

**Size-structure of manufacturing establishments and the productivity  
differentials between large and small firms:**  
*A comparative study of Asian economies.*

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***Introduction.***

The determinants of the size distribution of enterprises in manufacturing, and the role of small-medium enterprises in economic development, constitute an important area of interest but lacks detailed empirical work. This paper attempts to compare the size distribution of employment and value added in manufacturing for a number of Asian countries, and provide some tentative conclusions about the factors affecting the differences in the patterns of distribution.<sup>1</sup> A point to be made at the outset is that any comparative study of this kind can make sense only if we exclude the household enterprises-- those establishments which depend mainly on labor supplied by the members of the household and are often operated from the premises of the household residence. Estimates of manufacturing employment accounted for by household enterprises can vary greatly according to the definitions used. The range of figures depend very much on the treatment of part-time workers who are an important feature of such enterprises. Accordingly in what follows we would like to confine ourselves to the non-household manufacturing enterprises.

Very little is lost by excluding household enterprises from the purview of our study. At one time all manufacturing activity took place in such establishments. Their share in manufacturing employment is reduced with economic growth as modern technology makes inroads into the traditional methods of production. Household manufacturing is for technical reasons confined to a very few industries. In India in the early eighties, three quarters of total employment in household manufacturing was accounted for five two-digit industries: food, cotton textiles, textile products , wood and furniture and non-metallic minerals (Mazumdar 1983, table 5). The situation is much the same in most developing countries. A more interesting subject then is the comparative experience of countries in absorbing modern manufacturing technology in non-household establishments, and the varying size structures which evolved in the process. The industrial censuses of most countries have a lower cut-off point usually around units

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<sup>1</sup>This paper builds on an earlier invited review paper Berry and Mazumdar (1991). The fact that little work seems to have been done since on the inter-country differences between size distribution in manufacturing, even for Asia, points to a serious lacuna in the research program. This paper treats the

employing less than 5 workers. We shall therefore confine ourselves to the size distribution within the formal or modern manufacturing sector.

Distribution by size-groups in manufacturing could be considered with respect to either value added or employment. In fact, the former is the more basic of the two and is the product of two separate variables: first, the distribution of employment by size groups; and second, the differences in productivity or value added per worker as between size groups. In what follows we will work with these two variables to shed more light on the economic processes involved. Wages generally increase proportionately with labor productivity (Berry and Mazumdar). Thus the extent of productivity differentials between small and large units would reflect differences in wage levels between them. In so far as informal sector undertakings would have wage and productivity near to the levels found in the smallest size group in the formal sector, the large-small productivity differential in the formal sector would also be a measure of the economic distance between the informal and the formal sector firms in the economy concerned.

*Size distribution, productivity gap and economic welfare.*

Turning to the question of economic welfare, the two variables mentioned have implications for both economic efficiency and the distribution of earnings or labor income. A very large productivity differential implies that factor prices facing firms of different sizes are widely different, and hence factor ratios (particularly the capital-labor ratio) also vary widely. Thus we could expect the ratios of marginal products of capital and labor to be very different among enterprises of different sizes implying that economic efficiency could be improved significantly by reducing the differentials in factor prices and the resultant misallocation of inputs. The extent of the loss in efficiency would also be determined by the numbers of enterprises with 'inappropriate' factor ratios-- and hence by the pattern of distribution of firms in the different size classes.

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available material with a broad brush for manufacturing as a whole. Its purpose is to set the stage for more intensive and detailed work at the individual industry level.

Both factors also affect the distribution of labor earnings. Given the size distribution of employment, the larger the productivity (and hence wage) differential between the size classes, the more unequal would be the distribution of wage earnings. For a given productivity differential the worst scenario for unequal distribution of earnings is the concentration of employment in the small and very large size groups, with the middle size groups conspicuous by their virtual absence. Since in Asian economies the modern or 'formal' manufacturing sector (the part under the purview of the Census of Manufacturing) exists side by side with a large 'informal' manufacturing sector, the existence of a distribution of employment heavily skewed to the large size groups would precisely signify the existence of this kind of bi-polar distribution for manufacturing employment as a whole.

Our discussion of the empirical material on the comparative experience on size distribution in Asian manufacturing is prefaced by a theoretical discussion of the factors which typically affect the nature of the distribution in a particular economy. This is done in Section I. Section II presents the results for selected Asian countries for which data were readily available around the mid-eighties. The discussion in this section reveals a rather interesting discussion between Taiwan and Korea in the differences in size distribution and its evolution over time. We therefore pursue the examination of this difference and the factors affecting it more intensively in Section III. Japan is one country in Asia where the size distribution in manufacturing-- its 'industrial dualism and the role of small-medium enterprises in her industrialization-- has been the subject of much discussion. In the last section we examine our findings for the various Asian countries set against the evolving record of Japan's size structure over a long period of time, We would want to know if major shifts in size distribution occurred as Japan emerged as a major industrialized economy. Section IV concludes with some suggestions for future research.

*Section I. Factors affecting size distribution of employment and the productivity differentials between size groups.*

*1. Segmentation of Factor Markets.*

The major variable affecting size distribution and the economic distance between small and large firms<sup>2</sup> is the segmentation in the markets of the two major factors of production-- capital and labor. If the markets of these factors facing firms of different sizes were not markedly differentiated then we would expect to see *ceteris paribus* a relatively small difference in capital-labor ratios across firm size groups, and hence limited difference in labor productivity. Also the various other factors affecting the size of firms-- growth of firms, type of industry, supply of entrepreneurship-- could be expected to operate in a relatively random fashion. Thus the size distribution of firms (in terms of employment) could be expected to approximate a normal distribution with an extended, low plateau.

On the other hand, if there are major difference in the way markets of capital and labor operate for large and small firms, we would expect to find widely different capital-labor ratios by size class-- which will affect the distribution of firms as well as relative levels of labor productivity by size group.

It is argued below that segmentation in the market for capital rather than for labor is of more importance in the working of factor markets as it affects the economics of firms of different size classes. Hence we start with a discussion of capital markets.

*Capital Market Segmentation.*

This topic has been much discussed in the literature. Hence it is sufficient to summarize the major point briefly. In most economies capital is available much more readily and at a much cheaper price to the larger enterprises, particularly from the formal financial

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<sup>2</sup>There is, of course, a distinction between a 'firm' meaning the controlling management authority and an 'establishment or plant meaning a producing unit. In this paper, however, no such distinction is made. Most of the data reported are for establishments or plants. We, however, use the word 'firm' and 'establishment' or 'enterprise' interchangeably.

sector. To begin with it should be emphasized that a great deal of finance, in the start-up stage and subsequently, is supplied by the entrepreneur's personal savings and retained profits of the business. The unequal distribution of wealth in the economy already ensures that self-finance is available in larger amounts to the large firm. To offset this financial institutions need to be able and willing to provide a *larger proportion* of finance to the small establishment. But the working of capital markets in most economies—developed as well as developing—ensures that the outcome is exactly the opposite.

Even when lenders are competitive the cost of lending to a small borrower are likely to be substantially larger. The expected yield of a portfolio of loans (of given terms) will rise with the expenditure on acquiring knowledge of borrowers and what they are likely to do with the money, so that the proportion of bad debts is reduced. There is clearly an optimum expenditure on investigation. But it is extremely unlikely that this optimum will increase proportionately with the size of the firm taking the loan. There is a fixed cost of gathering information about the borrower which is invariant to the firm or loan size. Indeed, the fixed cost might be larger for small loans since such loans go to operators who may not keep records and who often do not have long experience or ascertainable track record. With very small loans investigation is virtually excluded so that lending is usually confined to those who have good knowledge of the borrower and which is therefore costless—friends, relatives and business contacts. The unequal distribution of income in society ensures that funds from these sources are necessarily limited.

The segmentation in capital markets is thus endemic in capitalist economies with unequal distribution, and is likely to be accentuated in developing countries in which the formal financial structure is more easily accessible to the “modern” economy dominated by larger firms. The tie-up of the industrial and financial structure through large conglomerates like the *zaibatsu* in Japan or the *chaebol* in Korea works powerfully in the direction of deepening the segmentation. Further, it has been very often made worse by government policies-- which include financial policies depressing the cost of loans

from the formal banking sector, as well as industrial policies making it easier for large firms to avail themselves of the cheap loans.

*Labor Market Segmentation.*

While the price of capital is lower for the large firms compared to the small ones, the price of labor is higher. There is a large amount of evidence to show that wages (including benefits) increase strongly with firm size and that the small-large wage differential is much larger in developing economies than in the industrial developed countries.<sup>3</sup>

As a first thought it might be concluded that labor market segmentation, by making wage cost higher for larger firms, offsets, at least to some extent, the advantage which capital market segmentation provides them in the form of lower capital costs. It might be suggested that the two types of “distortions” in the factor markets, pulling in opposite directions, would result in rather similar levels of total factor costs for small and large firms. This might indeed be one reason why we often see the co-existence of firms of different sizes with different factor-ratios even in the same product line. This line of reasoning, however, is not complete because it leaves out of consideration one important feature of factor markets -- a basic difference between the two factors being considered, labor and capital. Labor has two dimensions to its supply-- quantity and quality, whereas capital as a financial magnitude is a one-dimensional factor. A dollar is a dollar, and an increase in the unit price of capital in dollars fully represents an increase in its cost to the firm. On the other hand, a higher wage per worker facing the large firm could be, and is generally compensated for at least in part, by the higher efficiency of the workforce -- so that the difference in wage cost per a unit of standard efficiency of labor between firms of different size groups is much less than the difference in wage per worker. The lower unit price of capital for the large firm is thus offset only to a small extent, if at all, by a higher cost of an efficiency unit of labor.

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<sup>3</sup>For some evidence in Asia see Yasuba 1976; Little, Mazumdar and Page 1987, Chapter 14; Wan-wen Chu 1997. For Africa see Amsden (1997), Mazumdar (1994). The magnitude of the differentials reported in these studies might be contrasted with that discussed for developed countries in, e.g., Brown and Medoff (1979).

If this reasoning is correct, and the hypothesis is supported by evidence, two conclusions follow. First, the small scale sector in the economy would be smaller than it would have been otherwise in the absence of factor market segmentation. Secondly, the capital intensity, defined as the ratio of capital per *worker (measured in numbers, not efficiency units)* would be larger than otherwise. Both factors would be welfare-reducing in terms of efficiency and equity.

What is the evidence that labor is a factor with two dimensions as suggested, and that efficiency adjusts to the wage level in a way which keeps the wage cost difference from being as wide as differences in wages per worker?

