Malaysia and Indonesia,
Growth Rates in Constant Price, Geometric Rates per Year 1950 to 1980

	MALAYSIA				INDONESIA			
	1950s	1960s	1970s	Whole Period	1950s	1960s	1970s	Whole Period
Overall Growth Rates in								
1. GDP market prices	3.6	6.5	7.8	6.0	4.0	3.5	7.6	5.2
2. GDP per capita	1.0	3.3	5.3	3.2	1.9	2.3	5.7	3.3
3. Employment	2.9	2.1	4.0	3.1		2.2	3.9	3.1
4. GDP per worker	0.7	4.4	3.8	3.0		1.7	3.7	2.7
Sector Growth Rates in								
5. Agricultural product	0.9	5.8	5.1	3.9	2.6	2.7	3.8	3.0
6. Industrial product	3.7	7.0	9.7	6.8	-	5.2	11.1	8.2
7. Service product	1.3	7.2	8.2	5.6	-	4.8	9.2	7.0
8. Agricultural product per worker	0.8	6.1	4.1	3.7		1.9	2.4	2.2
9. Industrial product per worker	0.8	4.9	3.1	2.9		1.2	5.0	3.1
10. Service product per worker	-1.2	3.4	2.9	1.7		0.3	0.8	0.6
Subsector Growth of Product Per Worker in								
11. Mining and quarrying	0.2	1.1	2.0	1.1			-8.2	
12. Construction	-6.0	9.2	0.3	1.2			6.1	
13. Electricity and public utilities	]3.3	7.9	9.4	6.9			4.1	
14. Transport, storage and communication	1.1	4.5	5.8	3.8			6.8	
15. Manufacturing							7.6	
Services								
16. Commerce			1.7				2.7	
17. Personal and others			]5.6				]-1.1	
18. Government service								
19. Population	2.5	2.9	2.4	2.6	2.1	2.0	2.3	2.1
20. Public consumption		7.5	9.9	8.7	-0.4	0.9	12.9	4.5
21. Private consumption		4.2	7.2	5.7	5.0	4.1	8.1	5.7
22. Gross domestic investment		7.5	10.3	8.9	1.9	4.6	14.4	7.0
23. Exports (constant)		5.8	7.4	6.6	4.9	4.0	8.7	5.9
24. Imports (constant)		2.3	7.0	4.7	2.7	2.0	11.9	5.5

Notes:
1) For 1950s data on Malaysia
   Row 1 from IBRD World Tables 1980 and are not exactly consistent with rows 4, 8-10 which were calculated using product data from V.V. Bhanoji Rao, National Accounts of West Malaysia 1947-71.
2) Data for 1950s and 1960s refer to Peninsular Malaysia only.

Sources: Unless otherwise indicated, all data are taken from various issues of IBRD World Development Report and IBRD World Tables 1980. Employment data used in computing lines 3, 4, 8-10 and 11-18 mainly from ILO Yearbook of Labour Statistics. Lines 11 and 17 are computed using product data in V.V. Bhanoji Rao, National Accounts of West Malaysia 1947-71 except data for 1970s which are from Ministry of Finance Economic Report.

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B. Statistics of Comparative Percentage and Absolute Changes, Malaysia and Indonesia, 1950 to 1980

	MALAYSIA				INDONESIA			
	1950s	1960s	1970s	% Change	1950s	1960s	1970s	% Change
Percentage of labor force in								
1. Agriculture		63	50	-20.6		75	58	-22.7
2. Industry		12	16	33.3		8	12	50.0
3. Service		25	34	36.0		17	30	76.5
GDP originating in								
4. Agriculture	39	37	24	-38.5		54	26	-51.9
5. Industry	14	18	37	164.3		14	42	200.0
(a) Manufacturing	6	9	23	283.3		8	9	12.5
6. Service	47	45	39	-17.0		32	32	0.0
External public debt as	1970	1980						
7. % of GNP	10	13.7		37.0		27.1	22.5	
No. of enrolled as % of age group in								
8. Primary schools		96	93	-3.1		71	94	32.4
9. Secondary schools		19	52	173.7		6	22	266.7
10. Higher education		1	3	200.0		1	3	200.0

	1950	1960	1970	1980	Ave.	1950	1960	1970	1980	Ave.
Absolute Magnitudes										
11. Population (millions)	6.3	8.0	10.7	13.6	9.7	76.7	94.7	117.6	147.5	109.1
12. Per capita $ GNP		261	750	1620	877	150	180	225	430	246
13. Life expectancy at birth		53	59	64	59		41	46	53	47
14. Energy consumption per capita (kg. of coal equivalent)		239	469	713	474		125	120	225	157
15. Crude birth rate per 1000		45	38	31	38		46	40	35	40
16. Crude death rate per 1000		9.1	6.8	6.0	7.3		23	18	13	18
17. Total fertility rate				4.2					4.5	

Note: Data for 1950s and 1960s refer to Peninsular Malaysia only.

Source: IBRD World Development Report 1982 & IBRD World Tables 1980.