A rather spectacular evidence on this point is provided by the record of adjustment to a steep hike in minimum wages in Puerto Rico in the 1950s. Under pressure from business interests in mainland United States the federal minimum wage was extended to Puerto Rico in 1954, causing the average wage levels in Puerto Rico industry to increase dramatically overnight. The reaction of the industry to the wage hike was equally dramatic and immediate. Employers responded by increasing labor productivity to compensate for the wage increase. The reduction of labor per unit of output also implied a reduction of labor per unit of capital. But unlike the prediction of standard neo-classical models, the increase in capital intensity was not attained by a substitution of capital for labor in the production technology—the period of adjustment was too short for any large change in mechanization or the installation of new machines. Rather the capital-labor ratio was increase by simply reducing the labor employed to work the existing stock of machines. The fact that employers were able to achieve this without any significant fall in capital productivity implied that each worker was now operating at a much higher level of efficiency: the supply of efficiency units per worker was increased to compensate for the increase in wages. The industry achieved this by changing the system of labor deployment—managing the reduced workforce with a reorganized schedule of tasks. Evidently the use of labor was slack under the older labor system. The wage hike gave the spur to a rationalized system of labor deployment (see Gregory and Reynolds for details; also the summary in Mazumdar 1979).

The Puerto Rican experience is the best recorded example which shows that under surplus labor market conditions in developing countries, factories often operate with slack labor systems, and there is often considerable scope of increasing labor efficiency when wages are increased through institutional pressures.

Another example of the close relationship of labor efficiency and wage levels comes from Eastern and South Africa, where for a long time, under the colonial regimes, manufacturing industry depended on the migratory labor system, under which the labor used spent only a part of the year in urban factory work, and the rest of the time in rural occupations. There was widespread feeling among social scientists, reflected in the findings of several official commissions on labor,<sup>4</sup> that the wage-levels offered by industry were not high enough to attract stable labor, settled in town, and that this migratory system of labor use was responsible for low productivity. A particularly careful study of a Dunlop factory in Durban, South Africa found that the productivity of migrant labor which spent only three months in the year in the manufacturing job was as low as one-third of the potential of a stable African worker (Natal University 1950). The persistence of the migrant labor system in this region was no doubt partly due to political opposition of the regime to the permanent settlement of black American in the urban areas, and also to the vested interest of unions of white workers in South Africa who wanted to protect the high wages of their more productive members. But it is also important to note that a labor system, which has settled down to a low productivity-low wage equilibrium, can only be jolted out of its inertia by external pressures. Such a pressure came in the form of minimum wage legislation in a number of African countries in the early post-colonial years which led to a massive lift in the wage levels.<sup>5</sup> The result was a drastic fall in labor turnover-- it was cut to one-third of its 1953 level by 1968 in Nairobi, for example (Collier and Lal 1985)-- and a lift in labor productivity and its growth rate.<sup>6</sup>

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<sup>4</sup>Cf., for example, the Royal Commission on East Africa 1955; Report on the Committee on African Wages, Nairobi, 1954.

<sup>5</sup>The rates of growth of real wages in the 1961-65 period ranged between 8.0 and 15.2 per cent per annum in Kenya, Uganda, Tanzania and Zambia (Mazumdar 1989, p.108, calculated from ILO Yearbook figures).

The close relationship between labor efficiency and wage levels also provide a clue to the explanation of wage differentials between large and small firms. Although at first sight such differentials might suggest the role of powerful institutions - state wage setting machinery or trade unions-- closer scrutiny often reveals that the influence of institutions

has been marginal. The author has investigated the historical evolution of labor markets in Bombay City over a number of years. I was associated with a detailed study of wage levels by size of enterprise and their determinants in the late seventies, carried out in association with Bombay University (Mazumdar 1984). A telling piece of evidence suggesting that productivity differences rather than labor legislation are at the heart of wage differences by firm size emerges from the study. If labor legislation were the critical factor in elevating wages, then we would expect to find a high level of wages prevailing in establishments coming under the purview of labor laws as compared to units outside the scope of the act; and there would be relatively little increase in wages with size *within* the sector covered by the labor laws. But the Bombay study found that this was not so. After controlling for human capital attributes and other control variables, the importance of the employment size of the enterprise for the earnings level of the worker was very large, as was the extent of the differential-- workers in the largest factories (1000+) earned twice as much as those in small establishments, and three times as much as casual workers. But contrary to expectations the boundaries of the Factory Act did not distinguish the high and low wage sectors. Earnings per worker went up with increasing size classes even within the "factory sector" i.e., the firms covered by the prevailing labor legislation. Only at the employment size of 500-999 workers did the earnings level seemed to have reached a plateau. Wage boards at this time were responsible for laying down awards on wage levels for different classes of workers. But it appears from their depositions that one of the principles of wage determination followed by the commissioners was the "capacity to pay" of the unit in question. Thus the boards implicitly related wage levels to the productivity of the units concerned, and this way they institutionalized the differences in productivity and wage levels by size groups which already existed in the market.

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<sup>6</sup>This transformation, of course, implied a low, and in many cases, a negative rate of growth of employment in the formal manufacturing sector which attracted the attention of some commentators. Cf.

My earlier work on the historical evolution of wage structures confirms that the wage differential in favor of the large factories vis-à-vis other smaller establishments in the city predates the coming of wage-fixing institutions and even trade unions. Since profit maximizing employers were paying wages in excess of what was prevailing in other types of employment in the same labor market, it is possible to conclude that they would do so if labor efficiency were perceived to increase at least as much as wages per worker.<sup>7</sup>

*Degree of capital market segmentation and the size distribution of employment.*

The relationship between the degree of capital market segmentation and the pattern of distribution of employment by size-groups in manufacturing is not altogether clear-cut. We can expect that the country which suffers from a more severe form of capital market segmentation will have a smaller proportion of *net value added* produced in small firms. But it does not mean that it will have a smaller proportion of the total manufacturing *employment* in such firms. This is because this economy will have a larger relative difference in capital intensity and hence labor productivity between large and small firms. The proportionately lower level of labor productivity might result in a higher proportion of employment in small firms, even though the total value added produced is lower.

Another relevant factor determining the pattern of size distribution of employment is the role of medium-scale firms. If capital market segmentation (and other factors) ensure that small firms have limited opportunity of graduating to middle-sized firms, and if only very large firms have preferential access to cheap capital, the size distribution will be characterised by a conspicuous “missing middle”. We will see a bi-modal distribution of employment, with large proportions of employment in small and very large size-groups. Alternatively, in economies in which capital market segmentation does not shut out

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<sup>7</sup>The wage-efficiency relationship might have different facets and have been discussed in the literature. Apart from the rate of labor turnover discussed above, other elements include better screening of labor for quality, control of shirking, and better morale through “gift exchange”. See Valencheck 1997.

medium firms from easy access to capital, and there are other factors (like subcontracting) favoring growth of middle-sized firms, we can expect to see a more even distribution of employment-- or in some cases a “cascading” pattern in which the proportion of employment decreases continuously as one moves from small through medium to large size-groups.

*The Relative importance of Capital and Labor Market segmentation.*

Our conclusion from the above discussion is that capital market segmentation is the dominant factor in size related differences in capital intensity, labor productivity and wages. In an inter-country comparison, economies which have a skewed distribution of employment to large firms, and the economic distance between small and large firms is relatively large, the initial expectation will be that of a high degree of capital market segmentation. This is, however, not to suggest that the effect of labor market segmentation would be non-existent. As already indicated, institutional influence on wages is typically superimposed on a given structure of wage differentials, and it is quite possible for the institutions to widen the differentials further at the margin. But it is important to recognize that a relatively large wage differential between small and large firms in the economy is not a *prima facie* evidence of the existence of substantial institutional “distortions” in the labor market. The line of causation could easily be running from a relatively high level of capital intensity in large firms induced by the relatively low price of capital to a high level of wages per worker, and an efficiency cost of labor not much higher than in smaller firms. We need to establish the possible role of labor market institutions with specific investigation of their impact on wages--marginal or otherwise.<sup>8</sup>

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<sup>8</sup>It is sometimes maintained that the correct procedure is to measure the extent of the wage differential corrected for the “quality” of the workforce in small and large firms. Quite apart from the fact that we can undertake such “correction” in empirical work only for measurable human capital variables like education and experience, the thrust of the above argument has been that large firms are bound to have “superior” labor in terms of efficiency as a response to high wages. The real issue is does the high wage originate from the supply side of the labor market or is it the result of rent sharing or of exogenous labor market intervention?

Factors other than segmentation in factor markets also affect the economic distance between firms of different sizes, and the size distribution in manufacturing. We now turn to a discussion of the more important of these factors.

## 2. Product Markets.

There are several different channels through which product markets could affect the size distribution and the relative importance of small and large establishments in a country. Among these the most widely mentioned are the degree of competitiveness of the markets; the impact of product differentiation; and the importance of economies of scale in the range of items produced.

(I) In some countries large-scale firms, either because of protective trade policies, or because of an oligopolistic industrial structure, or both, are able to enjoy excess profits or rent. This rent is sometimes shared with their employees in the interest of industrial peace. The 'insider' oriented labor policy has a bias against increasing the number of workers in the firm. Thus we see increased capitalization per worker, helped by the low cost of capital for such firms, and higher labor productivity. The result is a lengthening of the economic distance between the large and the small-medium firms. The opportunity for small firms to graduate into middle sized ones and challenge the large units in competition for markets is further reduced.

(ii) Differentiation of products in the same product line plays a key role in the co-existence of small and large firms. Separate niches of the market are occupied by the two types of firms. In Japan the continued demand for traditional Japanese style products, which two hundred years of isolation had helped to sustain, is supposed to have been one important reason why small firms were not wiped out by the large units specializing in mass produced standardised goods and enjoying significant economies of scale. Markets for traditional products remained varied and narrow, particularly in housing, furniture, food, drink and clothing (Broadbridge 1966, p.19).

In lower income countries in South Asia and elsewhere, the poorer income groups have a demand for consumer goods which have more of the basic, non-luxury attributes than brands of the same product produced in the large factories. The 'coarse' brands are cheaper and often produced by non-mechanized techniques economically operated in small units, in contrast to the brands with a larger bundle of luxury attributes which larger firms produce with mechanized techniques. In South Asia cloth produced by handlooms are mostly with lower counts of yarn and serve the low income rural markets, even though some part of the production of this sector is high grade luxury items.

(iii) The reference to the processes of production brings us to the important issue of economies of scale which has been an important feature of manufacturing industry since the industrial revolution. The optimum of size of plants, which allows exploitation of scale economies to the maximum, has clearly increased with the development of mechanized techniques of production. But there has been several developments in recent decades which might have reversed the trend. First, while the optimum plant size continues to be large in heavy industries, and some durables like automobiles, newer industries based on information technology have clearly much smaller optimum size as far as production technology is concerned. Secondly, it is increasingly realized that the very large optimum size observed in some periods of manufacturing development in OECD countries have been the result of the production process consciously chosen rather than inherent in the production of the items concerned. In particular, the development of "Fordist" industries of mass production had a large optimum size because they were based on "batch processes" employed in the organization of the factory. An argument advanced more frequently in the last few years is that small firms are better able to adapt to changing - and sometimes disruptive - economic circumstances. The 1970s and 1980s have produced several shocks demanding a flexible response from industrial firms. According to some authors, traditional mass production units have been less successful in this regard than have small establishments based on a modern version of the craft principle that 'flexible tasks and machines augment the craftsmen's skills and ability to produce ever more varied products' (Schmitz 1982:4).

The most influential work embodying these ideas is that by Piore and Sabel (1984). Their paradigm of successful 'flexible adjustment' comes from the recent appearance in Italy, Germany and Japan of a 'new' type of industrial unit: flexible, small, and better able to respond to the challenges of the last two decades than the giant plants of the older industrial countries like the United States.

### 3. Transaction Costs.

In economies in which costs of inter-firm transactions are high buyers and manufacturers tend to offset them by dealing “in orders of large volume, with no subdivision, and corresponding limited opportunities for small traders and small manufacturers” (Levy). Generally the less developed an economy in terms of financial, entrepreneurial and infrastructure development, the higher are transaction costs. Thus the expectation would be that the higher the GDP per capita and the higher the educational attainment per head of population, the smaller is the level of transaction costs, which would *ceteris paribus* favor a distribution tilted to small firm sizes. But it would be inappropriate to reduce the relationship between the importance of small firms and GDP per capita to a simple cross-country regression. The role of the small firm in the economy, and in manufacturing, is the outcome of an evolutionary process in which the practices and the supporting institutions of vertical disintegration could take a long time to mature. The institution of sub-contracting which plays such an important role in the development of the small-scale firms in Japanese manufacturing had its origin in the *ton-ya* or wholesale house system of subcontracting before the coming of the modern age in Japan. Large-scale merchant houses had extensive networks of cottage enterprises to which orders were put out. In its subsequent evolution, the achievement of the Japanese model of subcontracting seems to have been the progress of the system from one which the feudal dominance of the large firm and exploitation of the small-scale were predominant, to one in which large firms took the leadership in quality control and transfer of technology, but had a more competitive relationship with a large number of technologically advanced subcontractors. Several Asian economies, particularly in South Asia, have tried to encourage the Japanese system, but have foundered in the path of transition from an exploitative to a competitive inter-firm relationship.

A second important aspect of transaction costs is the availability on a wide enough scale of essential inputs which enable the small firms to compete effectively with the large. The list includes space with suitable infrastructure, utilities like electricity, transport facilities and skilled labor. Clearly there is an important element of external economies in this development. Many governments have tried to trigger the process of growth through the development of 'industrial zones' often geared to export growth with fiscal incentives. However, researchers investigating successful "clusters" of development of small firms in Italy and elsewhere have tended to conclude that the role of private collectives representing the producers are generally more successful in the effort to develop industrial districts, even if the government can play a critical secondary role (Schmitz and Musyck).

#### 4. Government Policies.

Government policies have profoundly affected the size structure of industries in the countries under review. It will be seen that in our sample only Hong Kong seems to have had a policy regime which was reasonably neutral to the evolution of the size structure in manufacturing and accordingly Hong Kong's size distribution is of particular interest from the perspective of this study. State policies in other countries have impinged on the size structure from different angles-- industrial-cum-trade policies (import substitution as well as export growth) which have effectively subsidized large units, financial policies which have deepened the segmentation in the capital market, fiscal and labor policies which have influenced the vertical mobility of firms, as well as direct intervention on the size structure. The example of Korea discussed below shows how State policies can result in a spectacular turnaround in the size structure of manufacturing.

#### ***Section II. The size distribution and labor productivity differentials by size-group in selected Asian countries.***

We turn to a discussion about the comparative Asian picture on both the size distribution in manufacturing and the economic distance between the size-groups, as measured by the differentials in labor productivity. Data could be assembled for only a few Asian countries, for a date around 1986, but this body of material helps us to discuss empirically the significance of some of the factors analyzed *a priori* in the previous section.

Table 1 presents data on the distribution of employment by size groups, while Table 2 sets out the data on relative labor productivity for the various size groups.

**Table 1. Percentage Distribution of Employment by Size-groups in Manufacturing, selected Asian countries around 1985.**

Size-groups	India 1987	Korea 1986	Japan 1987	Hong-Kong 1982	Malaysia 1981	Philippines 1988	Taiwan 1986
5-9 <sup>9</sup>	41.8	3.8	13.2	12.2 <sup>10</sup>	4.3	21.5	10.4
10-49	10.1	20.6	29.2	27.4	20.5	13.6	24.0
50-99	5.9	12.9	12.9	15.6	13.5	6.5	13.5
100-199	6.2	12.7	11.6	14.5	15.4	8.9	28.1
200-499	7.7	14.8	12.4	13.8	16.6	]	]
500 & over	28.0	35.0	20.8	16.5	29.7	]	24.1

  

Indonesia Size-groups	1985	Thailand Size-groups	1989
5-19	29.5	1-4	3.7 (0.7)
20-49	9.3	5-9	4.9 (1.2)
50-199	13.3	10-49	17.3 (8.4)
200-995	25.2	50-99	9.3 (9.1)
1000 & over	22.8	100-299	17.9 (20.7)
		300-499	10.2 (16.1)
		500 & over	36.6 (43.7)

Sources: India: NDME and ASI data (author's calculations).

Korea: Statistical Yearbook.

Japan: Statistical Yearbook.

Hong Kong: Annual Digest of Statistics.

Malaysia: Onn Fong Chan (1990) p. 161

Indonesia: Hal Hill (1990) Table 19, p.91

Taiwan: Abe and Kawakami (1997, Table 1, p.386)

Philippines: National Statistical Office.

Thailand: Yearbook of Labor Statistics. The figures in parenthesis are for the provinces surrounding Bangkok which saw the fastest growth of manufacturing in the last two decades.

<sup>9</sup>6-9 for India. The use of the sources for India are fully documented in Mazumdar 1997b.

<sup>10</sup>1-9 for Hong Kong.

**Table 2. Relative Productivity (Value Added per worker) by Size-groups of enterprises in manufacturing, selected Asian countries around 1985.**

Size-groups	India 1987	Korea 1986	Japan 1987	Hong Kong 1982	Malaysia 1981	Philippines 1988	Taiwan 1986
5-9	12 <sup>11</sup>	31	32	54 <sup>12</sup>	54	9 <sup>4</sup>	34
10-49	39	42	39	61	58	30	35
50-99	45	59	50	66	73	56	38
100-199	60	56	59	71	94	74	49
200-499	74	81	76	82	93	]	]
500 & over	100	100	100	100	100	]	100

Indonesia Size-groups	1985
5-19	21
20-49	44
50-199	84
200-999	95
1000 & over	100

Source: Same as Table VI.6

Of the countries appearing in Tables 1 and 2 the case of Hong Kong, as already mentioned, is of much interest. Hong Kong comes closest to a free market model of development in Asia. Beng (1988) observes that “within the proclaimed *laissez faire* environment in Hong Kong the government does not seem to have a policy towards manufacturing not to mention any policy towards the SSIs”(p.88). But as can be seen in Table 1 the distribution of employment was fairly evenly distribute among the various size groups, with the small enterprises playing as much a role in the island’s economic structure as medium and large enterprises.

The pattern of distribution in Hong Kong could be usefully compared with the Japanese one-- another economy which has been characterised by a strong role of small establishments. The Japanese case is characterised by a more marked evidence of what Japanese economists have called a “dualistic pattern” of industrial development. The dual pattern includes two characteristics: first, along with the strong presence of small establishments, a substantial role is also played by large firms. Secondly, the economic

<sup>11</sup>6-9 for India.

<sup>12</sup>1-9 for Hong Kong.

distance between small and large firms is substantial. It will be seen from Table 1 that although the modal size group for both Hong Kong and Japan is the small enterprises of 10-49 workers, the proportion of employment in large enterprises of 500 plus workers is significantly larger for in Japan. Further, the data in Table 2 show that productivity differences between small and large firms was much less in Hong Kong.. The wage differential between small and large units were accordingly much smaller. Average earnings in Hong Kong in 1982 were only 55 per cent higher in establishments with more than 1000 workers than in those with 1-9 workers. In Japan it was twice as much.<sup>13</sup>

An obvious hypothesis emerging from the Hong Kong case is that left to itself modern industry makes efficient use of small enterprises in a striking way. Also in the absence of the usual set of policy biases which protect both capital and labor in large firms, labor productivity and wage differentials are kept within fairly narrow bounds.

The “dualistic” pattern of Japanese industrialization has a long history. It has its roots in the initial surplus labor conditions prevailing in Japan during its initial industrialization (which contributed to labor market segmentation) and the simultaneous development of a complex tying large industry, the state and financial conglomerates which accentuated capital market dualism. Since this pattern of industrial growth has attracted a lot of attention, and we have good historical data over a long period of time, the Japanese case is discussed further below in a separate section.

Turning to other East Asian countries, the Taiwanese pattern of size distribution is very much like that of Japan. As in Japan, the proportion of employment accounted for by large 500 plus enterprises is quite a bit larger than that of Hong Kong, but the small enterprises are equally important. In fact the employment share of enterprises *with less than 100 workers* is almost exactly the same in all three countries-- around 50 per cent. A large and dynamic small-scale sector keeps productivity and wage differentials with respect to the large enterprises reasonably small. At first sight the productivity

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<sup>4</sup> 1-9 for the Philippines.

differential between small and large enterprises in Taiwan would appear to be similar to that of Japan if we concentrate on the smallest and the largest size groups. But there is an important difference if we compare the *medium and the small firms*. In Taiwan the value added per worker rises very gently upto the level of the large firms of 500 plus workers, and then seems to take a big jump. By contrast the productivity gap between firms of 50-500 employment size and the smaller firms is substantial in Japan. In this sense the Taiwanese pattern is much closer to the Hong Kong one.

The Taiwan pattern contrasts drastically with that of neighboring Korea. At this date the size distribution of firms was very much tilted towards the large-scale, and a much smaller role for the small enterprises. The productivity differential between the small and the large was also substantial-- more like the Japanese model than that of Taiwan or Hong Kong. Major changes in the pattern has, however, already under way for some years. The proportion of employment in 500 plus units had peaked around 1976, and had been declining steadily. In the next few years this decline accelerated in a spectacular way. The factors involved in this major change and the contrast between Korea and Taiwan in the first two or three decades of their industrial growth are topics of major importance. Accordingly they are dealt with separately in the Section III to follow.