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Statistics of Comparative Growth Rates in Hong Kong and Singapore,
Growth Rates in Constant Price, Geometric Rates per Year 1950 to 1980

	HONG KONG				SINGAPORE			
	1950s	1960s	1970s	Whole Period	1950s	1960s	1970s	Whole Period
Overall Growth Rates in								
1. GDP market prices	9.2	10.0	9.3	9.5	5.4(1)	8.8	8.5	8.1
2. GDP per capita	4.5	7.2	6.4	6.0	1.3(1)	6.7	7.7	6.2
3. Employment		5.3	4.5	4.8		3.1	4.8	3.3
4. GDP per worker		4.7	5.8	4.7		5.7	3.7	4.8
Sector Growth Rates in								
5. Agricultural product		1.9	-4.6	-1.4		5.0	1.8	3.4
6. Industrial product		7.9	8.2	8.1		12.5	8.8	10.7
7. Service product		11.5	9.8	10.7		7.7	8.5	8.1
8. Agricultural product per worker		8.3	4.9	6.7		10.1	6.7	8.5
9. Industrial product per worker		2.8	3.0	2.9		5.3	4.3	4.8
10. Service product per worker		7.6	4.7	6.2		5.5	3.0	4.3
Subsector Growth of Product Per Worker in Industry								
11. Mining and quarrying						7.0	16.5	11.8
12. Construction		-10.3	5.0	-2.7		11.1	0.9	6.0
13. Electricity and public utilities		21.0	6.9	14.0		8.0	8.9	8.5
14. Transport, storage and communication		-2.2	2.3	0.1		3.7	9.7	6.7
15. Manufacturing		6.3	3.0	4.7		5.0	2.2	3.6
Services								
16. Commerce						7.0	0.5	3.8
17. Personal, government services and others						4.5	8.5	6.5
18. Population	4.5	2.6	2.5	3.2	4.8	2.4	1.5	2.9
19. Working age population		2.8	3.9	3.4		3.3	2.6	3.0
20. Public consumption		8.6	9.4	9.0		12.6	6.4	9.5
21. Private consumption	8.8	8.6	9.5	9.0		5.4	6.8	6.1
22. Gross domestic investment		6.9	12.7	9.8		20.5	6.7	13.6
23. Exports (constant)		12.7	9.4	11.1		4.2	12.0	8.1
24. Imports (constant)		9.2	11.7	10.5		5.9	9.9	7.9

(1) 1956-60

Sources: Unless otherwise indicated, all data are taken from various issues of IBRD World Development Report and IBRD World Tables 1980. Employment data from ILO Yearbook and Labor Statistics. Product used in computing lines 11-18 from official publication on national accounts.

B. Statistics of Comparative Percentage and Absolute Changes, Singapore and Hong Kong, 1950 to 1980

	HONG KONG				SINGAPORE			
	1950s	1960s	1970s	% Change	1950s	1960s	1970s	% Change
Percentage of labor force in								
1. Agriculture		8	3	-62.5		8	2	-75.0
2. Industry		52	57	9.6		23	39	69.6
3. Service		40	40	0.0		69	59	-14.5
GDP originating in								
4. Agriculture		4	1	-75.0		4	1	75.0
5. Industry		39	42	7.7		18	37	105.6
(a) Manufacturing		26	28	7.7		12	28	133.3
6. Service		57	57	0.0		78	62	-20.5
Debt service as % of								
7. GNP		0.3				0.6	2.5	316.7
8. Exports						0.6	1.1	83.3
External public debts as								
9. % of GNP		0.1	1.9	-1800.0		7.9	12.8	62.0
No. of enrolled as % of age group in								
10. Primary schools		87	109	25.3		111	107	-3.6
11. Secondary schools		20	63	215.3		32	59	84.4
12. Higher education		4	11	175.0		6	9	50.0

	1950	1960	1970	1980	Ave.	1950	1960	1970	1980	Ave.
Absolute Magnitudes										
13. Population (millions)	1.97	3.1	3.9	5.1	3.5	1.0	1.6	2.1	2.4	1.8
14. Per capita $ GNP				4420					4430	
15. Life expectancy at birth (years)		67	69	74	70		64	68	72	68
16. Energy consumption per capita (kg. of coal equivalent)		450	1017	1481	983		498	1402	5784	2561
17. Crude birth rate per 1000		35	22	17	25		38	23	17	26
18. Crude death rate per 1000		8	5	5	6		8	5	5	6
19. Total fertility rate			2.2	2.2					1.8	
20. Working age pop. (15-64)mns.	1.75	2.30	3.37		2.47		0.88	1.22	1.58	1.23
21. Number of tourists							630	2562		1596

Source: Same as Part A general sources.