Moving now to South Asia, the extreme peculiarity of the Indian structure is immediately apparent. India has an exceptionally large proportion of employment in the lowest size group of 6-9 workers and an exceptionally low relative value added per worker in this group. Furthermore, the size distribution is characterised by a large presence of the 500 plus group of firms with a conspicuous "missing middle". This pattern resembles that of Japan in terms of a "dualistic" development, but is wildly exaggerated in the Indian case. The size structure of manufacturing firms in India has been heavily influenced by government policies. In effect a dual system of protection has been in effect since the beginning of the post-independence industrial policy. On the one hand, the policy has been driven to protect the small-scale from the competition of

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<sup>13</sup>Data on average earnings for the two countries can be found in the same national sources as are cited for Table 1.

the large, by the policy of “reservation” under which a long list of items have been designated as the exclusive preserve of the small-scale (defined in terms of the value of capital assets). The capacity of production of these items by large scale units have been frozen at the level at the time of the legislation. At the same time the import substituting industrialization has protected all domestic units-- small and large -- from the competition of foreign firms. The result has been that small and large firms have developed their own niches of markets in different lines of production without too much competition between them or from foreign firms. At the same time there has been a variety of financial and banking policies directed to benefit the small scale. These benefits cease if the firm graduates beyond a threshold size. Furthermore a number of fiscal and labor laws come into effect which increase the cost of operation above this threshold. Thus the set of policies discourage the vertical mobility of small firms beyond the threshold.<sup>14</sup> These policies of reservation for the small scale sector, together with measures which implicitly tax mobility up the size scale, led to the creation of mass of low productivity small enterprises existing at the bottom of the industrial structure. These coexist with a fairly large proportion of very large units employing more than 500 workers. The result is the phenomenon of the “missing middle” with a strikingly small proportion of employment in medium scale firms, employing say between 50 and 500 workers. The labor productivity in these middle sized enterprises is not so much lower than in the large units in India-- almost of the same order of magnitude as in Japan and Korea. But the big difference is in the relative scarcity of such units.

Indonesia and the Philippines are the two countries in our sample which resemble the Indian pattern to some extent, although the data at our disposal do not permit an exact comparison of size groups. We see the same “inflated” proportion of employment in very small units with a strikingly low value of labor productivity. However, the quantitative dimensions of both these features are less strong in these countries than in India. Indonesia did have a policy of reservation for small enterprises under the Sukarno regime, but it had been abandoned when the Suharto regime came into power in the late

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<sup>14</sup>For a detailed examination of the origins and consequences of the Indian industrial policy affecting the small-scale see Mazumdar (1991) and Little, Mazumdar and Page (1987).

sixties. Thus the Indian model is not entirely due to the peculiar policies to the small scale sector seen in India. What India and the other two have in common is a large labor force in household manufacturing units, which is slowly shifting to the non-household manufacturing sector. The lack of technical dynamism of the small scale sector explains its limited upward mobility even when it is not reinforced by government policies-- leading to the phenomenon of depressed relative labor productivity in the small enterprises and the phenomenon of the “missing middle”. All three countries had their fair share of import-substituting industrialization, and it is arguable that the rent creation and the generally non-competitive environment are not particularly conducive to the dynamic growth of small-medium enterprises. As far as factor markets are concerned, trade unions and state intervention in the labor market were considerably weaker in Indonesia and the Philippines until very recent years. But there is evidence to suggest that industrial and financial policies in both contributed to a market degree of capital market segmentation-- which favored the use of capital intensive techniques in the large scale sector. Hill’s detailed study of Indonesian textile industry showed that prevalent factor-price ratio, particularly the relative factor price ratio, led to less than socially optimal choice of techniques in the large textile firms (Hill 1983). Government policies increased the distance between small and large enterprises in terms of their capital intensities, and hence labor productivity.

The case of Thailand has attracted much notice since it experienced spectacular growth in manufacturing in the eighties and the first half of the nineties, but was unfortunately the first country to have heralded the recent economic crisis in the region. It is seen that the distribution of employment in Thai manufacturing has been very much tilted towards the large size-group. In fact if we look specifically at the provinces surrounding Bangkok -- where the recent growth in manufacturing has been concentrated -- the tilt to large units is even more pronounced. This type of the size distribution of manufacturing employment, resembling more the pattern of Indonesia, the Philippines, and Korea in its earlier decades, and away from the Taiwan-Hong Kong model, is more likely one of the reasons for the rising cost of labor and the deteriorating labor market problems of the Thai economy leading to the crisis.<sup>15</sup> The causes for this pattern are to be sought both in

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<sup>15</sup>See Mazumdar (1997) for a detailed discussion of this point.

problems of labor supply to Thai industry and in the peculiarities of Thai entrepreneurial and financial development in the modern sector. Although Thailand has been a land-abundant economy with much less population pressure than Indonesia (or Java), for example, labor seems to have been “locked up” in the agricultural sector of the North and the North-East. The incidence of low income per worker in the latter has been responsible for Thailand showing one of the worst cases of inter-regional disparities in Asia. At the same time the tie-up between large industrial enterprises and financial institutions has produced a lop-sided development of manufacturing enterprises in terms of the size distribution, very much like Indonesia and Korea.

Of the other countries for which we have data Malaysia has a low level of labor differential between small and large firms like Hong Kong. The role of small scale enterprises at the date for which data are available (1981) is, however, more limited. A logical interpretation, both of the small dimensions of SSEs and the low productivity gap, is that Malaysia is *not* a labor-surplus economy. Land has been relatively accessible, and the government has, over the last few decades, invested heavily in adding to the supply of good quality land. One hint that the SSE sector has not become a sponge for masses of people seeking a modest level of income-- as might be true of India and Indonesia, and Japan in the early years of industrialization-- lies in the high earnings of the self-employed production workers relative to those of employees (Mazumdar 1981, p.108).

### ***Section III. The case of Korea and Taiwan.***

Korea and Taiwan are the first countries of Asia to participate in the recent industrial growth of Asia. Their contrasting experience of the role of SMEs in the development of the manufacturing sector throws extremely interesting light on the factors impacting on

the growth of this sector, as well as on the importance of government policies affecting its evolution. Both countries had the experience of industrialization in which the state actively provided leadership in the process of economic development, and both depended on export oriented growth after an initial period of import substitution policies. But the role of SMEs was much more important in Taiwan until the eighties. Since then Korean government policies have sought to reverse the previous bias towards the large-scale sector with a fair amount of success.

*1. The contrasting role of the small-scale sector in Taiwan and Korea.*

The evolution of the size distribution of manufacturing enterprises in Taiwan provides a striking contrast with Korea's as can be seen from the data in Tables 3 and 4.. The tables also contain data on the evolution of the "productivity gap" in the two countries-- indices of relative labor productivity by size-groups at different dates.

**Table III.4 Distribution of Employment in Manufacturing by Size-groups and relative labor productivity. Taiwan, various years.**

*A. Percentage Distribution of Employment.*

<b>Size-groups</b>	<b>1966</b>	<b>1971</b>	<b>1976</b>	<b>1986</b>	<b>1991</b>
<b>1-9</b>	12.8	9.4	10.2	10.4	14.1
<b>10-49</b>	21.2	17.0	17.7	24.0	29.6
<b>50-99</b>	8.7	9.2	11.1	13.5	12.8
<b>100-499</b>	22.5	28.2	30.4	28.1	21.3
<b>500 plus</b>	34.1	36.1	30.6	24.1	22.2

*B. Relative labor productivity (Value Added per worker).*

<b>1-9</b>	n.a.	40	33	34	30
<b>10-49</b>	n.a.	36	34	35	31
<b>50-99</b>	n.a.	47	36	38	35
<b>100-499</b>	n.a.	45	48	49	47
<b>500 plus</b>	n.a.	100	100	100	100

Source: Abe and Kawakami (1997), Table 1.

**Table VI.5. Distribution of Employment in Manufacturing by Size-groups and relative labor productivity. Korea, various years.**

<b>Size Groups</b>	<u>A. % Distribution of Employment.</u>			<u>B. Relative Labor Productivity</u>		
	<b>1976</b>	<b>1986</b>	<b>1993</b>	<b>1976</b>	<b>1986</b>	<b>1993</b>
5-9	3.8	3.8	8.3	31	27	29
10-19	4.2	6.6	11.8	37	31	32
20-49	8.1	14.0	14.2	42	37	38
50-99	8.6	12.9	12.9	59	45	53
100-199	12.9	12.7	10.7	56	55	68
200-299	6.5	7.4	6.0	75	67	75
300-499	10.8	7.4	5.6	85	77	82
500 & over	45.1	35.0	25.5	100	100	100

Source: Korea Statistical Yearbook, various years.

As of the mid-60s Taiwan's large-scale enterprises (LEs) with more than 500 workers accounted for a higher percentage of manufacturing employment than in Korea (35 per cent to 26). But by 1976, when Korea's LE share peaked at 45 per cent, the figure in Taiwan was down to 26 per cent.

Taiwan evolved as a country of small manufacturing enterprises even more strongly in the last two decades. The smallest size group increased its share by 50 per cent and the

share of the next larger group of 30-99 workers also went up significantly. These gains were at the expense of the medium as well as large firms-- but it was the largest size group of more than 500 workers which accounted for two-thirds of the decline their share. As regards relative labor productivity, there has been a slight trend towards a widening of the difference between the small and larger firms. But the decline is not very large, and it has taken place almost entirely before the mid-seventies. The productivity differential between medium (100-499) and large (500 plus) firms has been unchanged throughout the two decades. But even then the differential in 1991 is about the lowest in Asia, as we have seen in the last section.

We have already noted that the share of large enterprises in Korean manufacturing peaked in 1976. The data presented in Table 5 show that there was some decline in this share by 1986, but then it declined in a major way in the next six or seven years. Small enterprises in the less than 50-workers category more than doubled their share of employment (from 16 to 39 per cent), while the largest enterprises in the 500 plus group shrank from 45 to 25.5 per cent of total employment between 1976 and 1993. This is a dramatic change in a country which had favored industrialization through the encouragement of large firms in its early industrial policies. It is also revealed in the data of Table 4 that *this dramatic change in the distribution of employment by size group did not produce any large change in relative labor productivity*. The order of magnitude of the indices of productivity differences as between the different size groups remain very much the same in 1993 as in 1976.

## 2. Causes of the size-related difference between Korea and Taiwan and of the evolution of the differences over time.

We shall now try to review the difference in the experience of the two countries in the light of the conceptual discussion of Section I of this paper. While the order of importance of different classes of factors in the explanation of these differences is very difficult to quantify -- in spite of one heroic effort referred to later-- a critical review should highlight the more important factors, and would also show the interrelationships between them.