Statistics of Comparative Growth Rates in China and India,
Growth Rates in Constant Price, Geometric Rates per Year 1950 to 1980

	CHINA				INDIA			
	1950s	1960s	1970s	Whole Period	1950s	1960s	1970s	Whole Period
Overall Growth Rates in								
1. GDP market prices	8.9(1)	4.8(2)	6.0	6.0	3.8	3.4	3.6	3.6
2. GDP per capita	5.0(3)	7.8(4)	4.1	5.4	1.9	2.2	1.2	1.8
3. Employment	3.6(1)	2.9(2)	3.7	. 3.3	6.1	-0.9	2.8	2.7
4. GDP per worker	5.3(1)	1.9(2)	2.3	2.7	-2.3	4.3	0.8	0.9
Sector Growth Rates in								
5. Agricultural product	4.9(1)	1.2(2)	3.3	2.8	3.2	1.9	1.9	2.3
6. Industrial product	18.0(1)	12.2(2)	8.9	12.2	5.7	5.4	4.5	5.2
7. Service product	3.1(1)	3.3(2)	3.9	3.5	4.3	4.6	5.2	4.7
8. Agricultural product per worker	2.6(1)	-1.3(2)	2.5	0.7	-3.6	2.9	0.4	-0.1
9. Industrial product per worker	16.6(1)	6.7(2)	1.5	6.8	-0.6	5.4	1.1	2.0
10. Service product per worker	2.7(1)	1.6(2)	0.1	1.3	0.5	4.9	0.7	2.1
Subsector Growth of Product Per Worker in								
11. Mining and quarrying					1.0	5.2	5.4	3.9
12. Construction					-2.1	5.9	-2.1	0.6
13. Electricity and public utilities					6.7	13.1	-3.8	5.3
14. Transport, storage and communication					1.3	1.5	1.7	1.5
15. Manufacturing					-1.0	5.3	2.5	2.3
Services								
16. Commerce					3.4	3.2	1.5	2.7 .
17. Personal and others					]-0.7	6.2	-0.4	1.7
18. Government services								
Yield per hectare in								
19. Rice	2.3(4)	1.1(5)	2.6(6)	2.1	4.3	1.1	2.1	2.5
20. Wheat	3.1(4)	2.2(5)	5.4(6)	4.0	1.7	4.4	1.6	2.6
21. Corn	1.3(4)	0.6(5)	5.0(6)	3.0	5.3	-0.7	0.5	1.7
22. Soybeans	-0.7(4)	-1.2(5)	2.6(6)	0.9			5.9	
23. Tubers	2.2(4)	-2.0(5)	2.7(6)	1.2				
24. Cotton	4.1(4)	5.0(5)	1.1(6)	2.8	1.6	2.8	2.2	2.2
25. Peanuts	-4.6(4)	0.3(5)	1.9(6)	0.2	-0.8	1.3	0.7	0.4
26. Sugarcane	0.0(4)	-0.3(5)	1.0(6)	0.4		1.0	-0.1	0.5
27. Population	2.3	1.9	1.8	2.0	1.9	2.3	2.1	2.1
28. Labor Force	2.8(1)	2.5	2.7	2.7		1.5	1.7	1.6

(1) 1952-57, (2) 1957-70, (3) 1949-62, (4) 1952-57, (5) 1957-65, (6) 1965-79.

Notes: For China, I Sector includes mining, manufacturing and power. All other branches of I sector of usual definition are included in S sector.

Sources: IBRD World Development Report 1982 supplemented by IBRD World Tables 1980 and various country publications, like Statistical Yearbook of China 1981 compiled by the State Statistical Bureau, PRC. Yield per hectare of agricultural products for India computed from various issues of FAO Production Yearbook and FAO World Crop Statistics, 1948-64.

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B. Statistics of Comparative Percentage and Absolute Changes, China & India, 1950 to 1980

	CHINA				INDIA			
	1950s	1960s	1970s	% Change	1950s	1960s	1970s	% Change
Percentage of labor force in								
1. Agriculture	84	82	74	-11.9	71	74	69	-2.8
2. Industry	6	6	13	116.7	13	11	13	0.0
3. Service	10	12	13	30.0	16	15	18	12.5
GDP originating in								
4. Agriculture	58	46	38	-34.5	50	50	37	-26.0
5. Industry	28	44	54	92.9	21	20	26	23.8
a) Manufacturing	20	36	46	130.0	16	14	18	12.5
6. Service	15	9	8	-46.7	29	30	37	27.6

	1950	1960	1970	1980	Ave.	1950	1960	1970	1980	Ave.
Absolute Magnitudes										
7. Population (mn)	541.7(1)	646.5(2)	825.9	982.6	749.2	361.6	434.9	547.6	673.2	504.3
8. Per capita $ GNP				290					240	
9. Life expectancy at birth (yrs.)	36	57		64	61(6)		43	48	52	48(6)
10. Energy consumption per capita, kg. of coal equiv.		560		734(4)	647		111		194(4)	153
11. Crude birth rate per 1000	37.0(3)	34.0(2)	33.6	17.9(4)	30.6		44	40	36	40
12. Crude death rate per 1000	17.0(3)	10.8(2)	7.6	6.2(4)	10.4		22	17	14	18
13. Total fertility rate				2.9					4.9	
14. Working age prop. (15-64 yrs.)				628.9			242.2	298.9	383.7	308.3
15. Gini coefficient				.33(4)					.38(5)	
16. Number of tourists (mn.)				5.7						

(1) 1949, (2) 1957, (3) 1952, (4) 1979, (5) 1975/76, (6) Average of 1960 and 1980.