( a) *Government Policies.*

At least prior to the 1980s, the Korean government was consistently engaged in a process of targeting fiscal, tax and tariff incentives towards favored industries and individual firms. The large conglomerates, the *chaebol*, were the major beneficiaries of these targeted policies (Amsden). By contrast policies in Taiwan, at least at the level of targeting individual firms, seem to have been much less interventionist (Scitovsky 1986; Cheng 1987).

The case of Korea is particularly interesting in showing the way government policies and objectives could have a significant effect on the size structure of enterprises in manufacturing. In the early years of fast industrialization state policies encouraged the growth of large firms and conglomerates. But to quote a recent researcher: “Not surprisingly, as public awareness of this fact and democracy has spread, beginning in the mid-1980s but accelerating in recent years, the Korean government has introduced a variety of measures designed to counteract the aforementioned and widely cited tilt in favor of large firms and establishments. Virtually unnoticed is that the trend towards large firms and establishments actually began to reverse even before the new policies were introduced.” (Nugent 1996: 226).

The tilt towards SMEs in government policies, and in fact, was *not* driven by the desire to promote employment or increase the employment elasticity of output growth in manufacturing. Quite the contrary, the labor market motivation seems to have been the shortage of labor and the rising wages affecting profitability in large firms. At the time in the mid-seventies, when the policies to help SMEs were moved into high gear, Korea was in the midst of the push towards heavy industry, unemployment levels had fallen to historically low figures, and the large-small wage differential was being squeezed (Mazumdar 1994: 562). In recent years the government measures have derived added strength from the high wage increases starting in the mid-eighties.

(b) *Transaction Costs*

While at first sight the different patterns might be ascribed to differences in government policies, it is possible to argue, as has been done by Levy (1991), that the contrasting government policies were themselves the outcome of (correctly perceived) varying economic conditions and associated variations in the costs of market transactions at the outset of the period of outward-oriented industrialization.

In an attempt to isolate the critical factors underlying the contrasting developments, Levy studied intensively the footwear industry, which contributed significantly to the manufactured exports of both countries, and which were in private hands in both. In 1976, LEs accounted for 90 per cent of value added in Korea as against only 20 per cent in Taiwan. The product-mix was somewhat different, but Levy discounts this as an important determinant of the differing size structure. Rather, he emphasizes the difference in organizational response to the growing export market.

In both countries the impetus to the export growth was initially given by the decision of Mitsubishi, the leading Japanese trading company, to relocate the sources of its export of footwear from Japan to Taiwan and Korea-- plastic sandals in the case of Taiwan, and rubber footwear in the case of Korea. But the two countries differed in the organization of production in several important ways.

First, Taiwanese entrepreneurs established independent footwear firms more readily than their Korean counterparts. The Japanese were able to identify and encourage reliable and ambitious individuals already employed in footwear factories to start up production facilities of their own.

Second, the Taiwanese subcontracted more readily than the Koreans. The production process in the footwear industry was subdivided into various processes, and a host of small firms were specializing in the production of specific lines. Subcontractors generally did not work exclusively for a parent firm, but supplied their products to multiple independent affiliates. Korean manufacturers were, however, throughout the '70s organized on a vertically integrated basis. Furthermore, the proliferation of new firms in Taiwan was associated with the subdivision of orders by the Japanese, specializing by process. But there was no subdivision of orders in Korea. As late as

1979 five leading forms accounted for 64 per cent of all footwear exports from Korea (Levy, p.159).

Third, the independent export traders were a more important source of export orders in Taiwan than in Korea.

Fourth, the Taiwanese industry was more diversified than the Korean. “The increase in the degree of diversification in the mix of footwear exported from Taiwan paralleled the increase in marketing channels” (Levy, p.158).

Levy ascribes the different responses to different levels of ‘market transaction costs’. When transaction costs are high, buyers and manufacturers tend to offset them by dealing “in orders of large volume, with no subdivision, and correspondingly limited opportunities for small traders and small manufacturers”. The hypothesis implies that economic conditions at the outset of export-led industrialization was more supportive of market-led transactions in Taiwan and of hierarchical organization in Korea.<sup>16</sup>

Levy suggests several pieces of evidence to support the hypothesis. Taiwan’s GNP per capita in 1955 was more than 70 per cent above that of Korea’s. “In so far as the number of market participants in a society, their experience, and their ability to communicate across barriers of language and culture is correlated with national income, the costs of market transactions will have been lower in Taiwan”(p.164). Taiwan also had a much higher stock of human capital which helped in international transactions. Historical evidence suggests that Taiwan had more accumulated commercial experience than Korea, having benefited from nineteenth century migrants from Southern China with trading interests, and more recently, from migrants with sophisticated business skills from Shanghai.

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<sup>16</sup>For another industry study showing the ability of small firms in Taiwan to seize market opportunities and show dynamic growth is provided by Wan-wen Chu (1997) in his study of the growth of the bicycle industry in the island. The oil crisis of the early 1970s created a sudden surge in demand for bicycles in the United States, and at the same time an appreciation of the yen forced American buyers to look outside Japan to look elsewhere for the required imports to fill the gap between demand and supply. The Taiwanese industry was able to respond to this opportunity very quickly and expand bicycle production thirtyfold in just three years. The success of the bicycle assembly sector depended upon having the support of a network of parts suppliers, many of them specializing in one type of the many parts needed. The growth of these SMEs in such a short time is testimony to the availability of entrepreneurs and skills, as well as marketing and organizational facilities to support a vertically disintegrated industrial development on this scale.

Finally, Levy mentions a point “which begins to blur the distinction between political and economic determinants of the balance between markets and hierarchy (which) has to do with approaches to governance of the two nations”(p.167). The tie-up between the Korean military and business elite made both groups sympathetic to the emergence of giant conglomerates. By contrast, in Taiwan there was some tension between the government and businessmen, because the Kuomintang regime was dominated by officials who came to Taiwan only in 1945, and the business clans were dominated by native Taiwanese. Development of large scale organization and the accumulation of power in private hands were viewed with suspicion by the State.

*(c) Product Markets.*

It is generally assumed that while small firms are able to provide for domestic markets, particularly in traditional consumer goods -- e.g., in India and Japan with their strong tradition of handicrafts -- they might be at a disadvantage in competing in the world market. The economies of scale in finance and marketing are thought to be crucial in world competition. What is the evidence on this point in the two countries we are considering?

Abe and Kawakami provide evidence to show that differences in export experience had little to do with the Different experiences of Korea and Taiwan. Their summary of the evidence is that “both economies represent successful cases of export-oriented industrialization, but the export drive in Korea has been borne mainly by non-SMES while in Taiwan it has been carried out by SMEs” (p.398). In Korea the export-sales ratio of firms hovered in the region of 22-25 per cent for most of the period 1977-1993. In Taiwan SMEs contributed a little over of 50 per cent of total sales in the seventies, increased to 70 per cent or more in the first half of the eighties before falling to 35-40 per cent in the period 1988-92 (Table VI, p.396).<sup>17</sup>

*Labor Markets*

It was mentioned in the last section that the existence of surplus labor contributes to the development of a significant wage and productivity gap between the small and the large sectors. The low supply price of labor keeps wages low in the small-scale sector while efficiency wage considerations become important for large mechanised firms which want to develop their select labor force from the mass of available labor.

From the point of view of structural transformation the economy of Taiwan in 1952 was in a more advanced state than Korea in 1960. Agriculture accounted for one-third of one-third of GDP and one-half of employment in agriculture, as against 44 and 57 per cent respectively in Korea (1960). But the “turning point” signifying a sharp increase in agricultural and other wages seem to have occurred almost at the same time in both economies -- sometime in the the second half of the sixties. Real wages in agricultuer in Taiwan did not begin to increase until 1966 or 1967, but increased very fast after this, doubling in the next 8 or 9 years (Fei and Ranis 1974). Thus it required about fifteen years of very fast growth in Taiwan for the surplus labor in agriculture to be exhausted and the turning point to be reached. The period of transition was shorter and more intense in Korea. Between 1962 and 1968 the wage per farm employee increase at 0.74% per year; but between 1968 and 1973 the rate of increase was 8.8%.<sup>18</sup>

It does not appear that basic labor market conditions provide much of a clue to the difference between the size structures and related wage and productivity differentials in the two countries.

### *Capital Markets*

Capital market segmentation could have contributed more significantly to the size related difference. As we have already noted in the discussion on transaction costs that the nature of financial markets both contributed to and was the consequence of different

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<sup>17</sup>In Taiwan the definiton of SMEs was based on capitalization while in Korea it was defined as those employing less than 300 workers. Abe and Kawakani found that as of 1990 99.9 per cent of the Taiwanese SMEs employed less than 300 workers. Thus the two definitions were comparable.

<sup>18</sup>See Hong (1976) Table 5.2.

levels of transaction costs in Korea and Taiwan. Government policies, encouraging the tie up of largescale financing and the conglomerates, exaggerated the initial conditions in Korea biasing capital markets towards the large-scale sector.

Nugent has attempted an econometric analysis of the relative importance of different factors which caused this V-shaped pattern-- an increase in the share of employment in large enterprises until 1976 and decline in the next two decades. First he considered and rejected the hypothesis that changes in the composition of industry might have produced this trend-reversal. In fact the pattern remains even if one holds constant the composition of industry either at its 1963 or its 1973 mix. (*ibid*, Table 2: 230)). He then proceeds to

explain the increase in the share of large enterprises (LEs), both in terms of employment and value added, in the period before 1976, and its decline after 1976 in an econometric model with a variety of explanatory factors. In choosing the explanatory variables attention is focused on three broad types: (a) technological and organizational factors, e.g., economies of scale, capital intensity of production, relative importance of advertising; (b) financial variables-- which include availability of medium term finance for SMEs, interest rate differentials between large and small firms etc.; and (c) trade variables e.g., relative importance of exports. (For a full list see Nugent, table 4,p.234.)

The major conclusion of this exercise was that the financial variables, individually and collectively were the most important in accounting for the divergent trends in the two periods. In particular the share of minimum credit allocation to SMEs by commercial banks mandated by the government, and the suppression of the curb market for informal finance (which was gradually reduced in its intensity after 1973) were quantitatively important factors in the changing share of SMEs between the two periods. The technical-organizational factors, which have been much stressed in the literature, contributed little to the observed trends. But the trade related variables, particularly the declining share of exports and the reduced importance of trading firms catering primarily to the large establishments, were also of importance. The last observation does not imply that SMEs were unimportant in exports. In fact their share in commodity exports have increased strongly in recent years-- from 22.1 % in 1982 to 42.1 % in 1990

(Nugent 1996:1). However, to the extent that the export share of large firms have generally been at a higher level in the past, the fall in the degree of export orientation has been a factor working in favor of SMEs.