Notes: Lines 4, 5, & 6 for China refer to those of Net Material Product. I sector includes industry (mining, mftg. & power) and transport and construction. S Sector includes commerce only. 5(a) refer to share of industry (mining, mftg. and power) instead of manufacturing only.

Source: Same as Part A Table.

Notes and References

1/ "Lewis' Dualistic Theory and Postwar Asian Growth", Malayan Economic Review, October 1981; "Further Notes on the Limitations of Growth Theories", Philippine Review of Economics and Business, September/December 1980; "The Ranis-Fei Model of Development", American Economic Review, June 1963; "On the Theory of Underemployment", Journal of Political Economy, June 1958.

2/ See V.D. Wickizer and M.K. Bennett, The Rice Economy of Monsoon Asia, Food Research Institute, Stanford: 1941, pp. 26-27. "Few agricultural alternatives present themselves. Neither wheat, barley, rye nor oats will thrive as summer crops under such conditions of moisture and heat. Millet, grain, sorghums, and maize do better but can equal rice only in areas of lower rainfall — and none can produce as much food per unit of land in the places where lowland rice thrives". (pp. 49-51)

3/ The Pattern of Asia, ed. by N. Ginsburg, New Jersey: 1958, pp. 5-15. "The seasonal heating and cooling of this, the world's largest land mass, makes for major seasonal variations in climate. In winter, when the interior regions are cold, a semi-permanent high pressure belt forms within the northern interior of the continent, and strong, cold winds, outflowing as polar continental air masses from the anti-cyclones within the belt bring winter to most of the continent. In summer, the rapid and continuous heating of the interior results in lower pressures and in the inflow of tropical maritime air from the continent's margin. Since the outflowing winds [from the continent] are land-originated and usually do not pass over large bodies of water, they are dry, and the winters also tend to be dry. Conversely, in the summer the generally weaker inflows of air from the eastern and southern seas are humid and carry with them the moisture that for much of Asia makes summer the rainier season". (p. 7)

4/ For details of the data, see my paper "Seasonality and Underemployment in Monsoon Asia", Philippine Economic Journal, Vol. X, No. 1, First Semester 1971, pp. 73-83. Another approach to the measurement of underemployment is the use of caloric consumption data from the food balance sheets. In Taiwan and Japan where the farm population was fully employed in the 1960s, caloric intake per day was around 2,500 per person compared to an average of around 2,000 for other countries of monsoon Asia where underemployment was extensive.

5/ For further data see ibid., pp. 65-66.

6/ Historical Statistics of the United States, Colonial Times to 1957, A Statistical Abstract Supplement, p. 281, Washington, D.C.: 1961.

7/ For more detailed discussion, Philippine Economic Journal, op.cit., pp. 65-70.

8/ Even with the beginning of the rainy season, the peasant must wait for the heavier rains before the brick-hard earth could be plowed.

This called for timely and concentrated plowing, long hours of work on the seedling beds and transplantation at the optimal time of seedling growth; also harvesting must be at the appropriate time if losses due to over-ripe grains are to be avoided. The implications for need for cooperative work by large number of neighbors are discussed below.

9/ Wickizer and Bennett, op. cit., pp. 11, 112.

10/ In "Food Consumption, Nutrition and Economic Development", Economic Development and Cultural Change, July 1967, pp. 392-393, I argued that about one-half of the caloric intake per day of the average adult Asian is similar to the overhead costs of a firm in that it is fixed and not varying with the work activity of the individual. This fixed part is needed for the basic physiological functions of the human body irrespective of whether the person is sleeping or highly active. The fixed part is determined largely by the size of the human body. This paper goes on to cite the figures of Wickizer and Bennett, op. cit., that due to population increases, per capita consumption of rice by Asians appeared to have fallen during the first half of the 20th century, pp. 391-397.

11/ I argue that one of the reasons for the faster growth of East Asia over Southeast Asia in the postwar decades is the prevalence of Confucian teaching in the former countries. See "Manpower Quality in the Differential Growth of East and Southeast Asia", Philippine Economic Journal, Vol. 19, No. 3, 1980.

12/ See John Wong, editor, Group Farming in Asia, especially chapter by Edward Reed, Singapore University Press: 1979.

13/ Karl A. Wittfogel, Oriental Despotism, pp. 372-375, N.Y.: 1962, points out that Marx elaborated the views of Classical economists (Jones, Adam Smith, John Stuart Mill) that the need to maintain large irrigation and water control systems by a central authority gave rise to nationwide political stability and unity in Asia. But much of monsoon Asia (Korea, Japan, Taiwan, Philippines, Malaysia, Java) do not have large rivers, (Indus, Ganges, Irrawaldy, Mekong, Yangtze, and Yellow rivers) which get their water mainly from the melting snow and rains from the vast plateau and mountain ranges west of China and north of India, Pakistan and Southeast Asia. Moreover, most of the paddy farms even of India, China, Burma, Indo-China, Bangladesh obtain their water directly from the monsoon rains falling in their own territory, from smaller rivers which in turn get their waters directly from the local monsoon rains.