The econometric methodology is not really able to capture the full impact of government policies, although the financial variables found to be of dominant influence are part of the policy package. We now turn to a more detailed discussion of the elements of the bundle of policies initiated by the state which was able to turn around the size structure in Korean manufacturing in a very short time.

*Nature of government policies to support SMEs.*

The support mechanisms for the SMEs created in Korea are relatively recent in terms of Korea's economic development. They were initiated in the 70s and gathered strength only in the 80s. But several international agencies have already identified Korea as a leader in developing effective SME support programs (e.g., UNIDO 1986). Three major points about the foundations of Korea's support policies should be emphasized at the outset.

First, the Korean policies were not directed at merely *protecting* the existence of small enterprises. They are much more concerned with the *development* of SMEs. "In the 1970s, government policy focused mainly on helping SMEs maintain operating stability and penetrate new markets. In the first half of the 1980s, emphasis shifted to the expansion of SME business boundaries, the modernization of production processes, and the support of start-up enterprises. More recently, in the wake of rapidly changing markets and technological competition, government policy has shifted again, toward helping SMEs achieve product innovation, factory automation and computerization, and to promoting the development of rural SMEs.

Secondly, in keeping with the concern with the dynamic growth of SMEs attention is not focused exclusively on very small units. Along with neighboring Japan Korea defines the SME sector as enterprises employing less than 300 workers. This does not imply

that only the larger units in the sector benefit from the program. According to the sample survey carried out by Kim and Nugent (1994) most SMEs began with less than 50 workers, but many had grown to more than 200 workers-- an indication of the generally high level of success of the support policies.

Thirdly, Korean policies *discriminated* among SMEs in directing the support schemes. The government uses a system of “special designations”, and in principle SMEs given special designation should receive priority in the allocation of various forms of support. There are several types of “special designation” enacted over the years to reflect the changing priorities of the government. Thus in 1973 the *Gyeyul-hwa Promotion Act* was enacted to encourage subcontracting: firms designated under this Act were expected to maintain close relationship with one or more larger firms. Beginning in 1983 the category of “Promising SMEs” was created under which firms with less than 50 workers were sought to be identified with high potential for growth. Firms could graduate from this status over time or could lose their status if they did not perform. Other categories have been created to foster the survival and growth of technologically advanced firms in need of R&dD investment, and to promote perceived import substitution in specific product lines. Korea has even established “SME sanctuaries” to reserve certain product lines for SMEs *a la* India, but unlike India there are limited in number, carefully chosen, and limited to last no more than three years. Kim and Nugent’s survey showed that over three-quarters of the sample had been designated a “Promising SME”, 30 % had been selected as part of a subcontracting network, and 13 % had been favored in the import substitute sector (Table II.7: 51).

Fourth, some important features of *governance* of Korea’s support system have been noted by Kim and Nugent. The agencies are controlled and audited by several oversight agents or “bureaucratic principals”, and the authors emphasize that “Korea is unusual in that competence is about equal in importance to political connections” in the appointment of principals and their subordinate executives. Most of the support agencies sampled in the enquiry emphasized educational qualifications, experience and competence in their hiring practices. The average salary level was 50 per cent higher than the industry average. Finally, although the state support agencies had some

advantage over private ones, such as the ability to offer services at below-market prices, there were very few restrictions on private sector participation in the supply of financial, technical and marketing support, and the state agencies often felt significant competition from other private institutions and firms.

Turning now to the contents of the support schemes, financial assistance seems to be the most critical. State support comes in three major ways: (i) specialized financial institutions and funds catering to the SMEs; (ii) government supported venture capital companies that finance technologically based SMEs; and (iii) credit guarantee facilities. In addition, commercial banks (which were heavily controlled by the government until the liberalization of 1993) were required to allocate a substantial percentage of their loans to SMEs. Another important source of financial support has been Central Bank discounting of commercial bills of SMEs and export finance. In the second half of the eighties government-led funds for SMEs increased its percentage of the net lending increase by commercial banks from 1-2 per cent in the early eighties per cent to an average of over 10 per cent (Nugent, table V.1:68). All the state financial facilities received high approval rating from the SME units in Kim and Nugent's sample ( a score of over 4 in a 5-point scale).

The next important area of public ME assistance is technological support. Korea has an extensive network of agencies providing support in the form of training programs, information services and joint research opportunities. The network of agencies is headed by the Industrial Advances Administration (IAA) under the Ministry of Trade and Industry. Apart from the National Industrial Technology Institute (NIT) and eleven Regional Institutes (Rites), there are more than a dozen public agencies and non-profit institutes based on government-industry alliance (Table III.1: 52). In 1992 44.1 per cent of SMEs received technical assistance from public agencies, against 45.2 % from private agencies, and 10.7 % from non-profit agencies (Table II.2:53). SMEs, however, generally report that the services of the public agencies are only moderately useful. This is because they generally lack manufacturing know-how and cannot compete with private channels like equipment suppliers in helping with blue-prints and other production problems.

The third general area of the support system is marketing. The largest public sector marketing agency is the Korea Trade Promotion Corporation (KOTRA) which originally was founded to help the export activities of large firms. But as these firms became more self-sufficient, KOTRA focused its activities more on SMEs. It also established a subsidiary- the Korean Trading Agency (KTC) which operates on a commercial basis. More than half of the firms in Nugent's survey used some form of collective marketing services-- more so in the early stages of their export growth-- but as with technical services these agencies received low approval and usefulness ratings than the large number of private channels of support available to Korean SMEs.

#### ***IV. The Size-structure in Japanese manufacturing and its evolution.***

As in many other aspects of economic development the experience of Japan is particularly useful to interpret the role of SSEs in the history of modern industry in Asian economies, and of the factors shaping that role. It is well known that small enterprises have enjoyed a long and impressive presence in Japanese industrialization. Students of Japanese development have called the continued co-existence of small and large establishments in Japanese industry the phenomenon of "industrial dualism". A large literature exists on the causes of the origin and persistence of industrial dualism and its impact on the process of development.

Industrial dualism involves two things: first, small enterprises account for a substantial share of employment in manufacturing along with large or giant firms; secondly, there is a marked difference in the levels of labor productivity and of wages between small and large firms. We start by looking at the historical conditions of the labor market which permitted the development of large wage differentials between small and large enterprises.

### *Surplus Labor*

Although Japanese industrialization started in the last decades of the 19th century -- in fact following the Meiji Restoration of 1868-- the pace of development, and hence of the redeployment of labor from agriculture to industry and services was quite slow, judging by the recent standards of South East Asian growth. As late as 1930 the Census of Population reported that 48 per cent of the economically active population was engaged in agriculture. But the extensive margin of cultivation had already been reached sometime ago in this island country with limited arable land. The only source of increase of income of those dependent on farming was continued increase in agricultural productivity. A surplus labor situation prevailed in agriculture which formed a reservoir of labor from which labor to the industry and service sectors were recruited. The evidence suggests that in Japan it took a long period (at least 75 years of sustained growth in agricultural productivity and of steady decline in the agricultural labor force, before surplus labor conditions came to an end in this sector. Minami (1968) looked carefully at the course of real wage rates in Japanese agriculture to identify the years in which the “turning point” could be said to have been reached with upward pressure on wages. His study shows that this probably occurred in the 1950s. Over the long period stretching from 1894 to 1939 the trend rate of growth of real agricultural wages for male workers was 0.74 per cent per annum. Between 1951 and 1963 this had jumped to six times the pre war rate-- wages grew at 5 per cent per annum. ( see Minami p.381). Minami’s conclusion is supported by work done by Kaneda (1980) on the estimate of days of work done per worker engaged in farming. His figure for 1935 is 146 man-days (defined as 8-hour days). By 1953 the figure had jumped to 181 and stayed at that level until 1960 before going even higher by 1970.

The recognition that surplus labor conditions prevailed in the rural economy of Japan until the mid-fifties is crucial to understanding one aspect of the working of factor markets which helped promote and sustain industrial dualism in the country. The fact that small firms had to pay much lower wages for the labor they employed compared to the large capital-intensive firms enabled them to survive with much lower productivity

and labor intensive methods of production. But why did large firms pay high wages in the first place? A purely labor based economic explanation is possible. When Japan started to industrialize the influence of imported technologies was significant. Over a wide range of industries, but particularly in heavy industry, these ‘borrowed’ technologies were available on a much larger optimum scale and were much more capital intensive than those in traditional Japanese industries. They required stable skilled labor which was in inelastic supply in the short-run. Employers of such labor not only had to pay high wages to attract them but had to devise labor systems which would reduce the turnover rates of trained labor going over to competing large firms. The labor system which evolved in answer to this need was that of lifetime employment in the *same* firm with wages increasing with seniority (the so-called *Nenko Joretsu* system). The flexibility of labor use within this system was ensured by the employment of a sizable component of *temporaries* who did not enjoy guaranteed life long employment; and also by the widespread practice of subcontracting some operations to smaller firms which did not offer rigid lifetime employment.

The existence of surplus labor in the economy ensured the continuity of this labor system. “This not only kept down the lowest level of manufacturing wages (in the absence of any serious government intervention over minimum wages), but also indirectly affected the viability of the *nenko* system by providing a supply of low wage temporaries and rendering viable small-scale labor-intensive subcontractors”. (Paine, p.233)

The wage differential by firm size was fairly small before the first World War when Japanese manufacturing was dominated by textiles and most factory workers were women. It increased rapidly in the late 1920s and early 1930s amid the sector’s diversification into heavy industry, its increasing use of male labor, and a fall in the supply price of rural migrants seeking jobs in industry as the terms of trade turned against agriculture (see the statistics sighted in Shinohara 1970, table 6, p.311). The depression in the rural sector was reflected in a declining wage trend in industry but the fall was concentrated in the small firms, while large firms found it advantageous to continue with their established seniority based high wage system. Surplus labor conditions continued for a decade or so after World War II-- aided no doubt by the

wartime destruction of capital and infrastructure-- and the scale differential of wages in 1951 was seen to be wider than ever before (Yasuba 1976).

*End of Surplus Labor and the Persistence of Dualism*

With the transformation of labor markets in Japan in the latter half of the fifties as noted above the scale related wage differential began to fall. Broadbridge cites the evidence from the *Small Enterprise White Paper* of the Japanese government that between 1956 and 1961 wages in enterprises employing 300 or more workers increased 50 per cent less than the wages in establishments with less than 100 employees (Broadbridge table 22, p.64). As the inter-firm productivity and wage differentials fell many commentators predicted that 'industrial dualism' as it had existed historically in Japan would be permanently eroded, and the Japanese labor markets within the manufacturing sector would be integrated like in other developed countries with small labor productivity and wage differentials between firms of different size groups. This was, however, not to be.