14/ In "Reinterpreting Postwar Japan's Growth", Economic Development and Cultural Change, October 1982, I have argued that one of the reasons for the rapid growth has been the ability of various groups in Japan to work closely together. I have discussed the nature of the 20th century industrial technology requiring cooperation in the "Growth of Factor Productivity in the US the Significance of New Technologies in the Early Decades of the 20th Century", forthcoming in the Journal of Economic History.

Confucian ethics may be said to be the philosophy of monsoon paddy agriculture, extolling and reinforcing the virtues of harmony as the key to social and political stability, and compromise, moderation, diligence, cooperation, and integrity as the means to achieve harmony. A.F. Wright, editor, Confucian Personalities, p. 5, Stanford: 1962; "Confucians of all ages viewed the natural and human worlds as an organism made of multitudiness, interconnected parts. When any one of the parts fell from its place or was disrupted in its functioning, the harmony of the whole was impaired". The modern industrial plant has become since the early decades of the 20th century increasingly an organism of interconnected parts where stoppage in one part means the whole plant must be closed down, unlike the factory in the 19th century, with non-serialized, individual machines. See on this the writings of Thorstein Veblen who lived at a time when the steam-driven technology of the First Industrial Revolution was being replaced by the Second Industrial Revolution of the electric-drive.

15/ "Monsoon Asia Falls Behind the West Since the 17th Century", School of Economics, University of the Philippines, (mimeo), April, 1982.

16/ Elsewhere I have defined underemployment as insufficient amount of work throughout the year. Underemployment cannot be adequately measured by hours or days of work per year in the slack seasons, the number of workers available for work are so large that a worker doing a full day's may not be working intensively. For example, in the case of peddlers, stall-keepers, tricycle drivers, and so on, although on the job for full day, the amount of work done (or sales transacted) may actually take no more than a few hours. Or the peasants working on irrigation and other construction projects with plenty of time on hand, (or being paid poorly) may go about their work leisurely. Nor should availability for work be defined as those "looking for work" as in the usual labor force definition. In the dry seasons, villagers know quite well that work is not available and it will look ridiculous for them tr go around asking for work. It is 'the willingness to work at the going wage rates that is important, and the going rate being low, the intensity of work is also low since a higher intensity may raise the calorie-cost of the work he is doing above the food calories he can buy with the wages he receive.

17/ See Philippine Economic Journal cited in footnote 4 above, First Semester 1971.

18/ I have argued against the constant-wage assumption of the dualist theorists in the Malayan Economic Review, October 1981.

19/ Further notes on social obligations in Asian countries are found in the Philippine Review of Economics and Business, December 1977.

20/ The competitiveness of labor-intensive manufactures can rise rapidly once Asian entrepreneurs and workers gain some experience because, unlike in the 19th century and pre-World War II decades, small but efficient machines can be readily imported and need not wait for innovation to take place.

21/ "Multiple-Cropping in Asian Development: Summary and Further Research", Philippine Economic Journal, Special Issue in Multiple-Cropping in Asia, Nos. 1 & 2, 1975.

22/ Also as transport, communication, utilities, finances, educational and health opportunities are made available increasingly in various parts of the rural hinterland, regional disparities start to decline. See "Trends in Growth and Distribution of Income in Selected Asian Countries", Philippine Economic Journal, No. 3, 1976, and "Perspectives on Trends in Asian Household Income", Ekonomi Dan Keuangan Indonesia, March 1982.

23/ Simon Kuznets, Share of the Upper Income Groups in Income and Savings, NBER, N.Y.; 1953.

24/ In this paragraph, the growth rate of family income is equal to the growth rate of family consumption multiplied by family's average propensity to consume plus the growth rate of family saving multiplied by the propensity to save.

25/ For the similarities in the pattern of growth, see K.S. Kim and M. Roemer, Growth and Structural Transformation, pp. 147-152, Harvard: 1979.

26/ From Essays in Contemporary Economic Problems: Demand Productivity and Population, edited by William Fellner, p. 129, Washington, D.C.: 1981.

27/ See Toshiyuki Mizoguchi from sources cited in Table 1.

28/ Roberto Repetto and Associates, Economic Development, Population Policy, and Demographic Transition in the Republic of Korea, p. 49, Harvard: 1981.

29/ Agricultural real incomes from the national accounts; the number of farm households and per cent of nonfarm incomes from Taiwan Agricultural Statistics 1961-1975, Joint Commission for Rural Reconstruction (JCRR) Taipei: 1978. Japanese estimates based on data from various issues of the Japan Statistical Yearbook, Tokyo. For the earlier years, production data from Y.M. Ho, Agricultural Development of Taiwan, Vanderbilt: 1966, p. 19; also T.H. Lee in Agriculture's Place in the Strategy of Development: the Taiwan Experience, ed. by T.H. Shen, p. 69, Taipei: 1974.

30/ Agricultural real incomes from National Income in Korea, Bank of Korea, and number of farm households from Korean Statistical Yearbook.