Kazuo Sato (1995) has produced graphs plotting annual differentials in average monthly cash earnings between small and large firms, as well as the ratio of employment in small and large firms over the four decades between 1950 and 1990. These graphs are reproduced in Figures 1 and 2.<sup>19</sup> It would appear that the narrowing of the wage differential between small and large firms took place in the period 1955-65. After 1965 the ratio stabilized, and subsequently had a significant downward trend in the period after the first oil crisis. The wage relative for small firms, however, never went down to the level of the fifties.

Another interesting point emerging from looking at the two graphs together is that the narrowing of the differential coincided with the period in which the share of the large firms (of 300 or more workers) was increasing. This share reached its peak in 1970. Subsequently as the share fell so did the relative wage of small firms. This striking relationship seems to suggest that the factor behind the narrowing of the small-large wage difference was the relatively stronger expansion of employment in the larger firms,

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<sup>19</sup>The original sources are Sato, Figures 3A and 3B, pp 14-15.

which most likely increased the upward mobility of workers from small to large firms. It is this mechanism which provided an upward pressure on the relative wage levels of small firms rather than the tightening of the over-all labor market.

Turning to the widening of the small-large differential after 1970, a relevant point to note is the slowdown in the growth of employment in the manufacturing sector of Japan as a whole in the seventies and the eighties. This slowdown was not due to a stagnation of manufacturing output. Rather it was due to a development in the labor market in which the power of “insiders” became more important, and Japanese labor in this sector took more of the share of the increase in output in the form of real wage increase rather than net increase in employment. The rates of growth (per annum) of the relevant variables in manufacturing for the two decades were as follows:<sup>20</sup>

<u>Period</u>	<u>Real Value Added</u>	<u>Employment</u>	<u>Real Average Earnings</u>
1971-80	4.44	-0.99	2.58
1981-90	5.88	0.56	2.00

Although output growth was strong employment stagnated. Thus labor productivity increased at a substantial rate some of which was translated into real wage growth.<sup>21</sup> The productivity growth might have narrowed the small-large differential if it had been concentrated on smaller firms, enabling them to come up to the higher productivity levels of larger firms. But in fact the pattern of development was the opposite. Productivity growth was less than the average in smaller firms. This explains both the somewhat increasing share of smaller firms in employment over this period and an widening of the small-large wage differential.

We conclude: although conditions of ‘surplus labor’ in the economy and the need for internal skill formation in the new manufacturing industry might explain the emergence of ‘industrial dualism’ in Japan, its continued existence and indeed exacerbation since

<sup>20</sup>The figures are calculated from the UNIDO time-series for manufacturing available in the World Bank data set STARS. Cf. Mazumdar 1997.

<sup>21</sup>It should not be concluded that since real wage growth rate was much lower than real labor productivity growth there was necessarily a large increase in the share of profits. Some of the productivity growth was “lost” because of a movement of internal terms of trade with consumer prices increasing relative to producer prices in both periods. See Mazumdar 1997.

the seventies cannot be accounted for by these factors. We need to consider possible explanatory hypotheses emanating from sources other than the labor market.

*Dualism in Capital and Product Markets.*

We might get a clue to the other factors supporting dualism if we search for the causes of differences in labor productivity between small and large enterprises. In Japanese manufacturing labor productivity increases with scale-- in fact faster than wages per worker. This is because capital intensity increases strongly with size (Shinohara 1969, table 8, p. 325). The pattern of the behavior of the economic ratios is consistent with the line of causation running from higher capital-labor ratio in large firms to higher labor productivity and higher wages per worker, as the more capital-intensive firms have more rent or "surplus" to share with their permanent labor force. Such a situation might arise if there are strong segmentation in capital and product markets such that larger firms have better access to capital, are able to obtain credit at cheaper rates, and also are able to obtain a higher margin for their products in so far as they operate in less competitive or oligopolistic markets. In his study Shinohara concluded that each market (labor, product and capital) was indispensable to a full understanding of the dualistic aspect of the Japanese economy, but that the segmentation of the capital market played the most crucial role (*ibid*, chapter 8). Data from a 1957 survey on the distribution of loans made by major financial units showed an extraordinary high degree of concentration by firm size, while other data revealed that while small-scale enterprises with less than 2 billion yen paid-up capital paid an interest of 17 per cent, large enterprises (with more than 100 billion capital) borrowed funds at 11 per cent (Japan 1961, pp.38-41).

Capital market segmentation favoring the large scale industrial firms was, in Japanese economic history, helped and strengthened by government policy. When the state took the lead in promoting industrialization with imported technology, large scale operations were often necessitated by this technology-- a pattern reinforced by Japan's desire to establish a basic industrial structure in a very short time, starting from scratch. A powerful group of private entrepreneurs who would develop a modern western-style industry was put in place, partly by government's setting up factories and subsequently

selling them off to private industrialists and, especially by subsidization of the large scale private industry through government contracts, protection from foreign competition and the creation of financial institutions to help these firms. These policies helped to create the powerful industrial families, the *zaibatsu*. The close relationship which emerged between the state, financial institutions and industry was instrumental in favoring the large conglomerates. Between 1910 and 1940, as Japan moved strongly into heavy industry, the *zaibatsu* increased their strength in the financial-industrial tie up. After the second World War, the Allied Occupation led to an attempt to break up the *zaibatsu*, but its effect seems to have been short-lived. Government policies in Japan were never averse to subsequent mergers. In fact, there seems to have been an undercurrent of belief in the superiority of the large diversified companies, expecting them to be more successful in international competition. After the War the importance of bank credit in industrial finance increased enormously. Since individual *zaibatsu* banks retained close links with many companies previously controlled by the *zaibatsu* holding companies, there was increasing concentration of financial and industrial power.

#### *Other factors causing industrial dualism*

In spite of these powerful forces favoring large firms, Japanese small-medium enterprises continue to provide employment to a large proportion of the manufacturing workforce, and account for a substantial proportion of value added in the sector. The explanation lies partly in the persistence of labor market dualism which enables SMEs to have the advantage of lower wage levels. But it also involves the other two central aspects of Japan's industrial landscape: the prevalence of traditional patterns of consumer demand, and the importance of subcontracting.

(i) It has already been mentioned in Section I that the continued prevalence of traditional patterns of consumer demand in Japan is thought to have provided some sheltered markets for small enterprises. Japan had been slow in developing markets for standardization of goods of mass consumption, and the demand for traditional consumer products remains strong to this day. Such markets for varied goods are best served by small units catering to narrow and specialized markets. In more recent years new

technology such as microelectronics and biochemistry has given a strong impetus to small enterprise development. The very nature of the new technology allowed entrepreneurs to establish their own businesses with small amounts of capital. “In addition, the supply of capital became more abundant after the oil crisis due to decreased economic growth, so that small businesses which had once suffered from serious capital shortage had easier access to the necessary financial resources.” (Koshiro, p.199).

(ii) The second important feature of the Japanese industrial system favoring the co-existence of small and large units is the long established system of subcontracting. The *ton-ya* or wholesale house system of subcontracting had a history before the coming of the modern age in Japan. Large-scale merchant houses had extensive networks of cottage enterprises to which orders were ‘put out’. Kaneda (1980, p.41), citing Fujita’s study of small and medium enterprises, has suggested that from the 1930s a qualitatively different system of subcontracting emerged in industries with low capital requirement. Many small subcontracting enterprises emerged under the domination and tutelage of the purchasing departments of large industrial firms. Subcontracting provided the latter with flexibility in the face of fluctuating demand, access to household savings and entrepreneurial skills, and lower labor costs. The need to pass demand fluctuations (greater in international than in domestic markets) on to subcontractors, rather than expanding their own workforce was especially important to large Japanese firms who had developed the system of lifetime employment and therefore did not have the option of laying off workers when demand was low.

In the Japanese literature of the pre Second World War period the dominant view of subcontracting was heavily influenced by Marxist critique of an exploitative relationship between the large and small producers in which the latter came out with a severe disadvantage. But even within this school of economists there seems to have been a difference in perception between two groups. Both groups stressed the backwardness of Japanese manufacturing as stemming in part from the subordinate relationship of the subcontractors to the large firms, and the exploitation of the former by the latter. But while the pessimistic school believed that the exploitative relationship which had developed under the militaristic expansion of industry would continue into

the future, with little opportunity for technological catch-up on the part of the small businesses, there was a forward-looking view which anticipated a more “equivalent exchange” between parent firms and subcontractors. (see, for example, the discussion in Koshiro, p.202). The developments in the last two or three decades have seen the progress of Japanese manufacturing towards a system which conforms more closely to the optimistic view. With advanced technology spreading rapidly, the quality of subcontractors’ output became increasingly important, along with their costs. Accordingly, large primary enterprises came increasingly to monitor and upgrade the quality of subcontractors as well as select them carefully (Kaneda 1980, p.43). This type of *keiretsu* or ‘vertical inter-firm hierarchy’ spread rapidly in the fast growing industries like machinery, automobile, metal working and electrical appliance industries. A 1981 survey conducted by the Central Bank for the Ministry of Commerce and Industry revealed that 51.5 per cent of the more than 1500 subcontracting firms surveyed claimed that their technological was equal to or even superior to their parent companies (Koshiro, p.202). The traditional subordination of the subcontractors faded away over a large area of the SME sector with this increasing technological independence. In matters of pricing, negotiated rates for the products supplied by the subcontractors increasingly replaced the old system of dictated rates.

Subcontracting dominated the small-scale sector but did not constitute the entire universe of such enterprises. The official Agency of SMEs classified enterprises by the proportion of subcontracted sales in their total shipments to a single parent firm. If this proportion exceeded 80 per cent the enterprise in question was called a “totally subcontracted” firms. According to the Agency’s survey of 1981, 54 per cent of SMEs were this type of “totally subcontracted” enterprise; another 11.5 per cent were only partly subcontracted ; and the remaining 34.5 per cent were independent units. But the proportion of “totally subcontracted” firms was much more- in the 70-80 percentage range-- in particular branches of manufacturing like textiles and various machinery industries (Koshiro, table 7, p.183).

*Government policies towards the small-scale.*

It has been mentioned earlier in the discussion that government policies in Japan had been biased towards the creation of large conglomerates leading to the creation of financial-industrial tie-ups like the *zaibatsu*. But along side these policies biased to the large-scale sector existed policies that provided assistance to the SMEs. Before the Second World War most important of the latter were government assistance in directing SMEs to successful export performance. During the First World War the temporary stoppage of European exports to Asian countries not only gave a protection to Japan's industries in her domestic market, but also enabled Japan to invade the markets left open in other countries. While cotton textiles were chiefly the preserve of large enterprises, a whole range of light consumer goods began to be exported from a mushroom growth of small and medium undertakings. At that time, the government played an important role in instituting quality control to prevent the export of 'defective' articles which threatened to bring disrepute to Japanese manufactures. This it did partly through the encouragement of trade associations, and in some cases through direct use of its own inspectors who would not allow export of goods without a label of approval (Uyeda, p.15). At the end of the War the resumption of European exports brought keen competition in the developing markets. Japanese SMEs along with the rest of Japanese industry was required to be much more efficient as barriers to export appeared increasingly on the scene. The government went further than before the war in measures to enforce quality control. A new law of trade associations called *Kogyo Kumiai*, was passed in 1925 by which associations empowered to act as an organ of CO-operative production. The law provided that small masters engaged in the same branch of industry in a locality should combine in an association with the consent of the majority, and the association would be enabled to control production and prices much like oligopolistic cartels. They had the authority to allot quotas to individual members. In cases where the same industry was carried on in more than one locality, manufacturers were to form national cartels to be exercise more effective control. Outsiders, if and when they appeared, were to conform to the decisions reached by the associations.

These government sponsored associations prevented 'overproduction' and achieved quality control in an environment which was very restrictive to export expansion. In addition, some of them achieved systems of processing and marketing which allowed

individual producers to reap the benefits of large scale operation at particular stages of production (Uyeda, pp.17-18, note particularly the example of weavers' association in Osaka).

After the Second World War Japan has developed measures of support for SMEs in a wide variety of spheres. The largest proportion of government measures to help small enterprises has been in the realm of finance-- a clear attempt to redress the imbalance produced by capital market segmentation. The Agency of SMEs under the Ministry of International Trade provides a wide range of such measures. The Law to Promote Modernization of SMEs was enacted in March 1963. It designated 185 trades and industries as the target of modernization, 72 of which were object of emergency measures. Quite a few of the designated industries were such traditional industries as soy-sauce brewing, sake brewing, small printing shops etc. Two special government banks provide low interest long term loans to facilitate modernization. When a group of SMEs in the designated industries or trades applies for financial aid to modernize their production process, a special loan for 'structural reform' is available through the SME Financing Bank or the National Financing Bank.

The government also established in 1980 the SME Undertaking which has special judicial status and is intended to provide modernization of SMEs. The Undertaking helps to develop land for groups of SMEs, integrate SMEs into co-operative unions, construct joint warehouses, and modernize shopping centers etc. in cooperation with prefecture governments.

Loans to small businesses are provided by three government banks. There have also been policies to set up or strengthen financial institutions which cater to the particular needs of SMEs. Finally, SME Investment Promotion Commissions were established in three large cities to help SMEs with capital as well as managerial and technological consulting services. The qualifications for receiving aid from these companies include operating some designated trades, having plans to modernize or rationalize equipment, or being venture firms with unique technologies or products.

Japan also treats SMEs favorably under their taxation laws. The rate of taxation on the income of small companies is quite a bit less than the rate imposed on corporations. There are also provisions for more favorable treatment of deductions related to such items as depreciation, expenditure on R&D, inheritance of business etc.

*Changes in the relative importance and productivity of SMEs over time.*

Table 6 gives the percentage distribution of employment in different size-groups of manufacturing enterprises at three selected dates over the last forty years, and Table 7 presents data on relative labor productivity (value added per worker) by size group for these dates.

**TABLE 6. Percentage Distribution of Employment in Manufacturing by Size-groups of enterprises, Japan , selected years.**

<b>Size - Groups</b>	<b>1955</b>	<b>1983</b>	<b>1994</b>
4-9	11.1	14.6	12.0
10-29	23.9	20.8	20.0
30-99	20.7	20.3	21.2
100-299	14.3	16.6	18.3
300-999	13.7	13.8	14.9
1000 & over	16.2	14.0	13.7
<b>TOTAL(*000)</b>	<b>4957</b>	<b>10,650</b>	<b>10,416</b>

Source: 1955 : Broadbridge Table 16, p.56. The original source is *Small Enterprises White Paper*, Government of Japan 1964.

1983, 1994: *Japan Statistical Yearbook*, various years.

**TABLE 7. Relative Labor Productivity (Value Added per worker) by Size-groups in Manufacturing, Japan, selected years. (1000 & more = 100)**

<b>Size-groups</b>	<b>1955</b>	<b>1983</b>	<b>1994</b>
4-9	28	31	32
10-29	34	40	40
30-99	47	47	48
100-299	67	61	65
300-999	91	83	88
1000 & more	100	100	100

*Source: Same as in Table VI.!*

Considering the length of the period for which the data have been presented, the change in size distribution is remarkably small. Small enterprises are as important a part of the industrial scene in 1994 as they were four decades ago. This phenomenon is of major interest. Japanese industry has faced increasing competitive pressures since the oil crisis from factors ranging from the higher cost of energy to the appreciation of the yen and the growth of other industrial countries in Asia. The fact that the response of Japanese manufacturing to these pressures has been the strengthening of the small scale secure speaks eloquently of the dynamic and progressive nature of this sector.

After having made this point one must recognize that the problems of the industrial structure in Japan suggested by the figures of relative productivity by size-groups of firms given in Table 7. It is seen that there has been little improvement in the relative productivity of small firms and 'industrial dualism' is as dominant a characteristic of Japanese industry as it ever was. While the smallest size classes under 30 employees might have had a slight increase of relative productivity vis-à-vis the largest enterprises of 1000 plus workers-- of the order of 15 per cent or so-- the relative productivity of small-medium enterprises in the size groups of 30 and above have remained unchanged at the end of this period. In terms of the discussion in this paper the problems of allocative inefficiency and unequal distribution of wage earnings in Japanese manufacturing remain serious.

## ***V. Conclusions.***

This paper has sought to compare the size distribution of enterprises in the ‘formal’ or non-household manufacturing sector of selected Asian countries with a view to establishing some pattern of differences and the factors causing such differences. The basic variable for the study of the relative importance of firms of different sizes is the proportion of net output or value added contributed by the various size-groups. But it is better to break down this variable into its two components-- the proportion of employment in firms of different size-groups and the difference in the levels of labor productivity as between these groups of firms. The latter variable is of interest in itself as showing the degree of economic distance between small, medium and large firms.

From the point of view of economic welfare, a relatively small differential in productivity between small and large firms, and a normal distribution of employment by size group with a pronounced plateau, would be the most desirable. It will imply both a limited loss of efficiency due to difference in marginal products of factors in different sizes of firms, *and* a more equitable distribution of wage earnings. Economic welfare is reduced both in terms of efficiency and equity, the larger is the size-related gap in labor productivity, and the more removed is the employment distribution from the normal one-- whether skewed to large firms, or bi-polar with concentrations in both very small and very large firms with a ‘missing middle’.

The paper started in Section I with a conceptual discussion of various factors affecting the pattern of employment distribution and the small-large difference in labor productivity. Segmentation of factor markets, product market differentiation, different levels of transaction costs and the significant role of government policies were discussed. It was pointed out that there is considerable theoretical and empirical evidence to suggest that segmentation in the capital market rather than in the labor market is more fundamental in affecting the economics of small and large firms.

In the next three sections we seek to identify differences between country patterns in size distribution and productivity differentials by scale for selected Asian countries. The

theoretical discussion of section I is used to interpret significant factors underlying these differences. It is, of course, not possible to identify quantitatively the relative importance of the various factors accounting for these differences, but it is hoped the discussion brings to light significant variables which has shaped the size structure of manufacturing enterprises in these economies.

Hong Kong and Taiwan represent an extreme pattern in our small sample-- and also the most desirable one from an economic welfare angle-- in which employment is distributed fairly evenly among the several size groups ranging from the very small to the very large, and the labor productivity differential as between the size groups is small. The ratio of the value added per worker between the largest and the smallest size group is of the order of 2:1. The case of Hong Kong is particularly interesting because it seems to have been largely free of government policies affecting the industrial structure, and it has been a key player in the industrial growth of East Asia in the post World War II years.

The Japanese manufacturing structure has, by contrast, been characterised by 'industrial dualism'. Along with a strong presence of small firms, a substantial role is played by large firms; and secondly, the economic distance between small and large firms is substantial. The ratio of value added per worker between large and small firms is of the order of 3:1 rather than the Hong Kong case of 2:1. The Indian structure could also be called 'dualistic' like the Japanese one, but it is wildly exaggerated in the Indian case. The large-small productivity differential is 8:1, and the size distribution is bi-polar with large proportions of employment in the smallest and the largest size-groups, with a conspicuous "missing middle". Government policies of protection to the small from competition from the large, and protection to the large from foreign competition, together with unintentional discouragement of vertical mobility, have been an important factor producing this result. Indonesia and the Philippines share the Indian characteristic, but to a smaller degree. Historical Japan, and the other three countries mentioned share the experience of modern industry developing in an economy characterised by surplus labor in agriculture. We could propose a generalization that 'industrial dualism' is endemic in such an economy in which surplus labor keeps wages

in small enterprises low, and the capital market segmentation generated by the modern financial-industrial complex induces high capital intensity, labor productivity and wages in the large-scale sector. Government policies such as in India exacerbate this type of dualism. It might be expected that with the disappearance of 'surplus labor' conditions in the economy, we would see a substantial narrowing of scale related wage differentials and hence differences in capital intensity and labor productivity. But the discussion of the evolution of Japanese scale differences in section IV showed, that while Japan threatened to confirm this expectation in the decade between 1955 and 1965, scale differentials were soon restored to their former levels and 'dualism' continues to exist, in much the same degree, to this day. Evidently changes emanating from the supply side of the labor market were overshadowed by other factors mentioned in section I.

The important difference between Taiwan and Korea, and their changes over time, reviewed in Section III, throw interesting light on some factors influencing the size distribution of employment and the productivity differences by scale of firms. The evolution of Korean manufacturing up until the mid-seventies with an increasing importance of large-scale firms, contrary to the Taiwanese pattern of growing importance of smaller firms, has been explained in terms of the different levels of 'transaction costs' in the two economies. But Korea started on a spectacular reversal of the trend after 1975, and the shift to smaller scale firms accelerated from the mid-eighties. By 1993 the Korean size distribution was very near to the Taiwanese. Government policies of support for the small scale, as a response to the rising wage costs in the economy, seems to have been a major factor in this reversal. The experience underlies the profound influence government policies-- particularly related to financial, fiscal and trade incentives--have on the size structure of manufacturing. Examples of this impact are found in different ways in most of the countries reviewed in this comparative study.

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