31/ See discussion in Chapter 2 by Erik Thorbecke in Economic Growth and Structural Change, ed. by W. Galenson, Cornel: 1979, and Rural Development by S.H. Ban, P.Y. Moon, and D.H. Perkins, Harvard: 1980, especially Chapters 3 & 4. Also see Korea: Policy Issues for Long-Term Development by Parvez Hassen and D.C. Rao, World Bank Country Report, John Hopkins Press: 1979. For Japan, see my EDCC paper, op. cit. Multiple-cropping ratio computed from One Hundred Years of Agricultural Statistics of Japan, Korean Statistical Yearbook, and Taiwan Agricultural Statistics, 1961-1975.

32/ Data from ibid. See also Sloboda in note 45, p. 110.

33/ Data from ILO's Yearbook of Labor Statistics.

34/ Data from sources in 31/ besides Agriculture's Place in the Strategy of Development, Taiwan's Experience, ed. by T.H. Shen, Taipei: 1974.

35/ Japan and Korea data from FAO Production Yearbook 1980 and Taiwan data from Thorbecke, op. cit.

36/ EDCC, October 1982.

37/ See discussions in Rural Development, op. cit., especially chapters 9 and 12.

38/ T.H. Shen in Agriculture's Place in the Strategy of Development, pp. 355-356, op. cit. Also pp. 143-149 on local government by S.C. Hsu, pp. 150-159 on irrigation associations by C.Y. Feng, pp. 193-199 on extension services by Y.K. Yang and C.H. Huang on research, pp. 200-210. Compare these pages with those of Chapter 9 (by Vincent Brandt) in Rural Development op. cit.; only in the 1970's with the Saemaul Movement that some changes were made.

39/ Papers by W.F. Hsu, Y.K. Mao, and Y.C. Hsu in Agriculture's Place ... ibid. Also paper by Wangyong Kuo in Multiple-Cropping in Asian Development, Philippine Economic Journal, Nos. 1 & 2, 1975.

40/ Compare discussion by T.H. Lee, Intersectoral Capital Flows in the Economic Development of Taiwan, 1860-1970, New Haven: 1978 and Chapter 2 on Rural Development, op. cit. On services rendered by local governments and farmers' association, see T.H. Shen, op. cit., pp. 354-364. Data on government expenditures from The Six Year Plan for Economic Development of Taiwan, 1976-1981 and from Statistical Yearbook of Korea.

41/ On capital transfers, see T.H. Lee, op. cit. On farm export contribution, see K.S. Liang, "Agricultural Trade and Economic Development in Taiwan", Philippine Economic Journal, Nos. 1 & 2, 1975 op. cit., data on p. 184 show that 54 per cent of imports were financed by farm exports during the crucial years 1953 to 1965, and if it were computed on value-added basis the percentage may be substantially higher since imports requirements of agricultural exports were only one-third those of manufacturing exports in 1969, p. 189.

42/ Estimated on the basis of data on farm family income and expenditure as noted in above sources, converted to US dollar basis using IBRD currency conversion data.

43/ Data for 1975 and 1981 from the Statistical Yearbook of the Republic of China and Major Statistics of the Korean Economy. Japan Statistical Yearbook, 1982 for data on transplanting and reaping machines.

44/ See chapter by T.H. Shen and Y.T. Wang on technology in Agriculture's Place in the Strategy of Development, ed. by T.H. Shen, op. cit.

45/ See D.Y. Kim and J.E. Sloboda's chapter on migration in R. Repetto and Associates, Economic Development, Population Policy, and Demographic Transition in the Republic of Korea, p. 61, Harvard: 1980. Net rural-urban migration was 2,300,000 in 1966-1970 and 1,687,000 in 1970-1975.

46/ Rural Development, op. cit., pp. 14 & 15; Korea, Policy Issues for Long-Term Development, p. 260.

47/ Data from Statistical Yearbook of the respective nations. A cursory glance at the topograhic maps of the Republic of Korea and Taiwan would bear out the data on density since Taiwan appears to be even more mountainous than the Republic of Korea.

48/ See A. Krueger, The Development Role of the Foreign Sector and AID, Harvard: 1979. Data on agriculture production and food imports from Major Statistics of Korean Economy.

49/ For Kim and Sloboda discussion, see the Repetto volume, cited above, pp. 109-113; for the Ranis discussion, see the Galenson volume, op. cit., pp. 222-228, No. 32, 1976, and my paper (jointly with W.H. Lai), "Labor Absorption in Taiwan" presented at the Conference on Manpower Problems in East and Southeast Asia, Singapore 1971, and reprinted in the Philippine Economic Journal, Special Issue on Labor Absorption, Nos. 1 & 2, 1976, pp. 139-182, Ranis shows that paved highways/railways per square kilometers of area was 50 per cent greater in Taiwan in 1973/1974. For Bandt's discussion, see Rural Development, op. cit., pp. 157-158.

50/ In Mason and Associates, The Economic and Social Modernization of the Republic of Korea, pp. 163-164, Harvard: 1980; it is said that the rise in the wage/rental ratio made necessary the export of heavy industrial products "to sustain the momentum of export-oriented industrialization". But a large part of the rise was the outcome of a policy of export-oriented strategy.

51/ This section on heavy industries is a summary of my paper, "Problems of Heavy Industrialization in Asia", Philippine Review of Economics and Business, March 1983.

52/ For data on 1981 output of various industries and production capacities, see Major Statistics of Korean Economy, 1982.

53/ Data from Major Statistics of Korean Economy and Statistical Yearbook of the Republic of China.

54/ On export value-added, see IBRD, Korea, op. cit., p. 233.

55/ See C. Johnson, MITI and the Japanese Miracle, Stanford: 1982, for discussion not only of MITI's role but of the over-all role of the Japanese State in development. On Korea, see P. Hassan, Korea, Problems and Issue in a Rapidly Growing Economy, IBRD, John Hopkins Press: 1976, pp. 124-146 on the need for decentralized industrial planning. A less authoritarian central government in Taipei would have speeded up the mechanization of agriculture, and avoided the troubles Taiwan is having with its high cost petrochemical and aluminum production.

56/ In my view, one secret of Japanese success in the postwar decades has been the high level of motivation reached by Japanese Manpower. See EDDC, April 1982.

57/ Because of these changes, it is important to take a longer span of time than a decade or even two decades when studying economic growth, as Kuznets has insisted.

The data for Southeast Asian countries in general are much weaker than for East Asia, and their interpretations are more difficult. The basic data for the national accounts are not as plentiful and more difficult to collect than in East Asia, while the limitation in the application of labor force and employment concepts to Southeast Asian conditions are greater than in East Asia, as pointed out elsewhere.

58/ Asian data from my paper "Sector Sources of Postwar Growth of the Philippines in Comparative Perspective", Philippine Economic Journal, forthcoming; and S. Kuznets, Economic Growth of Nations, Table 11, Harvard: 1971.

59/ See for details, Asian Development Review, Vol. 1, No. 1, 1983.

60/ See discussion in "Perspectives on Trends in Asian Household Income Distribution", Ekonomi dan Keuangan Indonesia, March 1982.

61/ Malaysia, see various World Bank reports; on Thailand see among others, T.H. Silcock, ed., Thailand, Social and Economic Studies, Chapters 1, 3 & 4, Australian National University: 1967; also J. Ingram, Economic Change in Thailand, 1850-1970, Second Edition, Stanford: 1971, Chapter 11. Also references to be cited below.

62/ Rural family incomes data from Fourth Malaysia Plan, op. cit., Table 3-9. Agricultural family incomes estimated from FAO data on agricultural population divided by average family size of Malay and Indian households from ibid., real agricultural product from national accounts which does not include off-farm incomes. The latter may not have changed very much in the 1960s and were small, about 10 per cent.

63/ I am told that to get to harvest the palm oil trees, coconut cutters from Hawaii were tried but were not successful because of the uneven terrain.

64/ Estimated by using number of household from the censuses of 1947, 1960, and 1970 and extending 1970 total to 1980 by the increase in agricultural employment as shown in the 1970 and 1980 censuses. Household income growth from national accounts. Product per worker data from Appendix tables.

65/ FAO Production Yearbook, 1980.

66/ See ibid.

67/ See data from FAO Yearbook discussed in Philippine Economic Journal, ibid., forthcoming.

68/ Computed from agricultural censuses.

69/ Data from ibid.

70/ See discussion in ibid.

71/ See basic data from the national accounts of the two countries.

72/ See Economic Development and Cultural Change, October 1982.

73/ Based on estimates of Filipina S. Echavez, Output Growth and Structural Change in Postwar Philippine Manufacturing, unpublished M.A. Thesis, University of the Philippines, School of Economics, Quezon City, 1982. A dimmer view of the ASEAN Fours' projects is given by Ulrich Hiemenz, Industrial Growth and Employment in Developing Asian Countries: Issues and Perspectives for the Coming Decade, Asian Development Bank, Manila: 1982. He emphasizes strongly the damaging effects of the import-substitution policies of all Four. See also Rashid Amjad, Development of Labour Intensive Industry in ASEAN Countries, ARTEP, ILO, Bangkok: 1981.

74/ The foregoing hypotheses are suggested by the data, information, and historical experience of each of the countries as described in various volumes. For Malaysia, R. Emerson, Malaysia: A Study in Direct and Indirect Rule, N.Y.: 1937; S.S. Bedlington, Malaysia and Singapore, Cornell: 1978; T.H. Silcock and E.K. Fisk, The Political Economy of Independent Malaya, Canberra: 1963; Lim Chong-Yah, Economic Development of Modern Malaya, Oxford: 1967. For Thailand, J.C. Ingram, Economic Change in Thailand, 1850-1970, Stanford: 1971; R. Muscat, Development Strategy in Thailand, London: 1966; C.C. Zinmerman, Siam, Rural Economic Survey, 1930-1931, Bangkok: 1931; G.W. Skinner and A.T. Kirsch, Change and Persistence in Thai Society, Cornell: 1975; T.H. Silcock, ed., Thailand, Social and Economic Studies in Development, Canberra: 1967. For Indonesia, C. Geertz, The Religion of Java, New York: 1964; also Agricultural Involution, Berkeley: 1966; A. Booth and P. McCawley, The Indonesian Economy during the Soeharto Era, Oxford: 1981. For the Philippines, P. Golay, The Philippines Public Policy and the National Economic Development, Cornell: 1961; ILO, Sharing in Development in the Philippines, Manila: 1974; G.P. Sicat and others, Economics and Development: an Introduction, Quezon City: 1965; O.D. Corpuz, The Bureaucracy in the Philippines, Manila: 1957. These are just a few of the volumes delving into the prewar history. For a long list, see the latest edition of the Area Handbook for each country published by the Foreign Area Studies, American University, Washington, D.C. These handbooks also give concise summaries of the historical background of each country.

Ed. C. de Jesus notes that one industry dominated by the Spaniards was the tobacco monopoly and this "softened the jibe that the Philippines was no more than an Anglo-Chinese Colony flying the Spanish flag. This control, however, rested less on the commercial acumen or entrepreneurial daring of individual Spaniards as on the plain fact of a government fiat". See his Tobacco Monopoly in the Philippines, Manila: 1980, p. 197.

75/ See M. Tsuda, "Understanding Industrial Relations in the Philippines: The Perspectives of Resident Japanese Investors" Philippine Journal of Industrial Relations, Vol. 1, No. 1.

76/ Compared to the hustle and bustle of East and Southeast Asian cities, Manila stands out as a relaxed city with greater emphasis on leisure and pleasure.

Bell Commission Report to the President of the US, Economic Survey Mission to the Philippines, Washington, D.C.: 1950, pp. 1 & 12.

77/ See my "Manpower Quality in the Differential Growth Between East and Southeast Asia", Philippine Economic Journal, No. 3 & 4, 1980 which is an extension of a paper in the Philippine Review of Economics and Business, 1978.

78/ For discussion on Confucianism and its impact of society, see A.F. Wright, D. Twitcheet, editors, <u>Confucian Personalities</u>, Stanford: 1962; A.F. Wright, editor, <u>The Confucian Persuasion</u>, Stanford: 1960; A.F. Wright and D.S. Nivison, <u>Confucianism in Action</u>, Stanford: 1959.

These are impressionistic assessment of relative efficiencies of governments. Unfortunately there are no adequate methodologies for such assessments of an institution that is most important for the growth of lesser developed countries. They are offered because it is vital that such assessments be made. It must be admitted that though the present writer has travelled in the past couple of decades more than a score times and lived for substantial periods in most of the East Asian and ASEAN countries, (enabling the present writer to be a consumer of a large range of government services), the judgment is highly speculative and even a qualitative description of standards of governmental efficiencies cannot be presented. Perhaps the extent of corruption can be a proxy for efficiencies and effectiveness and here there seems to be some consensus that it is least in Singapore, followed by Malaysia and then in Thailand, and that it is less in the East Asian Four than in the ASEAN Four.

79/ J. England and J. Rear, <u>Chinese Labour Under British Rule</u>, Oxford University Press, Hong Kong: 1957. In 1947, 50 million US dollars came in from China, together with 228 Shanghai concerns, p. 25.

80/ See T. Mizoguchi and H. Oshima, editors, <u>Income Distribution by Sectors and Overtime in East and Southeast Asian Countries</u>, CAMS-Hitotsubashi Seminar papers, September 1977, Tokyo: 1979.

81/ See data in Appendix Tables. These demographic consequences of the entry into an industrial society are discussed further in my note, "Fertility Trends in Postwar East and Southeast Asia", (mimeo), School of Economics, Feb. 1983.

82/ See <u>IBRD World Development Report 1980</u>; also higher index of food production per capita.

83/ See <u>Almanac of Chinese Economy</u>, Chapter 5, Beijing, 1981.

84/ Data from "Problems of Heavy Industrialization in Asian Development", <u>Philippine Review of Economics and Business</u>, forthcoming; this paper goes further into the discussion of the problem of heavy industries.

85/ See Chalmers Johnson, <u>MITI and the Japanese Miracle</u>, Stanford: 1982.

86/ It may be added that the systematic, over-all industrial policy now widely practices by Japan, West Germany, and France, is likely to

be adopted by the US, UK and other Anglo-Saxon countries where traditionally laissez-faire ideology has been dominant and whose influence has extended to the ASEAN countries. One reason for this may be that 20th century technology as it has evolved in the postwar decades has become too dynamic, complex and costly for individual enterprises and their ramifications for other sectors and the nation have become too extensive. For example, the slowdown in many countries which have been doing well before the war such as Argentina, Uruguay, Australia and so on are in part laid to wrong choice of costly industries which cannot be easily abandoned, in addition to the widespread view that industrial policies have contributed to the rapid growth of Japan, Germany, and France and their absence to the declining international competitive power of the US and UK in the postwar decades.